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 March 31, 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 May 5, 2017, 71,939,193 shares of the issuer's common stock, par value $0.01 per share, were outstanding.

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SANGAMO THERAPEUTICS, INC.

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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 Form 10-Q. Sangamo undertakes no obligation to publicly release any revisions to forward-looking statements to reflect events or circumstances arising after the date of this report. Readers are cautioned not to place undue reliance on the forward-looking statements, which speak only as of the date of this Quarterly Report on Form 10-Q.

PART I. FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

SANGAMO THERAPEUTICS, INC.

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

	March 31, 2017	December 31, 2016
ASSETS		
Current assets:		
Cash and cash equivalents	$ 18,486	$ 22,061
Marketable securities	110,780	120,474
Interest receivable	398	224
Accounts receivable	2,401	4,972
Prepaid expenses	1,709	1,849
Total current assets	133,774	149,580
Marketable securities, non-current	2,995	—
Property and equipment, net	7,267	6,557
Goodwill	1,585	1,585
Other assets	1,189	169
Total assets	$ 146,810	$ 157,891
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable and accrued liabilities	$ 7,425	$ 6,261
Accrued compensation and employee benefits	2,039	2,885
Deferred revenues	3,600	4,145
Total current liabilities	13,064	13,291
Deferred revenues, non-current	4,135	4,460
Build-to-suit lease obligation	3,928	3,945
Total liabilities	21,127	21,696
Commitments and contingencies		
Stockholders' equity:		
Common stock, $0.01 par value; 160,000,000 shares authorized, 71,752,413 and 70,871,902 shares issued and outstanding at March 31, 2017 and December 31, 2016, respectively	718	709
Additional paid-in capital	582,600	576,377
Accumulated deficit	(457,543)	(440,911)
Accumulated other comprehensive (loss) income	(92)	20
Total stockholders' equity	125,683	136,195
Total liabilities and stockholders' equity	$ 146,810	$ 157,891

See accompanying notes.

SANGAMO THERAPEUTICS, INC.

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

	Three months ended March 31,	
	2017	**2016**
Revenues:		
Collaboration agreements	$ 3,306	$ 3,711
Research grants	119	231
Total revenues	3,425	3,942
Operating expenses:		
Research and development	12,942	15,266
General and administrative	7,275	5,357
Total operating expenses	20,217	20,623
Loss from operations	(16,792)	(16,681)
Interest and other income, net	160	187
Net loss	$ (16,632)	$ (16,494)
Basic and diluted net loss per share	$ (0.23)	$ (0.23)
Shares used in computing basic and diluted net loss per share	71,025	70,373

See accompanying notes.

SANGAMO THERAPEUTICS, INC.

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

	Three months ended March 31,	
	2017	2016
Net loss	$ (16,632)	$ (16,494)
Change in unrealized gain (loss) on available-for-sale securities, net of tax	(112)	83
Comprehensive loss	$ (16,744)	$ (16,411)

See accompanying notes.

SANGAMO THERAPEUTICS, INC.

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

	Three months ended March 31,	
	2017	**2016**
Operating Activities:		
Net loss	$ (16,632)	$ (16,494)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	301	245
Amortization of premium on marketable securities	60	72
Stock-based compensation	2,788	3,194
Other	72	—
Net changes in operating assets and liabilities:		
Interest receivable	(174)	(95)
Accounts receivable	2,571	(46)
Prepaid expenses and other assets	70	172
Accounts payable and accrued liabilities	(418)	(5,158)
Accrued compensation and employee benefits	(846)	(1,026)
Deferred revenues	(870)	(1,224)
Net cash used in operating activities	(13,078)	(20,360)
Investing Activities:		
Purchases of marketable securities	(38,973)	(84,816)
Maturities of marketable securities	45,500	68,770
Purchases of property and equipment	(468)	(252)
Net cash provided by / (used in) investing activities	6,059	(16,298)
Financing Activities:		
Proceeds from public offering of common stock, net of issuance costs	3,425	—
Taxes paid related to net share settlement of equity awards	(4)	(2)
Proceeds from issuance of common stock	23	187
Net cash provided by financing activities	3,444	185
Net decrease in cash and cash equivalents	(3,575)	(36,473)
Cash and cash equivalents, beginning of period	22,061	69,482
Cash and cash equivalents, end of period	$ 18,486	$ 33,009
Supplemental disclosure of noncash investing activities:		
Property and equipment included in accrued liabilities	$ 536	$ 253
License included in accrued liabilities	$ 950	$ —

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 months ended March 31, 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 Form 10-K for the year ended December 31, 2016, 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 Sangamo's Form 10-K, as filed with the SEC.

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 entered into with Shire International GmbH, formerly Shire AG ("Shire"), in January 2012 and Bioverativ, formerly Biogen Idec Inc. ("Bioverativ") in January 2014, as amended, were evaluated under these amended accounting standards.

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 FASB issued ASU No. 2016-09, "*Compensation – Stock Compensation* (Topic 718)." This update 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, 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, 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. During the quarter ended March 31, 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 a modified retrospective 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 (ASU 2016-02) "*Leases*." 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. We are evaluating the impact of the adoption of this standard on our consolidated financial statements, and expect our operating lease commitments will be subject to the new standard and recognized as a right-of-use assets and operating lease liabilities upon adoption, which will increase our 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). 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 determined the collaboration with Bioverativ is in scope. Sangamo assessed the various components of the collaboration under ASC 2014-09 including the upfront license payment, milestones, and research and development services. At this time Sangamo believes there would be no significant impact to its consolidated financial statements 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):

	March 31, 2017 Fair Value Measurements			
	Total	Level 1	Level 2	Level 3
Assets:				
Cash equivalents:				
Money market funds	$ 10,632	$ 10,632	$ —	$ —
Total	10,632	10,632	—	—
Marketable securities:				
Commercial paper securities	24,394	—	24,394	—
Corporate debt securities	6,001	—	6,001	—
U.S. government sponsored entity debt securities	83,380	—	83,380	—
Total	113,775	—	113,775	—
Total cash equivalents and marketable securities	$ 124,407	$ 10,632	$ 113,775	$ —

	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

Sangamo classifies its marketable securities as available-for-sale and records its investments at estimated fair value based on quoted market prices or observable market inputs of 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
March 31, 2017				
Cash equivalents:				
Money market funds	$ 10,632	$ —	$ —	$ 10,632
Total	10,632	—	—	10,632
Available-for-sale securities:				
Commercial paper securities	24,397	1	(4)	24,394
Corporate debt securities	6,001	—	—	6,001
U.S. government sponsored entity debt securities	83,439	—	(59)	83,380
Total	113,837	1	(63)	113,775
Total cash equivalents and available-for-sale securities	$ 124,469	$ 1	$ (63)	$ 124,407
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 other-than-temporary impairments of its investments for the three months ended March 31, 2017 or the twelve months ended December 31, 2016. As of March 31, 2017 and December 31, 2016, all of the Company's investments had maturity dates within two years. The Company had no material realized losses or other-than-temporary impairments of available-for-sale securities as of the three months ended March 31, 2017. Sangamo 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 the 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 for the three months ended March 31, 2017 and 2016 were 10,620,257 and 8,880,007, respectively.

NOTE 5—MAJOR CUSTOMERS, PARTNERSHIPS AND STRATEGIC ALLIANCES

Collaboration Agreements

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, Inc., and in January 2017 this agreement has been assigned by Biogen to its hemophilia spin-off, Bioverativ (the "Bioverativ Agreement"). 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 ZFP Therapeutics 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 product 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. In addition, Sangamo is eligible to receive contingent payments upon the achievement of specified regulatory, clinical development, commercialization and sales milestones. The total amount of potential regulatory, clinical development, commercialization and sales contingent payments, assuming the achievement of all specified milestone events in the Bioverativ Agreement, is $276.3 million, 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. Sangamo also updated the milestones to be received based on the updated performance period of our 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 grants 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 also grants Bioverativ a non-exclusive, world-wide, royalty free, fully paid license, with the right to grant sublicenses, of 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 our current assumptions regarding the timing of our deliverables. As of March 31, 2017, the Company has deferred revenue of $6.0 million related to the Bioverativ Agreement.

Revenues recognized under the agreement with Bioverativ for the three months ended March 31, 2017 and 2016 were as follows (in thousands):

	Three months ended March 31,	
	2017	2016
Revenue related to Bioverativ Collaboration:		
Recognition of upfront fee	$ 442	$ 608
Research services	1,709	2,031
Total	$ 2,151	$ 2,639

Costs and expenses incurred under the Bioverativ Agreement related to the beta-thalassemia project, which was co-funded with California Institute for Regenerative Medicine (CIRM), were $1.6 million and $2.0 million during the three months ended March 31, 2017 and 2016, respectively.

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

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 Sangamo'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 human therapeutic or diagnostic products for 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 will be used for treating or diagnosing hemophilia A and B. In June 2012, Shire selected a fifth gene target for the development of a therapeutic for Huntington's disease. Shire had the right, subject to certain limitations, to designate two additional gene targets. 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 retains 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 will reimburse the other for any ongoing services provided. Sangamo has granted Shire a right of first negotiation to license Sangamo's hemophilia A and B products 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 us, 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. Sangamo continues to be responsible for research activities related to the licensed technology with Shire under the amendment. As a result, the Company will continue to recognize revenue from the upfront payment received upon entering into the original Shire agreement in 2012 on a straight-line basis over the six-year initial research term during which the Company expects to perform research services. As of March 31, 2017, the Company has deferred revenue of $1.8 million related to the Shire Agreement, as amended.

Revenues recognized under the agreement with Shire for the three months ended March 31, 2017 and 2016 were as follows (in thousands):

	Three months ended March 31,	
	2017	2016
Revenue related to Shire Collaboration:		
Recognition of upfront fee	$ 583	$ 542
Research services	107	429
Total	$ 690	$ 971

Related costs and expenses incurred under the Shire agreement were $0.1 million and $0.4 million during the three months ended March 31, 2017 and 2016.

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-Aldrich Corporation ("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 Dow AgroSciences LLC (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 pharmaceuticals and certain ZFP-engineered transgenic animals for commercial applications. Under the terms of the 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 and thereafter 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 months ended March 31, 2017 and 2016 were as follows (in thousands):

	Three months ended March 31,	
	2017	2016
Revenue related to Sigma Collaboration:		
Royalty revenues	$ 32	$ 12
License fee revenues	267	7
Total	$ 299	$ 19

Related costs and expenses incurred under the Sigma agreement were $0.0 million during both the three months ended March 31, 2017 and 2016, respectively.

Agreement with Dow AgroSciences in Plant Agriculture

In October 2005 the Company entered into an exclusive commercial license agreement with Dow AgroSciences, LLC (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 11 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.

There were no revenues recognized or costs and expenses incurred under this agreement during the three months ended March 31, 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 months ended either March 31, 2017 or 2016. Related costs and expenses incurred under the CIRM Strategic Partnership Award were $0.2 million and $0.3 million during the three months ended March 31, 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 months ended March 31, 2017 and 2016 (in thousands):

	Three months ended March 31,	
	2017	2016
Research and development	$ 1,218	$ 1,850
General and administrative	1,570	1,344
Total stock-based compensation expense	$ 2,788	$ 3,194

Included in the above stock-based compensation table for the three months ended March 31, 2017 is $0.8 million related to a modification of options for the Chief Financial Officer who retired during the quarter.

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 March 31, 2017, $3.9 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—AT THE MARKET OFFERING

On December 7, 2016, the Company entered into an "at the market" offering agreement with an investment bank, pursuant to which the Company may issue and sell from time to time up to $75.0 million of Sangamo common stock through the bank as the sales agent ("ATM Agreement"). Under the ATM Agreement, if the Company 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 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 our common stock in negotiated transactions. For the three months ended March 31, 2017, Sangamo issued at total of 871,149 shares of common stock under the ATM agreement and received net proceeds of $3.4 million, after deducting offering expenses, including $0.1 million of commission paid to the sales agent.

NOTE 10—SUBSEQUENT EVENT

On May 10, 2017, Sangamo entered into a Collaboration and License Agreement (the "Pfizer Agreement") with Pfizer Inc. ("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 will receive an upfront fee of $70.0 million from Pfizer. In addition, Sangamo is 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 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 agrees 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.

Subject to the terms of the Pfizer Agreement, Sangamo will grant 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 will grant 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.

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 the actual results, performance or achievements of the Company, or industry results, to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements. 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 annual report on Form 10-K for the year ended December 31, 2015 as filed with the SEC.

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 (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 genetically diverse diseases. 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 ZFP nucleases (ZFNs), proteins that can be used to specifically modify DNA sequences by adding or knocking out specific genes (genome editing), and ZFP transcription factors (ZFP TFs), proteins that can be used to turn genes on or off (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 a 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 (MPS I) and Mucopolysaccharidosis II (MPS II), rare lysosomal storage disorders (LSD). We also are planning to initiate 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., a spin-out company from Biogen, Inc., to research, develop and commercialize therapeutic genome editing products in hemoglobinopathies, including sickle cell disease (SCD) and beta-thalassemia. We also have a collaborative partnership with Shire International GmbH, formerly Shire AG (Shire), to research, develop and commercialize our preclinical development program in Huntington's disease.

On May 10, 2017, we entered into a Collaboration and License Agreement (the "Pfizer Agreement") with Pfizer Inc. ("Pfizer"), pursuant to which we 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, 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 ("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 for the treatment of HIV/AIDS. We have determined that HIV/AIDS is not a primary strategic focus for Sangamo, 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 (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 (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 February 7, 2017, we either owned outright or have exclusively licensed the commercial rights to approximately 791 patents issued in the United States and foreign national jurisdictions, and we had 650 patent applications owned and licensed 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 Gene Therapy, Genome Editing, Cell Therapy and Gene Regulation 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 and less on our non-therapeutic applications. 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. We believe that there have been no significant changes in our critical accounting policies and estimates disclosed in our Annual Report on Form 10-K for the year ended December 31, 2016, as filed with the SEC.

Results of Operations

Three months ended March 31, 2017 and 2016

Revenues

	Three months ended March 31, (in thousands, except percentage values)			
	2017	2016	Change	%
Revenues:				
Collaboration agreements	$ 3,306	$ 3,711	$ (405)	(11%)
Research Grants	119	231	(112)	(48%)
Total revenues	$ 3,425	$ 3,942	$ (517)	(13%)

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 Bioverativ, DAS and Sigma.

Revenues from our corporate collaboration agreements were $3.3 million for the three months ended March 31, 2017, compared to $3.7 million in the corresponding period in 2016. The $0.4 million decrease in collaboration agreements revenues was primarily due to a decrease of $0.4 million in revenues related to the amendment of our collaboration and license agreement with Bioverativ and a $0.3 million decrease in revenues related to our collaboration and license agreement with Shire, primarily offset by a $0.3 million increase in Sigma revenue. The revenues from Bioverativ included $1.7 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 $0.1 million from research services and $0.6 million related to partial recognition of an upfront license fee of $13.0 million. Research grant revenues were approximately $0.1 million for the three months ended March 31, 2017, compared to $0.2 million in the corresponding period in 2016.

Operating Expenses

	Three months ended March 31, (in thousands, except percentage values)			
	2017	2016	Change	%
Operating expenses:				
Research and development	$ 12,942	$ 15,266	$ (2,324)	(15%)
General and administrative	7,275	5,357	1,918	36%
Total expenses	$ 20,217	$ 20,623	$ (406)	(2%)

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 $12.9 million for the three months ended March 31, 2017, compared to $15.3 million in the corresponding period in 2016. The decrease of $2.3 million in research and development expenses was primarily due to decreases of $2.9 million in manufacturing and research expenses, $0.6 million in stock-based compensation expense, and $0.6 million in lab supply expenses, partially offset by an increase of $1.0 million in salaries and benefits and $0.8 million in clinical trial expense.

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 the business aspects of the Company 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 $7.3 million for the three months ended March 31, 2017, compared to $5.4 million for the corresponding period in 2016. The increase of $1.9 million in general and administrative expenses was primarily due to increases of $0.8 million in salaries and benefits, $0.8 million in legal expense, and $0.2 million in stock-based compensation 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 March 31, 2017, we had cash, cash equivalents, marketable securities and interest receivable totaling $132.7 million compared to $142.8 million as of December 31, 2016, with the decrease primarily attributable to our net operating loss.

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.

Under our agreement with Bioverativ, we received an upfront license fee of $20.0 million in 2014. Bioverativ reimburses us for agreed upon costs incurred in connection with research and development activities conducted by us. In addition, we are eligible to receive development milestone payments upon the achievement of specified regulatory, clinical development and commercialization milestones. We will also be eligible to receive incremental royalties for each licensed product that are a tiered double-digit percentage of annual net sales of such product, if any.

Under our agreement with Shire, we received an upfront license fee of $13.0 million in 2012. In addition, Shire agreed to reimburse us for agreed upon costs incurred in connection with research and development activities that we conducted and to pay us certain milestone payments based on our achievement of specified research, regulatory, clinical development, commercialization and sales milestones, which depended upon our ability with Shire to continue to progress our programs under collaboration. We were also eligible to receive royalty payments on net sales of products developed under the collaboration, if any. On September 1, 2015, we amended the Shire agreement such that going forward, each company is responsible for expenses associated with its own programs and will reimburse the other for any ongoing services provided. Under the amended agreement, Shire does not have any milestone payment obligations to us with respect to the retained programs, but it is required to pay single digit percentage royalties to us, up to a specified maximum cap, on the commercial sales of ZFP therapeutic products from such programs. Under the Agreement, we have full control over, and full responsibility for the costs of, the hemophilia programs returned to us, subject to certain diligence obligations and Shire's right of first negotiation to obtain a license to such programs under certain circumstances. We are required to pay single digit percentage royalties to Shire, up to a specified maximum cap, on commercial sales of ZFP therapeutic products from such returned programs.

On December 7, 2016, we entered into an "at the market" offering agreement with an investment bank, pursuant to which we may issue and sell from time to time up to $75.0 million of our common stock through the bank as the sales agent ("ATM Agreement"). Under the ATM Agreement, if we decide to sell shares, 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 by us. Sales of the 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 Market and any other trading market for the common stock, 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 our common stock in negotiated transactions. For the three months ended March 31, 2017, we issued a total of 871,149 shares of common stock under the ATM Agreement and received net proceeds of $3.4 million, after deducting offering expenses, including $0.1 million of commission paid to the sales agent.

On May 10, 2017, we entered into the Pfizer Agreement, pursuant to which we will receive 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 agrees 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 used in operating activities for the three months ended March 31, 2017 and 2016 was $13.1 million and $20.4 million, respectively. Net cash used in operating activities for the three months ended March 31, 2017 primarily reflected the increase in net loss for the period as well as a decrease in deferred revenue and accrued liabilities, partially offset by the increase in stock-based compensation. Net cash used in operating activities for the three months ended March 31, 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 provided by investing activities for the three months ended March 31, 2017 was $6.1 million, while cash used in investing activities was $16.3 million for the three months ended March 31, 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 three months ended March 31, 2017 and 2016 was $3.4 million and $0.2 million, respectively. Net cash provided by financing activities for the three month period ended March 31, 2017 was primarily related to the proceeds from the public offering of common stock, net of issuance costs in accordance with our ATM. Net cash provided by financing activities for the three month period ended March 31, 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 2017. 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 Bioverativ and Shire;
- 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.

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 March 31, 2017 have not changed materially from those discussed in Item 7A of our Form 10-K for the year ended December 31, 2016 on file with the SEC.

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 controls over financial reporting during our most recent fiscal quarter that has materially affected, or is reasonably likely to materially affect, our internal controls 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 our Annual Report on Form 10-K for the year ended December 31, 2016 (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. 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 Form 10-Q as well as our other publicly available filings with the Securities and Exchange Commission.

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 are currently conducting 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), and plan on initiating a Phase 1/2 clinical trial evaluating product candidate for the treatment of hemophilia A. We have previously announced that we expect to release data on these programs by the end of 2017 or early 2018. Our success and prospect depend substantially on the progress of these highly visible lead programs. Our failure to 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 (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 as we expected, 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 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 (RAC), which is the advisory board to the National Institutes of Health (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 Conference on Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use (ICH) and other applicable regulations;
- must meet requirements for Institutional Review Board (IRB) oversight;
- must follow Institutional Biosafety Committee (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 (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 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.

We may 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. 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 either initiated or are planning to conduct 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). We also have on-going Phase 2 trials to evaluate the safety and efficacy of SB-728 for HIV/AIDS. 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.

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.

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. For example, we 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.

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 (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. A 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.

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 March 31, 2017, we had an accumulated deficit of $457.5 million. Since our IPO in 2000, we have generated an

aggregate of approximately $331.4 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 dilutions 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, however, 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 agreement 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 agreement(s), 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.

During the three months ended March 31, 2017, the closing price of our common stock, as reported by the NASDAQ Global Select Market, ranged from a low of $3.10 to high of $5.20. During the fiscal year ended December 31, 2016, our common stock price

fluctuated, ranging from a low of $2.70 to a high of $4.74. Volatility in our common stock 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 Sangamo's 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.

Anti-takeover provisions in our certificate of incorporation and Delaware law could make an acquisition of the 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 5. OTHER INFORMATION

On May 10, 2017, we entered into a Collaboration and License Agreement (the "Pfizer Agreement") with 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 AAV-based gene therapy products for Hemophilia A. We and Pfizer agreed to form a joint steering committee and several subcommittees, each consisting of an equal number of representatives from us and Pfizer, to oversee the collaboration.

Under the Pfizer Agreement, we will receive 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 Pfizer Agreement, is up to $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 agrees to pay us royalties for each potential licensed product developed under the Agreement that are an escalating, 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.

Subject to the terms of the Pfizer Agreement, we will grant Pfizer an exclusive, worldwide, royalty-bearing license, with the right to grant sublicenses, to use certain technology controlled by us for the purpose of developing, manufacturing and commercializing SB-525 and related products. In addition, we will also grant Pfizer (i) a non-exclusive, worldwide, royalty free, fully paid license, with a limited right to grant sublicenses, under the licensed technology to conduct research on certain additional closely related Hemophilia A gene therapy product candidates that could be added to the collaboration; and (ii) a non-exclusive, worldwide, royalty free, fully paid license, with the right to grant sublicenses, under certain diagnostic technology controlled by us, to develop and commercialize companion diagnostics assays for the products. Under the Pfizer Agreement, Pfizer will grant us a non-exclusive, worldwide, royalty free, fully paid license, with the right to grant sublicenses, to use certain manufacturing technology developed under the collaboration and controlled by Pfizer to manufacture our products that utilize the AAV delivery system.

During a specified period, neither we nor Pfizer will be permitted to clinically develop or commercialize, outside of the collaboration, certain AAV-based gene therapy products for Hemophilia A.

The Pfizer Agreement may be terminated by (i) us or Pfizer for the uncured material breach of the other party, (ii) us or Pfizer for the bankruptcy or other insolvency proceeding of the other party; and (iii) Pfizer, in its entirety or on a product-by-product or country-by-country basis upon advance written notice to us.

The foregoing disclosure is a summary and qualified in its entirety by the Pfizer Agreement, a copy of which will be filed with the Securities and Exchange Commission as an exhibit to the Quarterly Report on Form 10-Q for the quarter ending June 30, 2017.

ITEM 6. EXHIBITS

(a) Exhibits:

3.1	Third Certificate of Amendment of the Seventh Amended and Restated Certificate of Incorporation of Sangamo BioSciences, Inc. (incorporated by reference to Exhibit 3.1 to the Company's Form 8-K filed on January 6, 2017).
10.1(+)	Employment Agreement between the Company and Kathy Yi, dated as of February 28, 2017.
10.2(+)	Employment Agreement between the Company and Edward Conner, dated as of November 1, 2016.
10.3(+)	Amendment to Amended and Restated Employment Agreement between the Company and H. Ward Wolff.
10.4(+)	Sangamo Therapeutics, Inc. Executive Severance Plan.
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

(+) Indicates management contract or compensatory plan or arrangement.

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: May 10, 2017

SANGAMO THERAPEUTICS, INC.

/s/ KATHY Y. YI

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

Exhibit 10.1

EMPLOYMENT AGREEMENT

Employment Agreement ("Agreement") made as of the 28th day of February, 2017 by and between Sangamo Therapeutics, Inc., a Delaware corporation (the "Company"), and Kathy Yi ("Executive").

R E C I T A L S

WHEREAS, the Company desires to employ Executive, and Executive desires to be employed by the Company, on the terms and conditions set forth in this Agreement.

NOW, THEREFORE, in consideration of the mutual promises set forth herein, the parties agree follows:

1. **Employment**.

The Company hereby agrees to employ Executive and Executive hereby agrees to accept such employment, on the terms and conditions set forth in this Agreement, with a start date of February 28, 2017 (the "Effective Date").

2. **Employment Period**.

This Agreement shall be effective for a period commencing as of the Effective Date and ending on the date this Agreement and Executive's employment hereunder are terminated by either party (such period, the "Employment Period"). This Agreement and Executive's employment may be terminated by either party upon thirty (30) days written notice to the other party. Upon such termination, Executive will be entitled to the severance benefits described herein.

3. **Position, Duties and Obligations**.

(a) Executive shall be appointed as the Company's Senior Vice President as of the Effective Date and as its Chief Financial Officer as of the day immediately following the date on which the Company files its Annual Report Form 10-K for the fiscal year ended December 31, 2016 with the US Securities and Exchange Commission. Executive shall serve in such positions and in such other positions as the Board may from time to time reasonably determine, subject at all times to the direction, supervision and authority of the Chief Executive Officer or such other officer as designated by the Chief Executive Officer.

(b) During the Employment Period, Executive shall perform her duties faithfully and to the best of her ability and shall devote substantially all of her business time, attention, knowledge, skills and interests to the business of the Company (and its subsidiaries).

(c) During the Employment Period, Executive shall not, whether directly or indirectly, render any services of a commercial or professional nature to any other person or organization, whether for compensation or otherwise, without the prior written consent of the Chief Executive Officer.

(d) The foregoing in this Section 1 shall not preclude Executive from serving on any corporate, civic or charitable boards or committees on which she is serving as of the Effective Date and discloses to the Chief Executive Officer prior to the Effective Date or on which she commences service following such date with the Chief Executive Officer's prior written approval, so long as such activities do not interfere with the performance of Executive's responsibilities hereunder.

(e) Executive's principal place of business will be located in Richmond, California.

(f) Executive represents that she may enter into this Agreement, accept employment with the Company under the terms of this Agreement and perform the duties and responsibilities contemplated by this Agreement without violating any other agreement or agreements with other parties including but not limited to prior employers.

4. **Compensation and Benefits**.

(a) **Base Compensation**. The Company shall pay to Executive an annual base salary of three hundred and fifty thousand dollars ($350,000), prorated for any partial employment period and payable in equal monthly installments in accordance with the Company's payroll schedule. The Compensation Committee of the Board shall annually review the then-current level of Executive's base salary to determine the amount, if any, of change to such salary.

(b) **Annual Performance Bonus**. The target amount of Executive's annual cash bonus shall be thirty-five percent (35%) of her annual base salary. The actual bonus may be more or less than the target amount based upon the Company's achievements over the year. Any bonus to which Executive becomes entitled for a particular calendar year shall be paid in accordance with the terms of the applicable bonus plan, but in no event shall any such bonus be paid earlier than January 1 or later than March 31 of the calendar year following the calendar year for which that annual bonus is earned. The Compensation Committee of the Board shall annually review Executive's then target amount for the annual cash bonus to determine the amount, if any, of change to such target amount.

(c) **Benefits**. Executive will be entitled to the employee benefits generally provided to other executive officers of the Company. Under the Company's vacation policy, Executive will have 10 sick days, 15 vacation days and 10 Company holidays per year.

(d) **Equity**. Effective as of the last business day of the month in which the Effective Date occurs, the Compensation Committee of the Board shall grant Executive a stock option to purchase up to 200,000 shares of the Company's Common Stock with an exercise price

per share equal to the fair market value of the Company's Common Stock on the date of grant (the "Option") under the Company's 2013 Stock Incentive Plan (the "Plan"). The Option will be evidenced by the standard stock option agreement under the Plan and will be subject to the terms and conditions of that agreement and the Plan, with one-quarter of the Option shares vesting twelve (12) months from the Effective Date and the remainder vesting in equal monthly installments for thirty-six (36) months thereafter, provided Executive remains a full-time employee through each such vesting date. Vesting of the Option and any subsequent equity grants will cease upon termination of Executive's employment by either party for any reason, provided however, in the event of the termination of Executive's employment by the Company without Cause or by Executive for Good Reason, in either case, within twelve (12) months of a Change in Control, Executive shall vest on an accelerated basis with respect to the Option and any other equity incentive award then held by Executive as follows: (i) in the event of a Change in Control within two (2) years following the Effective Date, Executive shall vest with respect to fifty percent (50%) of the unvested shares subject to the Option and any other equity incentive award held by Executive and (ii) in the event of Change in Control more than two (2) years following the Effective Date, Executive shall vest with respect to one hundred percent (100%) of the unvested shares subject to the Option and any other equity incentive award then held by Executive. In addition, each of Executive's stock options to the extent vested and outstanding at the time of Executive's termination without Cause or resignation for Good Reason, in either case, within twelve (12) months of the Change in Control will remain exercisable for a twelve (12)-month period measured from the date of termination of service, but in no event beyond the expiration of the maximum option term.

(e) **Clawback**. Notwithstanding anything to the contrary in this Agreement, all compensation paid to Executive by the Company (whether payable pursuant to this Agreement or otherwise) will be subject to reduction, recovery and/or recoupment to the extent required by any present or future law, government regulation or stock exchange listing requirement (or any policy adopted by the Company which ensures compliance with the requirements of any such law, government regulation or stock exchange listing requirement).

(f) **Resignation from Positions**. Notwithstanding any other provision of this Agreement to the contrary, upon any termination of employment (whether voluntary or involuntary), Executive, upon written request from the Board, shall resign from any positions she has with the Company (or any subsidiary), whether as an executive, officer, employee, consultant, director, trustee, fiduciary or otherwise.

5. **Severance Benefits and Conditions**.

(a) If Executive's employment is terminated by the Company for Cause, or by Executive without Good Reason, or upon Executive's death, then Executive will receive her unpaid salary and benefits (including accrued, but unused vacation time) earned up to the effective date of her termination and nothing else.

(b) If Executive incurs a Separation from Service because her employment is terminated by the Company without Cause or by Executive with Good Reason in either case

within twelve (12) months following a Change in Control, Executive shall be entitled to receive the following benefits:

(i) The Company shall immediately pay to Executive the amounts described in Section 5(a) above.

(ii) The Company shall pay in cash an amount equal to (A) six months of Executive's base salary then in effect plus (B) Executive's target bonus for the year in which the termination occurs as a severance payment, subject to any offset provided for in the Incentive Compensation Plan or any successor bonus plan for any bonus paid to Executive under such plan in connection with such Change in Control and based in whole or in part on the target bonus amount. Such severance payment shall be paid over a six (6) month period in a series of successive equal installments. The first such payment shall be made within the sixty (60)-day period measured from the date of Executive's Separation from Service as a result of termination specified in this Section 5(b), provided that the General Release has been delivered by Executive pursuant to Section 5(d) below and is effective and enforceable following the expiration of the revocation period applicable to that release under law. However, should such sixty (60)-day period span two taxable years, then the first such payment shall be made during the portion of that sixty (60)-day period that occurs in the second taxable year. The remaining installments shall be made in accordance with the Company's regular payroll schedule for its salaried employees. The severance payments under this Section 5(b) shall be treated as a right to a series of separate payments for purposes of Section 409A of the Code.

(iii) If Executive is eligible for and timely elects to receive continued health coverage under the Company's health plan under the Consolidated Omnibus Budget Reconciliation Act ("COBRA") at a level of coverage at or below Executive's level of coverage in effect on the date of Executive's Separation from Service, then for the period beginning on the date of Executive's Separation from Service and ending on the earlier of (i) the date on which Executive first becomes covered by any other "group health plan" as described in Section 4980B(g)(2) of the Code or (ii) the last day of the six (6) month period following Executive's Separation from Service (the "Coverage Period"), the Company shall reimburse Executive monthly an amount equal to the monthly COBRA premium paid by Executive, less the premium charge that is paid by the Company's active employees for such coverage as in effect on the date of Executive's Separation from Service. The payments shall commence within the sixty (60)-day period measured from the date of Executive's Separation from Service as a result of termination specified in this Section 5(b), provided that the General Release has been delivered by Executive pursuant to Section 5(d) below and is effective and enforceable following the expiration of the maximum review and revocation periods applicable to that release under law. However, should such sixty (60)-day period span two taxable years, then the first such payment shall be made during the portion of that sixty (60)-day period that occurs in the second taxable year. The remaining payments shall be made in accordance with the Company's regular payroll schedule for its salaried employees. In order to receive reimbursements hereunder, Executive must provide proof of payment of the applicable premiums prior to the applicable reimbursement payment date. The first payment shall include any payments for the period from the date of Executive's Separation from Service to the commencement date. The Company shall reimburse

Executive under this Section 5(b)(iii) only for the portion of the Coverage Period during which Executive continues coverage under the Company's health plan. Executive agrees to promptly notify the Company of Executive's coverage under an alternative health plan upon becoming covered by such alternative plan. The COBRA health care continuation coverage period under section 4980B of the Code shall run concurrently with the Coverage Period. Notwithstanding the foregoing, the Company reserves the right to restructure the foregoing COBRA premium reimbursement arrangement in any manner necessary or appropriate to avoid fines, penalties or negative tax consequences to the Company or Executive (including, without limitation, to avoid any penalty imposed for violation of the nondiscrimination requirements under the Patient Protection and Affordable Care Act or the guidance issued thereunder), as determined by the Company in its sole and absolute discretion, including treating such reimbursements as taxable benefits subject to withholding. The payments under this Section 5(b) shall be treated as a right to a series of separate payments for purposes of Section 409A of the Code.

(c) If Executive's employment is terminated by the Company without Cause or by Executive with Good Reason in the absence of a Change in Control or more than twelve (12) months after a Change in Control, Executive shall be entitled to receive the following benefits:

(i) The Company shall immediately pay to Executive the amounts described in Section 5(a) above.

(ii) The Company shall pay in cash an amount equal to six months of Executive's base salary then in effect as a severance payment. Such severance payment shall be paid over a six (6) month period in a series of successive equal installments. The first such payment shall be made within the sixty (60)-day period measured from the date of Executive's Separation from Service as a result of termination specified in this Section 5(c), provided that the General Release has been delivered by Executive pursuant to Section 5(d) below and is effective and enforceable following the expiration of the revocation period applicable to that release under law. However, should such sixty (60)-day period span two taxable years, then the first such payment shall be made during the portion of that sixty (60)-day period that occurs in the second taxable year. The remaining installments shall be made in accordance with the Company's regular payroll schedule for its salaried employees. The severance payments under this Section 5(c) shall be treated as a right to a series of separate payments for purposes of Section 409A of the Code.

(iii) If Executive is eligible for and timely elects to receive continued health coverage under the Company's health plan under the COBRA at a level of coverage at or below Executive's level of coverage in effect on the date of Executive's Separation from Service, then for the period beginning on the date of Executive's Separation from Service and ending on the earlier of (i) the date on which Executive first becomes covered by any other "group health plan" as described in Section 4980B(g)(2) of the Code or (ii) the last day of the Coverage Period, the Company shall reimburse Executive monthly an amount equal to the monthly COBRA premium paid by Executive, less the premium charge that is paid by the Company's active employees for such coverage as in effect on the date of Executive's Separation

from Service. The payments shall commence within the sixty (60)-day period measured from the date of Executive's Separation from Service as a result of termination specified in this Section 5(c), provided that the General Release has been delivered by Executive pursuant to Section 5(d) below and is effective and enforceable following the expiration of the maximum review and revocation periods applicable to that release under law. However, should such sixty (60)-day period span two taxable years, then the first such payment shall be made during the portion of that sixty (60)-day period that occurs in the second taxable year. The remaining payments shall be made in accordance with the Company's regular payroll schedule for its salaried employees. In order to receive reimbursements hereunder, Executive must provide proof of payment of the applicable premiums prior to the applicable reimbursement payment date. The first payment shall include any payments for the period from the date of Executive's Separation from Service to the commencement date. The Company shall reimburse Executive under this Section 5(c)(iii) only for the portion of the Coverage Period during which Executive continues coverage under the Company's health plan. Executive agrees to promptly notify the Company of Executive's coverage under an alternative health plan upon becoming covered by such alternative plan. The COBRA health care continuation coverage period under section 4980B of the Code shall run concurrently with the Coverage Period. Notwithstanding the foregoing, the Company reserves the right to restructure the foregoing COBRA premium reimbursement arrangement in any manner necessary or appropriate to avoid fines, penalties or negative tax consequences to the Company or Executive (including, without limitation, to avoid any penalty imposed for violation of the nondiscrimination requirements under the Patient Protection and Affordable Care Act or the guidance issued thereunder), as determined by the Company in its sole and absolute discretion, including treating such reimbursements as taxable benefits subject to withholding. The payments under this Section 5(c) shall be treated as a right to a series of separate payments for purposes of Section 409A of the Code.

(d) **Release of Claims**. Notwithstanding anything to the contrary in this Agreement, in order to receive any severance payments or benefits under this Section 5, Executive must first execute and deliver to the Company, within twenty-one (21) days (or forty-five (45) days if such longer period is required under applicable law) after the effective date of her termination, a general settlement and release agreement in substantially the form attached hereto as Exhibit A (the "General Release") and such General Release must become effective and enforceable in accordance with its terms following the expiration of any applicable revocation period under federal or state law. If such General Release is not executed and delivered to the Company within the applicable twenty-one (21) (or forty-five (45))-day period hereunder or does not otherwise become effective and enforceable in accordance with its terms, then no severance payments or benefits will provided to the Executive under this Section 5.

6. **Confidentiality**. Executive agrees to abide by the terms and conditions of the Proprietary Information, Inventions and Materials Agreement between Executive and the Company, a copy of which is attached as Exhibit B. Executive further agrees that at all times both during her employment by the Company and after her Separation from Service, she will keep in confidence and trust, and will not use or disclose, except as directed by the Company, any confidential or proprietary information of the Company.

7. **Section 409A**.

(a) The severance payments and other benefits under this Agreement are intended, where possible, to comply with the "short term deferral exception" and the "involuntary separation pay exception" to Code Section 409A. Accordingly, the provisions of this Agreement applicable to the severance payments described in Section 5 and the determination of Executive's Separation from Service due to termination of Executive's employment without Cause or Executive's resignation for Good Reason shall be applied, construed and administered so that those payments and benefits qualify for one or both of those exceptions, to the maximum extent allowable. However, to the extent any payment or benefit to which Executive becomes entitled under this Agreement is deemed to constitute an item of deferred compensation subject to the requirements of Code Section 409A, the provisions of this Agreement applicable to that payment or benefit shall be applied, construed and administered so that such payment or benefit is made or provided in compliance with the applicable requirements of Code Section 409A. In addition, should there arise any ambiguity as to whether any other provisions of this Agreement would contravene one or more applicable requirements or limitations of Code Section 409A and the Treasury Regulations thereunder, such provisions shall be interpreted, administered and applied in a manner that complies with the applicable requirements of Code Section 409A and the Treasury Regulations thereunder.

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

(c) During the period the COBRA premium reimbursement arrangement remains in effect, the following provisions shall govern the arrangement: (i) the amount of the COBRA premiums eligible for reimbursement in any one calendar year during the Coverage

Period shall not affect the amount of such costs eligible for reimbursement in any other calendar year for which such reimbursement is to be provided hereunder; (ii) no costs shall be reimbursed after the close of the calendar year following the calendar year in which those costs were incurred; and (iii) Executive's right to the reimbursement of such costs cannot be liquidated or exchanged for any other benefit.

8. **Benefit Limit**. In the event any payment to which Executive becomes entitled under this Agreement would otherwise constitute a parachute payment under Code Section 280G, then that payment shall be subject to reduction to the extent necessary to assure that such payment will be limited to the greater of (i) the dollar amount which can be paid to Executive without triggering a parachute payment under Code Section 280G or (ii) the dollar amount of that payment which provides Executive with the greatest after-tax amount after taking into account any excise tax Executive may incur under Code Section 4999 with respect to such payment and any other benefits or payments to which Executive may be entitled in connection with any change in control or ownership of the Company or the subsequent termination of Executive's service.

9. **Tax Withholdings**. Any and all cash compensation and other benefits (including without limitation, base salary, annual bonus, and severance) paid to Executive under this Agreement shall be subject to all applicable tax withholding requirements, and the Company shall make such other deductions as may be required and/or allowed by applicable law and/or as authorized in writing by Executive.

10. **Definitions**. The terms defined in this section shall have the meanings set forth below for purposes of this Agreement.

(a) "Board" shall mean the board of directors of the Company.

(b) "Cause" shall mean misconduct, including the following:

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

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

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

(iv) a material breach of this Agreement or the Proprietary Information and Assignment of Inventions Agreement between Executive and the Company.

The foregoing is an exclusive list of the acts or omissions that shall be considered "Cause" for the termination of Executive's employment.

(c) "Change in Control" shall mean a change in ownership or control of the Company effected through any of the following transactions:

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

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

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

(d) "Chief Executive Officer" shall mean the chief executive officer of the Company.

(e) "Code" shall mean the Internal Revenue Code of 1986, as amended.

(f) "Good Reason" shall mean Executive's resignation following any one or more of the following without Executive's written consent:

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

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

(iii) a material diminution in Executive's duties, responsibilities or authority; or

(iv) a material breach of this Agreement by the Company.

In order for a termination of employment to be for Good Reason, Executive must provide written notice to the Board of the existence of one or more conditions described above and her intent to resign for Good Reason hereunder within a period not to exceed thirty (30) of the initial existence of the condition. Following her providing this notice, the Company shall be provided a period of at least thirty (30) days during which to remedy the condition. Executive shall continue to receive the compensation and benefits provided by this Agreement during the cure period and if the condition is not cured during such period, then at the end of such period Executive's employment shall cease and Executive will become entitled to the severance benefits described above. If the condition is cured, Executive shall not be deemed to have "Good Reason" to terminate her employment.

(g) "Separation from Service" shall mean Executive's cessation of Employee Status and shall be deemed to occur at such time as the level of the bona fide services Executive is to perform in Employee Status (or as a consultant or other independent contractor) permanently decreases to a level that is not more than twenty percent (20%) of the average level of services Executive rendered in Employee Status during the immediately preceding thirty-six (36) months (or such shorter period for which Executive may have rendered such service). Any such determination as to Separation from Service, however, shall be made in accordance with the applicable standards of the Treasury Regulations issued under Code Section 409A. For purposes of determining whether Executive has incurred a Separation from Service, Executive will be deemed to continue in "Employee Status" for so long as she remains in the employ of one or more members of the Employer Group, subject to the control and direction of the employer entity as to both the work to be performed and the manner and method of performance. "Employer Group" means the Company and any other corporation or business controlled by, controlling or under common control with, the Company as determined in accordance with Sections 414(b) and (c) of the Code and the Treasury Regulations thereunder, except that in applying Sections 1563(a)(1), (2) and (3) for purposes of determining the controlled group of corporations under Section 414(b), the phrase "at least 50 percent" shall be used instead of "at least 80 percent" each place the latter phrase appears in such sections and in applying Section 1.414(c)-2 of the Treasury Regulations for purposes of determining trades or businesses that are under common control for purposes of Section 414(c), the phrase "at least 50 percent" shall be used instead of "at least 80 percent" each place the latter phrase appears in Section 1.414(c)-2 of the Treasury Regulations. In addition to the foregoing, a Separation from Service will not be deemed to have occurred while Executive is on a sick leave or other bona fide leave of absence if the period of such leave does not exceed six (6) months or any longer period for which Executive is provided with a right to reemployment with one or more members of the Employer Group by either statute or contract; ***provided, however,*** that in the event Executive's leave of absence is due to any medically determinable physical or mental impairment that can be expected to result in death or to last for a continuous period of not less than six (6) months and that causes her to be unable to perform her duties as an employee, no

Separation from Service shall be deemed to occur during the first twenty-nine (29) months of such leave. If the period of leave exceeds six (6) months (or twenty-nine (29) months in the event of disability as indicated above) and Executive is not provided with a right to reemployment either by statute or contract, then Executive will be deemed to have a Separation from Service on the first day immediately following the expiration of such six (6)-month or twenty-nine (29)-month period.

11. **Arbitration**. Any dispute, controversy, or claim, whether contractual or non-contractual, between Executive and the Company, unless mutually settled, shall be resolved by binding arbitration before the Judicial Arbitration and Mediation Service (the "JAMS"), in accordance with the JAMS Employment Arbitration Rules and Procedures, available at www.jamsadr.com. Executive and the Company each agree that before proceeding to arbitration, they will mediate disputes before the JAMS by a mediator approved by the JAMS. If mediation fails to resolve the matter, any subsequent arbitration shall be conducted by an arbitrator approved by the JAMS and mutually acceptable to Executive and the Company. All disputes, controversies, and claims shall be conducted by a single arbitrator, who shall (i) allow discovery authorized by California Code of Civil Procedure section 1282, et seq., or any other discovery required by applicable law; and (ii) issue a written award that sets forth the essential findings of fact and conclusions of law on which the award is based. The arbitrator shall have the authority to award any relief authorized by law in connection with the asserted claims or disputes. Judgment upon the arbitrator's award may be entered in any court having jurisdiction thereof. If Executive and the Company are unable to agree on the mediator or the arbitrator, then the JAMS shall select the mediator/arbitrator. The resolution of the dispute by the arbitrator shall be final, binding, non-appealable, and fully enforceable by a court of competent jurisdiction under the Federal Arbitration Act. The arbitration award shall be in writing and shall include a statement of the reasons for the award. The arbitration shall be held in San Francisco, California. The Company shall pay all JAMS, mediation, and arbitrator's fees and costs, irrespective of who raised the claim and the outcome of arbitration.

12. **Miscellaneous**.

(a) **Governing Law**. This Agreement shall be interpreted, construed, governed and enforced according to the laws of the State of California.

(b) **Attorneys' Fees**. In the event of any controversy, claim or dispute between the parties, arising out of or relating to this Agreement or the breach hereof, or the interpretation hereof, each party shall bear its own legal fees and expenses. Notwithstanding the foregoing, in the event of a finding by any court having jurisdiction over such matter that any party initiating an action under this Agreement failed to have a reasonable prospect of prevailing on its claim, the court shall have discretion to award the prevailing party attorneys' fees and costs incurred by it with respect to such claim or action. The "prevailing party" means the party determined by the court to have most nearly prevailed, even if such party did not prevail in all matters, not necessarily the one in whose favor a judgment is rendered.

(c) **Amendments**. No amendment or modification of the terms or conditions of this Agreement shall be valid unless in writing and signed by the parties hereto.

(d) **Severability**. If any provision of this Agreement as applied to any party or to any circumstance should be adjudged by a court of competent jurisdiction (or determined by the arbitrator) to be void or unenforceable for any reason, the invalidity of that provision shall in no way affect (to the maximum extent permissible by law) the application of such provision under circumstances different from those adjudicated by the court or determined by the arbitrator, the application of any other provision of this Agreement, or the enforceability or invalidity of this Agreement as a whole. Should any provision of this Agreement become or be deemed invalid, illegal or unenforceable in any jurisdiction by reason of the scope, extent or duration of its coverage, then such provision shall be deemed amended to the extent necessary to conform to applicable law so as to be valid and enforceable or, if such provision cannot be so amended without materially altering the intention of the parties, then such provision will be stricken, and the remainder of this Agreement shall continue in full force and effect.

(e) **Successors and Assigns**. The rights and obligations of the Company under this Agreement shall inure to the benefit of and shall be binding upon the successors and assigns of the Company. Executive shall not be entitled to assign any of her rights or obligations under this Agreement.

(f) **Entire Agreement**. This Agreement, along with any other agreements set forth herein, including without limitation, the Proprietary Information and Inventions Agreement, constitutes the entire agreement between the parties with respect to the employment of Executive.

[signature page follows]

SANGAMO THERAPEUTICS, INC.

By: /s/ Alexander D. Macrae
Name: Alexander D. Macrae
Title: President and Chief Executive Officer

KATHY YI

/s/ Kathy Y. Yi.

EXHIBIT A

GENERAL SETTLEMENT AND RELEASE AGREEMENT

PURSUANT TO SECTION 5(D) OF THE EMPLOYMENT AGREEMENT BETWEEN SANGAMO THERAPEUTICS, INC. AND EDWARD R. CONNER, EXECUTION OF A GENERAL SETTLEMENT AND RELEASE AGREEMENT, IN SUBSTANTIALLY THE SAME FORM AS THIS EXHIBIT A IS A CONDITION TO EDWARD R. CONNER'S RECEIPT OF CERTAIN PAYMENTS AND BENEFITS PURSUANT TO SECTION 5 OF SUCH AGREEMENT. THIS DOCUMENT IS INTENDED AS A FORM OF THE GENERAL SETTLEMENT AND RELEASE AGREEMENT AND MUST BE FINALIZED BY SANGAMO THERAPEUTICS, INC. PRIOR TO EXECUTION.

GENERAL SETTLEMENT AND RELEASE AGREEMENT

This General Settlement and Release Agreement (the "Agreement") is by and between Sangamo Therapeutics, Inc., for itself and for all of its affiliated, related, parent and direct and indirect subsidiary companies, joint venturers and partnerships, successors and permitted assigns and each of them (collectively, the "Company"), on the one hand, and Kathy Yi, for herself, and her agents, representatives, heirs and assigns (the "Employee"), on the other hand.

1. Payments. In full and complete consideration for the Employee's promises and undertaking set forth in this Agreement, following the eighth (8th) day following receipt by the Company of a fully executed General Settlement and Release Agreement from the Employee, the Company will provide the Employee the consideration, if any, to which the Employee is entitled pursuant to the Employment Agreement between the parties, dated _____, 2017, at the times specified in Section 5 of that Agreement unless the signature on this Agreement is revoked pursuant to Section 8 below.

2. Release of Known and Unknown Claims.

(a) It is understood and agreed by the parties to this Agreement that in consideration of the mutual promises and covenants contained in this Agreement, and after consultation with counsel, the Employee irrevocably and unconditionally releases and forever discharges the Company, its parent, subsidiary and affiliated companies, and all of their past and present officers, directors, employees, agents and assigns (collectively, the "Released Parties"), from any and all causes of action, claims, actions, rights, judgments, obligations, damages, demands, accountings or liabilities of whatever kind or character, which the Employee may have against the Company or any of the Released Parties, or any of them, by reason of or arising out of, touching upon or concerning the Employee's employment, separation of her employment and reapplication for employment with the Company, or any statutory claims, or any and all other matters of whatever kind, nature or description, whether known or unknown, occurring prior to the date of the execution of this Agreement. The Employee acknowledges that this release of claims specifically includes, but is not limited to, any and all claims for fraud; breach of contract; breach of the implied covenant of good faith and fair dealing; inducement of breach; interference with contractual rights; wrongful or unlawful discharge or demotion; violation of public policy; sexual assault and battery; invasion of privacy; intentional or negligent infliction of emotional distress; intentional or negligent misrepresentation; conspiracy; defamation; unlawful effort to prevent employment; discrimination or harassment on the basis of age, race, color, sex, gender, national origin, ancestry, religious creed, physical or mental disability, medical condition, marital status, sexual orientation, genetic information or characteristics, or any other basis protected by applicable law; any claim under: Title VII of the Civil Rights Act of 1964 ("Title VII"); the Americans With Disabilities Act of 1990 ("ADA"); the Age Discrimination in Employment Act of 1967 ("ADEA"); the Employee Retirement Income Security Act of 1974 ("ERISA"); the Equal Pay Act of 1963 ("EPA"); the Fair Labor Standards Act ("FLSA"); the Consolidated Omnibus Budget Reconciliation Act ("COBRA"); the Worker Adjustment and Retraining Notification Act ("WARN"); the Occupational Safety and Health Act ("OSHA"); the Lilly Ledbetter Fair Pay Act of 2009 ("Fair Pay Act"); the California Fair Employment and Housing

Act ("FEHA"); the California Labor Code; and CalOSHA, or any other wrongful conduct, based upon events occurring prior to the date that this Agreement is executed by the Employee. Notwithstanding anything to the contrary herein, this Agreement shall not release the Employee's right, if any, to claims she may have for: (i) indemnification pursuant to the Indemnification Agreement, dated [_____], between Employee and the Company, the bylaws of the Company or insurance policies of the Company, for any claims arising out of the Employee's conduct as an employee or officer of the Company during her employment, (ii) unemployment, workers' compensation, state disability and/or paid family leave insurance benefits pursuant to the terms of applicable state law, (iii) continuation of existing participation in Company-sponsored group health benefit plans under COBRA and/or an applicable state counterpart law, (iv) any benefit entitlements that are vested as of the Employee's termination date pursuant to the terms of a Company-sponsored benefit plan governed by ERISA, (v) stock and/or vested option shares pursuant to the written terms and conditions of the Employee's existing stock option grants and agreements, existing as of her termination date, (vi) violation of any federal, state or local statutory and/or public policy right or entitlement that, by applicable law, is not waivable, and (vii) any wrongful act or omission occurring after the date the Employee signs this Agreement.

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

3. Waiver of Unknown Claims.

(a) The Employee does hereby expressly waive and relinquish all rights and benefits afforded to her under law, and does so understanding and acknowledging the significance and consequences of such a waiver.

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

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

(c) The Employee acknowledges and understands that she is being represented in this matter by counsel, and she expressly acknowledges and agrees that this Agreement is intended to include in its effect, without limitation, all claims which she does not know or suspect to exist at the time of the execution of this Agreement, and that this Agreement contemplates the extinguishment of those claims.

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

4. **Permitted Disclosures and Actions**. Nothing in this Agreement shall prohibit or restrict the Employee from lawfully (A) initiating communications directly with, cooperating with, providing information to, causing information to be provided to, or otherwise assisting in an investigation by any governmental or regulatory agency, entity, or official(s) (collectively, "Governmental Authorities") regarding a possible violation of any law; (B) responding to any inquiry or legal process directed to the Employee individually (and not directed to the Company and/or its subsidiaries) from any such Governmental Authorities; (C) testifying, participating or otherwise assisting in an action or proceeding by any such Governmental Authorities relating to a possible violation of law; or (D) making any other disclosures that are protected under the whistleblower provisions of any applicable law. Additionally, pursuant to the federal Defend Trade Secrets Act of 2016, the Employee shall not be held criminally or civilly liable under any federal or state trade secret law for the disclosure of a trade secret that: (a) is made (i) in confidence to a federal, state, or local government official, either directly or indirectly, or to an attorney; and (ii) solely for the purpose of reporting or investigating a suspected violation of law; or (b) is made to the Employee's attorney in relation to a lawsuit for retaliation against the Employee for reporting a suspected violation of law; or (c) is made in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal. Nor does this Agreement require the Employee to obtain prior authorization from the Company before engaging in any conduct described in this paragraph, or to notify the Company that the Employee has engaged in any such conduct.

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

6. **No Filing of Claims**. The Employee specifically represents that she has no pending complaints or charges against the Company or any of the other Released Parties with any state or federal court or any local, state or federal agency, division or department based on any events occurring prior to the date of execution of this Agreement.

7. **Advice of Counsel**. The Employee acknowledges that she has been given twenty-one days (21) to seek the advice of counsel and to consider the effects of this Agreement upon her legal rights (the "Consideration Period"). To the extent that the Employee has signed the Agreement without obtaining the advice of counsel or before expiration of the Consideration Period, the Employee acknowledges that she has done so voluntarily with a full understanding of the Agreement and its effect upon her legal rights. Any discussion between the Employee and the Company or any of the Released Parties concerning the terms and conditions of this Agreement does not extend the Consideration Period.

8. **Revocation Period**. The Employee acknowledges that she has been informed that, after she signs this Agreement, she has the right to revoke her signature for a period of seven days (7) from the date that she signs the Agreement. To be effective, the revocation must be in writing, signed by the Employee, and delivered to Vice President of Human Resources at 501 Canal Boulevard, Point Richmond Technology Center, Richmond, California 94804 before the close of business on the seventh day (7th) day following the date the Employee signs this Agreement. The Employee acknowledges and agrees that the Company has no obligation to comply with the terms of this Agreement until the Revocation Period has expired without revocation, at which time this Agreement will become effective and enforceable.

9. **Nondisparagement**. The Employee agrees that she will not disparage the Company or any of the Released Parties, or their products, services, officers, directors, employees, with any written or oral statement and the Company agrees that it will not disparage the Employee.

10. **Confidentiality.** The Employee consents and agrees that she will not, at any time, disclose the existence of this Agreement, the terms of her severance benefits and/or the alleged facts or circumstances giving rise to any actual or alleged claims to any person, firm, company, association, or entity or the press or media for any reason or purpose whatsoever, other than to her attorney, her immediate family and to her accountant or financial advisor for tax purposes. If the Employee is served with any subpoena, court order, or other legal process seeking disclosure of any such information, the Employee shall promptly send to the Company, within forty-eight (48) hours, via facsimile at (510) 970-_____, such subpoena, court order, or other legal process so that the Company may exercise any applicable legal remedies. The Employee agrees and acknowledges that a violation of this paragraph by the Employee shall be a material breach of this Agreement.

11. **Delivery of Documents**. The Employee represents and warrants that she has not removed any documents, records or other information, including any such documents, records or information that are or were electronically stored, from the premises of the Company. The Employee acknowledges that such documents, records and other information are the exclusive property of the Company or its subsidiaries or affiliates.

12. **Remedies For Breach Of This Agreement**.

(a) **Injunctive Relief**. In the event of a breach of the provisions of this Agreement, the Employee agrees that any remedy at law for any breach or threatened breach of the

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

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

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

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

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

15. **Section 409A**. It is the intention of the parties that the provisions of this Agreement comply with the requirements of Section 409A of the Internal Revenue Code ("Section 409A") and the Treasury Regulations thereunder. Accordingly, to the extent there is any ambiguity as to

whether one or more provisions of this Agreement would otherwise contravene the applicable requirements or limitations of Section 409A, then those provisions shall be interpreted and applied in a manner that does not result in a violation of the applicable requirements or limitations of Section 409A and the Treasury Regulations thereunder. In no event may the Employee, directly or indirectly, designate the calendar year of a payment.

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

17. **Ambiguities**. Attorneys for both parties have participated in the negotiation of this Agreement and, thus, it is understood and agreed that the general rule that ambiguities are to be construed against the drafter shall not apply to this Agreement. In the event that any language of this Agreement is found to be ambiguous, each party shall have an opportunity to present evidence as to the actual intent of the parties with respect to any such ambiguous language.

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

19. **Counterparts**. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original, all of which together shall constitute one and the same instrument.

THE SIGNATORIES HAVE CAREFULLY READ THIS ENTIRE AGREEMENT. ITS CONTENTS HAVE BEEN FULLY EXPLAINED TO THEM BY THEIR ATTORNEYS. THE SIGNATORIES FULLY UNDERSTAND THE FINAL AND BINDING EFFECT OF THIS AGREEMENT. THE ONLY PROMISES MADE TO ANY SIGNATORY ABOUT THIS AGREEMENT, AND TO SIGN THIS AGREEMENT, ARE CONTAINED IN THIS AGREEMENT. THE SIGNATORIES ARE SIGNING THIS AGREEMENT VOLUNTARILY.

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

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

SANGAMO THERAPEUTICS, INC.:

DATE:

EMPLOYEE:

DATE:

EXHIBIT B

Proprietary Information, Inventions and Materials Agreement

Exhibit 10.2

AMENDMENT
TO
AMENDED AND RESTATED EMPLOYMENT AGREEMENT

This Amendment to the Amended and Restated Employment Agreement made effective as of December 15, 2011 (the "Employment Agreement") by and between Sangamo Therapeutics, Inc. (the "Company"), and H. Ward Wolff ("Executive") is effective as of February 27, 2017 (the "Amendment").

Capitalized terms used and not otherwise defined herein shall have the respective meanings set forth in the Employment Agreement.

RECITALS

WHEREAS, the Company and Executive previously entered into the Employment Agreement pursuant to which Executive is entitled to receive a cash severance payment upon certain involuntary terminations of Executive's employment.

WHEREAS, the Company has previously granted stock options to Executive to acquire Company common stock; Executive has a limited period of time following cessation of service during which to exercise each such stock option.

WHEREAS, Executive intends to submit his resignation as Chief Financial Officer effective immediately following the filing of the Annual Report on Form 10-K for the year ended December 31, 2016.

WHEREAS, Executive and the Compensation Committee of the Board of Directors of the Company desire to amend the terms and conditions of the Employment Agreement (a) to eliminate severance benefits upon certain involuntary terminations of Executive's employment and (b) to provide that upon such a resignation (i) Executive's stock options shall be amended to extend the period that Executive has to exercise his stock options following termination of employment and (ii) Executive shall receive reimbursement of certain COBRA expenses.

NOW, THEREFORE, in consideration of the mutual promises and other consideration set forth herein, the parties hereto hereby agree as follows:

1. The initial part of Section 7(c) of the Employment Agreement prior to subpart (i) is hereby deleted in its entirety and replaced with the following:

(c) If Executive's service as the Company's Chief Financial Officer is terminated by Executive by resignation effective immediately following the filing of the Annual Report on Form 10-K for the year ended December 31, 2016 with the US Securities and Exchange Commission and as an employee effective March 8, 2017, Executive will be entitled to receive the following benefits:

2. Section 7(c)(ii) of the Employment Agreement is hereby deleted in its entirety and replaced with the following new Section 7(c)(ii):

(ii) Each stock option granted to Executive under the Company's Amended and Restated 2013 Stock Incentive Plan or 2004 Stock Incentive Plan and outstanding on the date of Executive's termination of employment shall cease to vest or become exercisable for any additional shares following Executive's termination of employment. Each such stock option shall remain exercisable for a period of two years following Executive's termination of employment, or until the end of the term of the stock option if earlier. During the limited period of post-service exercisability, each such stock option may not be exercised in the aggregate for more than the number of shares for which the option is, at the time of Executive's termination of employment, vested and exercisable pursuant to the agreement(s) evidencing the stock option. Upon the expiration of the limited post-service exercise period, each stock option shall terminate and cease to be outstanding for any shares for which the option has not otherwise been exercised. The agreements evidencing the stock options are hereby deemed to be amended to reflect this extended post-service exercise period.

3. The Company and Executive intend that this Amendment amend the Employment Agreement as set forth herein.

4. Except as modified by this Amendment, all of the terms and provisions of the Employment Agreement shall continue in full force and effect.

IN WITNESS WHEREOF, the Company has caused this Amendment to be executed by its duly authorized officer and Executive has executed this Amendment on the respective date or dates indicated below.

H. WARD WOLFF

/s/ H. Ward Wolff
Dated: February 27, 2017

SANGAMO THERAPEUTICS, INC.

/s/ Alexander D. Macrae
By: Alexander D. Macrae
Title:President and Chief Executive Officer
Dated: February 27, 2017

Exhibit 10.3

EMPLOYMENT AGREEMENT

Employment Agreement ("Agreement") made as of the first day of November, 2016 by and between Sangamo BioSciences, Inc., a Delaware corporation (the "Company"), and Edward R. Conner ("Executive").

R E C I T A L S

WHEREAS, the Company desires to employ Executive, and Executive desires to be employed by the Company, on the terms and conditions set forth in this Agreement.

NOW, THEREFORE, in consideration of the mutual promises set forth herein, the parties agree follows:

1. **Employment**.

The Company hereby agrees to employ Executive and Executive hereby agrees to accept such employment, on the terms and conditions set forth in this Agreement, with a start date of November 1, 2016 (the "Effective Date").

2. **Employment Period**.

This Agreement shall be effective for a period commencing as of the Effective Date and ending on the date this Agreement and Executive's employment hereunder are terminated by either party (such period, the "Employment Period"). This Agreement and Executive's employment may be terminated by either party upon thirty (30) days written notice to the other party. Upon such termination, Executive will be entitled to the severance benefits described herein.

3. **Position, Duties and Obligations**.

(a) Executive shall serve as the Company's Chief Medical Officer and in such other positions as the Board may from time to time reasonably determine, subject at all times to the direction, supervision and authority of the Chief Executive Officer or such other officer as designated by the Chief Executive Officer.

(b) During the Employment Period, Executive shall perform his duties faithfully and to the best of his ability and shall devote substantially all of his business time, attention, knowledge, skills and interests to the business of the Company (and its subsidiaries).

(c) During the Employment Period, Executive shall not, whether directly or indirectly, render any services of a commercial or professional nature to any other person or

organization, whether for compensation or otherwise, without the prior written consent of the Chief Executive Officer.

(d) The foregoing in this Section 1 shall not preclude Executive from serving on any corporate, civic or charitable boards or committees on which he is serving as of the Effective Date and discloses to the Chief Executive Officer prior to the Effective Date or on which he commences service following such date with the Chief Executive Officer's prior written approval, so long as such activities do not interfere with the performance of Executive's responsibilities hereunder.

(e) Executive's principal place of business will be located in Richmond, California.

(f) Executive represents that he may enter into this Agreement, accept employment with the Company under the terms of this Agreement and perform the duties and responsibilities contemplated by this Agreement without violating any other agreement or agreements with other parties including but not limited to prior employers.

4. **Compensation and Benefits**.

(a) **Base Compensation**. The Company shall pay to Executive an annual base salary of four hundred thousand dollars ($400,000), prorated for any partial employment period and payable in equal monthly installments in accordance with the Company's payroll schedule. The Compensation Committee of the Board shall annually review the then-current level of Executive's base salary to determine the amount, if any, of change to such salary.

(b) **Annual Performance Bonus**. The target amount of Executive's annual cash bonus shall be thirty-five percent (35%) of his annual base salary. The actual bonus may be more or less than the target amount based upon the Company's achievements over the year. Any bonus to which Executive becomes entitled for a particular calendar year shall be paid in accordance with the terms of the applicable bonus plan, but in no event shall any such bonus be paid earlier than January 1 or later than March 31 of the calendar year following the calendar year for which that annual bonus is earned. Executive shall not be eligible for a bonus for 2016. The Compensation Committee of the Board shall annually review Executive's then target amount for the annual cash bonus to determine the amount, if any, of change to such target amount.

(c) **Retention Bonus Advance**. Executive shall be advanced a retention bonus (the "Retention Bonus") in the amount of one hundred thousand dollars ($100,000) in his first regularly scheduled payroll after the Effective Date. Although this Retention Bonus is advanced at the beginning of Executive's employment, it is expressly conditioned on Executive not being terminated by the Company for Cause or Executive voluntarily terminating his employment other than for Good Reason prior to the first (1st) anniversary of the Effective Date (and such advanced Retention Bonus shall not be deemed earned until such condition has been met). Should Executive's employment be terminated by the Company for Cause, or should

Executive voluntarily terminate his employment other than for Good Reason, at any time prior to the first (1st) anniversary of the Effective Date, then, in either case, Executive shall at the time of such termination promptly repay the Retention Bonus to the Company. In the event Executive does not earn and fails to promptly repay the Retention Bonus, then the Company shall be further entitled to recover from Executive its costs and expenses incurred in enforcing this repayment obligation, including reasonable attorneys' fees and costs.

(d) **Benefits**. Executive will be entitled to the employee benefits generally provided to other executive officers of the Company. Under the Company's vacation policy, Executive will have 10 sick days, 15 vacation days and 10 Company holidays per year.

(e) **Equity**. Effective as of the last business day of the month in which the Effective Date occurs, the Compensation Committee of the Board shall grant Executive a stock option to purchase up to 200,000 shares of the Company's Common Stock with an exercise price per share equal to the fair market value of the Company's Common Stock on the date of grant (the "Option") under the Company's 2013 Stock Incentive Plan (the "Plan"). The Option will be evidenced by the standard stock option agreement under the Plan and will be subject to the terms and conditions of that agreement and the Plan, with one-quarter of the Option shares vesting twelve (12) months from the Effective Date and the remainder vesting in equal monthly installments for thirty-six (36) months thereafter, provided Executive remains a full-time employee through each such vesting date. Vesting of the Option and any subsequent equity grants will cease upon termination of Executive's employment by either party for any reason, provided however, in the event of the termination of Executive's employment by the Company without Cause or by Executive for Good Reason, in either case, within twelve (12) months of a Change in Control, Executive shall vest on an accelerated basis with respect to the Option and any other equity incentive award then held by Executive as follows: (i) in the event of a Change in Control within two (2) years following the Effective Date, Executive shall vest with respect to fifty percent (50%) of the unvested shares subject to the Option and any other equity incentive award held by Executive and (ii) in the event of Change in Control more than two (2) years following the Effective Date, Executive shall vest with respect to one hundred percent (100%) of the unvested shares subject to the Option and any other equity incentive award then held by Executive. In addition, each of Executive's stock options to the extent vested and outstanding at the time of Executive's termination without Cause or resignation for Good Reason, in either case, within twelve (12) months of the Change in Control will remain exercisable for a twelve (12)-month period measured from the date of termination of service, but in no event beyond the expiration of the maximum option term.

(f) **Clawback**. Notwithstanding anything to the contrary in this Agreement, all compensation paid to Executive by the Company (whether payable pursuant to this Agreement or otherwise) will be subject to reduction, recovery and/or recoupment to the extent required by any present or future law, government regulation or stock exchange listing requirement (or any policy adopted by the Company which ensures compliance with the requirements of any such law, government regulation or stock exchange listing requirement).

(g) **Resignation from Positions**. Notwithstanding any other provision of this Agreement to the contrary, upon any termination of employment (whether voluntary or involuntary), Executive, upon written request from the Board, shall resign from any positions he has with the Company (or any subsidiary), whether as an executive, officer, employee, consultant, director, trustee, fiduciary or otherwise.

5. **Severance Benefits and Conditions**.

(a) If Executive's employment is terminated by the Company for Cause, or by Executive without Good Reason, or upon Executive's death, then Executive will receive his unpaid salary and benefits (including accrued, but unused vacation time) earned up to the effective date of his termination and nothing else.

(b) If Executive incurs a Separation from Service because his employment is terminated by the Company without Cause or by Executive with Good Reason in either case within twelve (12) months following a Change in Control, Executive shall be entitled to receive the following benefits:

(i) The Company shall immediately pay to Executive the amounts described in Section 5(a) above.

(ii) The Company shall pay in cash an amount equal to (A) six months of Executive's base salary then in effect plus (B) Executive's target bonus for the year in which the termination occurs as a severance payment, subject to any offset provided for in the Incentive Compensation Plan or any successor bonus plan for any bonus paid to Executive under such plan in connection with such Change in Control and based in whole or in part on the target bonus amount. Such severance payment shall be paid over a six (6) month period in a series of successive equal installments. The first such payment shall be made within the sixty (60)-day period measured from the date of Executive's Separation from Service as a result of termination specified in this Section 5(b), provided that the General Release has been delivered by Executive pursuant to Section 5(d) below and is effective and enforceable following the expiration of the revocation period applicable to that release under law. However, should such sixty (60)-day period span two taxable years, then the first such payment shall be made during the portion of that sixty (60)-day period that occurs in the second taxable year. The remaining installments shall be made in accordance with the Company's regular payroll schedule for its salaried employees. The severance payments under this Section 5(b) shall be treated as a right to a series of separate payments for purposes of Section 409A of the Code.

(iii) If Executive is eligible for and timely elects to receive continued health coverage under the Company's health plan under the Consolidated Omnibus Budget Reconciliation Act ("COBRA") at a level of coverage at or below Executive's level of coverage in effect on the date of Executive's Separation from Service, then for the period beginning on the date of Executive's Separation from Service and ending on the earlier of (i) the date on which Executive first becomes covered by any other "group health plan" as described in Section 4980B(g)(2) of the Code or (ii) the last day of the six (6) month period following Executive's

Separation from Service (the "Coverage Period"), the Company shall reimburse Executive monthly an amount equal to the monthly COBRA premium paid by Executive, less the premium charge that is paid by the Company's active employees for such coverage as in effect on the date of Executive's Separation from Service. The payments shall commence within the sixty (60)-day period measured from the date of Executive's Separation from Service as a result of termination specified in this Section 5(b), provided that the General Release has been delivered by Executive pursuant to Section 5(d) below and is effective and enforceable following the expiration of the maximum review and revocation periods applicable to that release under law. However, should such sixty (60)-day period span two taxable years, then the first such payment shall be made during the portion of that sixty (60)-day period that occurs in the second taxable year. The remaining payments shall be made in accordance with the Company's regular payroll schedule for its salaried employees. In order to receive reimbursements hereunder, Executive must provide proof of payment of the applicable premiums prior to the applicable reimbursement payment date. The first payment shall include any payments for the period from the date of Executive's Separation from Service to the commencement date. The Company shall reimburse Executive under this Section 5(b)(iii) only for the portion of the Coverage Period during which Executive continues coverage under the Company's health plan. Executive agrees to promptly notify the Company of Executive's coverage under an alternative health plan upon becoming covered by such alternative plan. The COBRA health care continuation coverage period under section 4980B of the Code shall run concurrently with the Coverage Period. Notwithstanding the foregoing, the Company reserves the right to restructure the foregoing COBRA premium reimbursement arrangement in any manner necessary or appropriate to avoid fines, penalties or negative tax consequences to the Company or Executive (including, without limitation, to avoid any penalty imposed for violation of the nondiscrimination requirements under the Patient Protection and Affordable Care Act or the guidance issued thereunder), as determined by the Company in its sole and absolute discretion, including treating such reimbursements as taxable benefits subject to withholding. The payments under this Section 5(b) shall be treated as a right to a series of separate payments for purposes of Section 409A of the Code.

(c) If Executive's employment is terminated by the Company without Cause or by Executive with Good Reason in the absence of a Change in Control or more than twelve (12) months after a Change in Control, Executive shall be entitled to receive the following benefits:

(i) The Company shall immediately pay to Executive the amounts described in Section 5(a) above.

(ii) The Company shall pay in cash an amount equal to six months of Executive's base salary then in effect as a severance payment. Such severance payment shall be paid over a six (6) month period in a series of successive equal installments. The first such payment shall be made within the sixty (60)-day period measured from the date of Executive's Separation from Service as a result of termination specified in this Section 5(c), provided that the General Release has been delivered by Executive pursuant to Section 5(d) below and is effective and enforceable following the expiration of the revocation period applicable to that release under law. However, should such sixty (60)-day period span two taxable years, then the first such

payment shall be made during the portion of that sixty (60)-day period that occurs in the second taxable year. The remaining installments shall be made in accordance with the Company's regular payroll schedule for its salaried employees. The severance payments under this Section 5(c) shall be treated as a right to a series of separate payments for purposes of Section 409A of the Code.

(iii) If Executive is eligible for and timely elects to receive continued health coverage under the Company's health plan under the COBRA at a level of coverage at or below Executive's level of coverage in effect on the date of Executive's Separation from Service, then for the period beginning on the date of Executive's Separation from Service and ending on the earlier of (i) the date on which Executive first becomes covered by any other "group health plan" as described in Section 4980B(g)(2) of the Code or (ii) the last day of the Coverage Period, the Company shall reimburse Executive monthly an amount equal to the monthly COBRA premium paid by Executive, less the premium charge that is paid by the Company's active employees for such coverage as in effect on the date of Executive's Separation from Service. The payments shall commence within the sixty (60)-day period measured from the date of Executive's Separation from Service as a result of termination specified in this Section 5(c), provided that the General Release has been delivered by Executive pursuant to Section 5(d) below and is effective and enforceable following the expiration of the maximum review and revocation periods applicable to that release under law. However, should such sixty (60)-day period span two taxable years, then the first such payment shall be made during the portion of that sixty (60)-day period that occurs in the second taxable year. The remaining payments shall be made in accordance with the Company's regular payroll schedule for its salaried employees. In order to receive reimbursements hereunder, Executive must provide proof of payment of the applicable premiums prior to the applicable reimbursement payment date. The first payment shall include any payments for the period from the date of Executive's Separation from Service to the commencement date. The Company shall reimburse Executive under this Section 5(c)(iii) only for the portion of the Coverage Period during which Executive continues coverage under the Company's health plan. Executive agrees to promptly notify the Company of Executive's coverage under an alternative health plan upon becoming covered by such alternative plan. The COBRA health care continuation coverage period under section 4980B of the Code shall run concurrently with the Coverage Period. Notwithstanding the foregoing, the Company reserves the right to restructure the foregoing COBRA premium reimbursement arrangement in any manner necessary or appropriate to avoid fines, penalties or negative tax consequences to the Company or Executive (including, without limitation, to avoid any penalty imposed for violation of the nondiscrimination requirements under the Patient Protection and Affordable Care Act or the guidance issued thereunder), as determined by the Company in its sole and absolute discretion, including treating such reimbursements as taxable benefits subject to withholding. The payments under this Section 5(c) shall be treated as a right to a series of separate payments for purposes of Section 409A of the Code.

(d) **Release of Claims**. Notwithstanding anything to the contrary in this Agreement, in order to receive any severance payments or benefits under this Section 5, Executive must first execute and deliver to the Company, within twenty-one (21) days (or forty-five (45) days if such longer period is required under applicable law) after the effective date of

his termination, a general settlement and release agreement in substantially the form attached hereto as Exhibit A (the "General Release") and such General Release must become effective and enforceable in accordance with its terms following the expiration of any applicable

revocation period under federal or state law. If such General Release is not executed and delivered to the Company within the applicable twenty-one (21) (or forty-five (45))-day period hereunder or does not otherwise become effective and enforceable in accordance with its terms, then no severance payments or benefits will provided to the Executive under this Section 5.

6. **Confidentiality**. Executive agrees to abide by the terms and conditions of the Proprietary Information, Inventions and Materials Agreement between Executive and the Company, a copy of which is attached as Exhibit B. Executive further agrees that at all times both during his employment by the Company and after his Separation from Service, he will keep in confidence and trust, and will not use or disclose, except as directed by the Company, any confidential or proprietary information of the Company.

7. **Section 409A**.

(a) The severance payments and other benefits under this Agreement are intended, where possible, to comply with the "short term deferral exception" and the "involuntary separation pay exception" to Code Section 409A. Accordingly, the provisions of this Agreement applicable to the severance payments described in Section 5 and the determination of Executive's Separation from Service due to termination of Executive's employment without Cause or Executive's resignation for Good Reason shall be applied, construed and administered so that those payments and benefits qualify for one or both of those exceptions, to the maximum extent allowable. However, to the extent any payment or benefit to which Executive becomes entitled under this Agreement is deemed to constitute an item of deferred compensation subject to the requirements of Code Section 409A, the provisions of this Agreement applicable to that payment or benefit shall be applied, construed and administered so that such payment or benefit is made or provided in compliance with the applicable requirements of Code Section 409A. In addition, should there arise any ambiguity as to whether any other provisions of this Agreement would contravene one or more applicable requirements or limitations of Code Section 409A and the Treasury Regulations thereunder, such provisions shall be interpreted, administered and applied in a manner that complies with the applicable requirements of Code Section 409A and the Treasury Regulations thereunder.

(b) Notwithstanding any provision in this Agreement the contrary, no payment or distribution under this Agreement which constitutes an item of deferred compensation under Section 409A of the Code and becomes payable by reason of Executive's termination of employment with the Company will be made to Executive until Executive incurs a Separation from Service in connection with such termination of employment. For purposes of this Agreement, each amount to be paid or benefit to be provided to Executive shall be treated as a separate identified payment or benefit for purposes of Section 409A of the Code. In addition, no payment or benefit which constitutes an item of deferred compensation under Section 409A of the Code and becomes payable by reason of Executive's Separation from Service will be made to Executive prior to the ***earlier*** of (i) the first day of the seven (7)-month period measured from the date of such Separation from Service or (ii) the date of Executive's death, if Executive is deemed at the time of such Separation from Service to be a specified employee (as determined pursuant to Code Section 409A and the Treasury Regulations thereunder) and such delayed

commencement is otherwise required in order to avoid a prohibited distribution under Code Section 409A(a)(2). Upon the expiration of the applicable deferral period, all payments and benefits deferred pursuant to this Section 7.b. (whether they would have otherwise been payable in a single sum or in installments in the absence of such deferral) shall be paid or provided to Executive in a lump sum on the first day of the seventh (7th) month after the date of Executive's Separation from Service or, if earlier, the first day of the month immediately following the date the Company receives proof of Executive's death. Any remaining payments or benefits due under this Agreement will be paid in accordance with the normal payment dates specified herein.

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

8. **Benefit Limit**. In the event any payment to which Executive becomes entitled under this Agreement would otherwise constitute a parachute payment under Code Section 280G, then that payment shall be subject to reduction to the extent necessary to assure that such payment will be limited to the greater of (i) the dollar amount which can be paid to Executive without triggering a parachute payment under Code Section 280G or (ii) the dollar amount of that payment which provides Executive with the greatest after-tax amount after taking into account any excise tax Executive may incur under Code Section 4999 with respect to such payment and any other benefits or payments to which Executive may be entitled in connection with any change in control or ownership of the Company or the subsequent termination of Executive's service.

9. **Tax Withholdings**. Any and all cash compensation and other benefits (including without limitation, base salary, annual bonus, Retention Bonus and severance) paid to Executive under this Agreement shall be subject to all applicable tax withholding requirements, and the Company shall make such other deductions as may be required and/or allowed by applicable law and/or as authorized in writing by Executive.

10. **Definitions**. The terms defined in this section shall have the meanings set forth below for purposes of this Agreement.

(a) "Board" shall mean the board of directors of the Company.

(b) "Cause" shall mean misconduct, including the following:

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

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

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

(iv) a material breach by Executive of this Agreement or the Proprietary Information and Assignment of Inventions Agreement between Executive and the Company.

The foregoing is an exclusive list of the acts or omissions that shall be considered "Cause" for the termination of Executive's employment.

(c) "Change in Control" shall mean a change in ownership or control of the Company effected through any of the following transactions:

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

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

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

(d) "Chief Executive Officer" shall mean the chief executive officer of the Company.

(e) "Code" shall mean the Internal Revenue Code of 1986, as amended.

(f) "Good Reason" shall mean Executive's resignation following any one or more of the following without Executive's written consent:

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

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

(iii) a material diminution in Executive's duties, responsibilities or authority; or

(iv) a material breach of this Agreement by the Company.

In order for a termination of employment to be for Good Reason, Executive must provide written notice to the Board of the existence of one or more conditions described above and his intent to resign for Good Reason hereunder within a period not to exceed thirty (30) days of Employee's knowledge of the initial existence of the condition. Following his providing this notice, the Company shall be provided a period of at least thirty (30) days during which to remedy the condition. Executive shall continue to receive the compensation and benefits provided by this Agreement during the cure period and if the condition is not cured during such period, then at the end of such period Executive's employment shall cease and Executive will become entitled to the severance benefits described above. If the condition is cured, Executive shall not be deemed to have "Good Reason" to terminate his employment.

(g) "Separation from Service" shall mean Executive's cessation of Employee Status and shall be deemed to occur at such time as the level of the bona fide services Executive is to perform in Employee Status (or as a consultant or other independent contractor) permanently decreases to a level that is not more than twenty percent (20%) of the average level of services Executive rendered in Employee Status during the immediately preceding thirty-six (36) months (or such shorter period for which Executive may have rendered such service). Any such determination as to Separation from Service, however, shall be made in accordance with the applicable standards of the Treasury Regulations issued under Code Section 409A. For purposes of determining whether Executive has incurred a Separation from Service, Executive will be deemed to continue in "Employee Status" for so long as he remains in the employ of one or more members of the Employer Group, subject to the control and direction of the employer entity as to both the work to be performed and the manner and method of performance. "Employer Group" means the Company and any other corporation or business controlled by, controlling or under common control with, the Company as determined in accordance with Sections 414(b) and (c) of the Code and the Treasury Regulations thereunder, except that in applying Sections 1563(a)(1), (2) and (3) for purposes of determining the controlled group of corporations under Section 414(b), the phrase "at least 50 percent" shall be used instead of "at least 80 percent" each place the latter phrase appears in such

sections and in applying Section 1.414(c)-2 of the Treasury Regulations for purposes of determining trades or businesses that are under common control for purposes of Section 414(c), the phrase "at least 50 percent" shall be used instead of "at least 80 percent" each place the latter phrase appears in Section 1.414(c)-2 of the Treasury Regulations. In addition to the foregoing, a Separation from Service will not be deemed to have occurred while Executive is on a sick leave or other bona fide leave of absence if the period of such leave does not exceed six (6) months or any longer period for which Executive is provided with a right to reemployment with one or more members of the Employer Group by either statute or contract; ***provided, however,*** that in the event Executive's leave of absence is due to any medically determinable physical or mental impairment that can be expected to result in death or to last for a continuous period of not less than six (6) months and that causes him to be unable to perform his duties as an employee, no Separation from Service shall be deemed to occur during the first twenty-nine (29) months of such leave. If the period of leave exceeds six (6) months (or twenty-nine (29) months in the event of disability as indicated above) and Executive is not provided with a right to reemployment either by statute or contract, then Executive will be deemed to have a Separation from Service on the first day immediately following the expiration of such six (6)-month or twenty-nine (29)-month period.

11. **Arbitration**. Any dispute, controversy, or claim, whether contractual or non-contractual, between Executive and the Company, unless mutually settled, shall be resolved by binding arbitration before the Judicial Arbitration and Mediation Service (the "JAMS"), in accordance with the JAMS Employment Arbitration Rules and Procedures, available at www.jamsadr.com. Executive and the Company each agree that before proceeding to arbitration, they will mediate disputes before the JAMS by a mediator approved by the JAMS. If mediation fails to resolve the matter, any subsequent arbitration shall be conducted by an arbitrator approved by the JAMS and mutually acceptable to Executive and the Company. All disputes, controversies, and claims shall be conducted by a single arbitrator, who shall (i) allow discovery authorized by California Code of Civil Procedure section 1282, et seq., or any other discovery required by applicable law; and (ii) issue a written award that sets forth the essential findings of fact and conclusions of law on which the award is based. The arbitrator shall have the authority to award any relief authorized by law in connection with the asserted claims or disputes. Judgment upon the arbitrator's award may be entered in any court having jurisdiction thereof. If Executive and the Company are unable to agree on the mediator or the arbitrator, then the JAMS shall select the mediator/arbitrator. The resolution of the dispute by the arbitrator shall be final, binding, non-appealable, and fully enforceable by a court of competent jurisdiction under the Federal Arbitration Act. The arbitration award shall be in writing and shall include a statement of the reasons for the award. The arbitration shall be held in San Francisco, California. The Company shall pay all JAMS, mediation, and arbitrator's fees and costs, irrespective of who raised the claim and the outcome of arbitration.

12. **Miscellaneous**.

(a) **Governing Law**. This Agreement shall be interpreted, construed, governed and enforced according to the laws of the State of California.

(b) **Attorneys' Fees**. In the event of any controversy, claim or dispute between the parties, arising out of or relating to this Agreement or the breach hereof, or the interpretation hereof, each party shall bear its own legal fees and expenses. Notwithstanding the foregoing, in the event of a finding by any court having jurisdiction over such matter that any party initiating an action under this Agreement failed to have a reasonable prospect of prevailing on its claim, the court shall have discretion to award the prevailing party attorneys' fees and costs incurred by it with respect to such claim or action. The "prevailing party" means the party determined by the court to have most nearly prevailed, even if such party did not prevail in all matters, not necessarily the one in whose favor a judgment is rendered.

(c) **Amendments**. No amendment or modification of the terms or conditions of this Agreement shall be valid unless in writing and signed by the parties hereto.

(d) **Severability**. If any provision of this Agreement as applied to any party or to any circumstance should be adjudged by a court of competent jurisdiction (or determined by the arbitrator) to be void or unenforceable for any reason, the invalidity of that provision shall in no way affect (to the maximum extent permissible by law) the application of such provision under circumstances different from those adjudicated by the court or determined by the arbitrator, the application of any other provision of this Agreement, or the enforceability or invalidity of this Agreement as a whole. Should any provision of this Agreement become or be deemed invalid, illegal or unenforceable in any jurisdiction by reason of the scope, extent or duration of its coverage, then such provision shall be deemed amended to the extent necessary to conform to applicable law so as to be valid and enforceable or, if such provision cannot be so amended without materially altering the intention of the parties, then such provision will be stricken, and the remainder of this Agreement shall continue in full force and effect.

(e) **Successors and Assigns**. The rights and obligations of the Company under this Agreement shall inure to the benefit of and shall be binding upon the successors and assigns of the Company. Executive shall not be entitled to assign any of his rights or obligations under this Agreement.

(f) **Entire Agreement**. This Agreement, along with any other agreements set forth herein, including without limitation, the Proprietary Information and Inventions Agreement, constitutes the entire agreement between the parties with respect to the employment of Executive.

[signature page follows]

SANGAMO BIOSCIENCES, INC.

By: /s/ H. Ward Wolff
Name: H. Ward Wolff
Title: Executive Vice President and
Chief Financial Officer

EDWARD R. CONNER

/s/ Edward R. Conner

EXHIBIT A

GENERAL SETTLEMENT AND RELEASE AGREEMENT

PURSUANT TO SECTION 5(D) OF THE EMPLOYMENT AGREEMENT BETWEEN SANGAMO BIOSCIENCES, INC. AND EDWARD R. CONNER, EXECUTION OF A GENERAL SETTLEMENT AND RELEASE AGREEMENT, IN SUBSTANTIALLY THE SAME FORM AS THIS EXHIBIT A IS A CONDITION TO EDWARD R. CONNER'S RECEIPT OF CERTAIN PAYMENTS AND BENEFITS PURSUANT TO SECTION 5 OF SUCH AGREEMENT. THIS DOCUMENT IS INTENDED AS A FORM OF THE GENERAL SETTLEMENT AND RELEASE AGREEMENT AND MUST BE FINALIZED BY SANGAMO BIOSCIENCES, INC. PRIOR TO EXECUTION.

GENERAL SETTLEMENT AND RELEASE AGREEMENT

This General Settlement and Release Agreement (the "Agreement") is by and between Sangamo BioSciences, Inc., for itself and for all of its affiliated, related, parent and direct and indirect subsidiary companies, joint venturers and partnerships, successors and permitted assigns and each of them (collectively, the "Company"), on the one hand, and Edward R. Conner, for himself, and his agents, representatives, heirs and assigns (the "Employee"), on the other hand.

1. Payments. In full and complete consideration for the Employee's promises and undertaking set forth in this Agreement, following the eighth (8th) day following receipt by the Company of a fully executed General Settlement and Release Agreement from the Employee, the Company will provide the Employee the consideration, if any, to which the Employee is entitled pursuant to the Employment Agreement between the parties, dated _____, 2016, at the times specified in Section 5 of that Agreement unless the signature on this Agreement is revoked pursuant to Section 8 below.

2. Release of Known and Unknown Claims.

(a) It is understood and agreed by the parties to this Agreement that in consideration of the mutual promises and covenants contained in this Agreement, and after consultation with counsel, the Employee irrevocably and unconditionally releases and forever discharges the Company, its parent, subsidiary and affiliated companies, and all of their past and present officers, directors, employees, agents and assigns (collectively, the "Released Parties"), from any and all causes of action, claims, actions, rights, judgments, obligations, damages, demands, accountings or liabilities of whatever kind or character, which the Employee may have against the Company or any of the Released Parties, or any of them, by reason of or arising out of, touching upon or concerning the Employee's employment, separation of his employment and reapplication for employment with the Company, or any statutory claims, or any and all other matters of whatever kind, nature or description, whether known or unknown, occurring prior to the date of the execution of this Agreement. The Employee acknowledges that this release of claims specifically includes, but is not limited to, any and all claims for fraud; breach of contract; breach of the implied covenant of good faith and fair dealing; inducement of breach; interference with contractual rights; wrongful or unlawful discharge or demotion; violation of public policy; sexual assault and battery; invasion of privacy; intentional or negligent infliction of emotional distress; intentional or negligent misrepresentation; conspiracy; defamation; unlawful effort to prevent employment; discrimination or harassment on the basis of age, race, color, sex, gender, national origin, ancestry, religious creed, physical or mental disability, medical condition, marital status, sexual orientation, genetic information or characteristics, or any other basis protected by applicable law; any claim under: Title VII of the Civil Rights Act of 1964 ("Title VII"); the Americans With Disabilities Act of 1990 ("ADA"); the Age Discrimination in Employment Act of 1967 ("ADEA"); the Employee Retirement Income Security Act of 1974 ("ERISA"); the Equal Pay Act of 1963 ("EPA"); the Fair Labor Standards Act ("FLSA"); the Consolidated Omnibus Budget Reconciliation Act ("COBRA"); the Worker Adjustment and Retraining Notification Act ("WARN"); the Occupational Safety and Health Act ("OSHA"); the Lilly Ledbetter Fair Pay Act of 2009 ("Fair Pay Act"); the California Fair Employment and Housing

Act ("FEHA"); the California Labor Code; and CalOSHA, or any other wrongful conduct, based upon events occurring prior to the date that this Agreement is executed by the Employee. Notwithstanding anything to the contrary herein, this Agreement shall not release the Employee's right, if any, to claims he may have for: (i) indemnification pursuant to the Indemnification Agreement, dated [_____], between Employee and the Company, the bylaws of the Company or insurance policies of the Company, for any claims arising out of the Employee's conduct as an employee or officer of the Company during his employment, (ii) unemployment, workers' compensation, state disability and/or paid family leave insurance benefits pursuant to the terms of applicable state law, (iii) continuation of existing participation in Company-sponsored group health benefit plans under COBRA and/or an applicable state counterpart law, (iv) any benefit entitlements that are vested as of the Employee's termination date pursuant to the terms of a Company-sponsored benefit plan governed by ERISA, (v) stock and/or vested option shares pursuant to the written terms and conditions of the Employee's existing stock option grants and agreements, existing as of his termination date, (vi) violation of any federal, state or local statutory and/or public policy right or entitlement that, by applicable law, is not waivable, and (vii) any wrongful act or omission occurring after the date the Employee signs this Agreement.

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

3. Waiver of Unknown Claims.

(a) The Employee does hereby expressly waive and relinquish all rights and benefits afforded to him under law, and does so understanding and acknowledging the significance and consequences of such a waiver.

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

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

(c) The Employee acknowledges and understands that he is being represented in this matter by counsel, and he expressly acknowledges and agrees that this Agreement is intended to include in its effect, without limitation, all claims which he does not know or suspect to exist at the time of the execution of this Agreement, and that this Agreement contemplates the extinguishment of those claims.

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

4. **Permitted Disclosures and Actions**. Nothing in this Agreement shall prohibit or restrict the Employee from lawfully (A) initiating communications directly with, cooperating with, providing information to, causing information to be provided to, or otherwise assisting in an investigation by any governmental or regulatory agency, entity, or official(s) (collectively, "Governmental Authorities") regarding a possible violation of any law; (B) responding to any inquiry or legal process directed to the Employee individually (and not directed to the Company and/or its subsidiaries) from any such Governmental Authorities; (C) testifying, participating or otherwise assisting in an action or proceeding by any such Governmental Authorities relating to a possible violation of law; or (D) making any other disclosures that are protected under the whistleblower provisions of any applicable law. Additionally, pursuant to the federal Defend Trade Secrets Act of 2016, the Employee shall not be held criminally or civilly liable under any federal or state trade secret law for the disclosure of a trade secret that: (a) is made (i) in confidence to a federal, state, or local government official, either directly or indirectly, or to an attorney; and (ii) solely for the purpose of reporting or investigating a suspected violation of law; or (b) is made to the Employee's attorney in relation to a lawsuit for retaliation against the Employee for reporting a suspected violation of law; or (c) is made in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal. Nor does this Agreement require the Employee to obtain prior authorization from the Company before engaging in any conduct described in this paragraph, or to notify the Company that the Employee has engaged in any such conduct.

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

6. **No Filing of Claims**. The Employee specifically represents that he has no pending complaints or charges against the Company or any of the other Released Parties with any state or federal court or any local, state or federal agency, division or department based on any events occurring prior to the date of execution of this Agreement.

7. **Advice of Counsel**. The Employee acknowledges that he has been given twenty-one days (21) to seek the advice of counsel and to consider the effects of this Agreement upon his legal rights (the "Consideration Period"). To the extent that the Employee has signed the Agreement without obtaining the advice of counsel or before expiration of the Consideration Period, the Employee acknowledges that he has done so voluntarily with a full understanding of the Agreement and its effect upon his legal rights. Any discussion between the Employee and the Company or any of the Released Parties concerning the terms and conditions of this Agreement does not extend the Consideration Period.

8. **Revocation Period**. The Employee acknowledges that he has been informed that, after he signs this Agreement, he has the right to revoke his signature for a period of seven days (7) from the date that he signs the Agreement. To be effective, the revocation must be in writing, signed by the Employee, and delivered to Vice President of Human Resources at 501 Canal Boulevard, Point Richmond Technology Center, Richmond, California 94804 before the close of business on the seventh day (7th) day following the date the Employee signs this Agreement. The Employee acknowledges and agrees that the Company has no obligation to comply with the terms of this Agreement until the Revocation Period has expired without revocation, at which time this Agreement will become effective and enforceable.

9. **Nondisparagement**. The Employee agrees that he will not disparage the Company or any of the Released Parties, or their products, services, officers, directors, employees, with any written or oral statement and the Company agrees that it will not disparage the Employee.

10. **Confidentiality.** The Employee consents and agrees that he will not, at any time, disclose the existence of this Agreement, the terms of his severance benefits and/or the alleged facts or circumstances giving rise to any actual or alleged claims to any person, firm, company, association, or entity or the press or media for any reason or purpose whatsoever, other than to his attorney, his immediate family and to his accountant or financial advisor for tax purposes. If the Employee is served with any subpoena, court order, or other legal process seeking disclosure of any such information, the Employee shall promptly send to the Company, within forty-eight (48) hours, via facsimile at (510) 970-_____, such subpoena, court order, or other legal process so that the Company may exercise any applicable legal remedies. The Employee agrees and acknowledges that a violation of this paragraph by the Employee shall be a material breach of this Agreement.

11. **Delivery of Documents**. The Employee represents and warrants that he has not removed any documents, records or other information, including any such documents, records or information that are or were electronically stored, from the premises of the Company. The Employee acknowledges that such documents, records and other information are the exclusive property of the Company or its subsidiaries or affiliates.

12. **Remedies For Breach Of This Agreement**.

(a) **Injunctive Relief**. In the event of a breach of the provisions of this Agreement, the Employee agrees that any remedy at law for any breach or threatened breach of the

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

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

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

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

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

15. **Section 409A**. It is the intention of the parties that the provisions of this Agreement comply with the requirements of Section 409A of the Internal Revenue Code ("Section 409A") and the Treasury Regulations thereunder. Accordingly, to the extent there is any ambiguity as to

whether one or more provisions of this Agreement would otherwise contravene the applicable requirements or limitations of Section 409A, then those provisions shall be interpreted and applied in a manner that does not result in a violation of the applicable requirements or limitations of Section 409A and the Treasury Regulations thereunder. In no event may the Employee, directly or indirectly, designate the calendar year of a payment.

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

17. **Ambiguities**. Attorneys for both parties have participated in the negotiation of this Agreement and, thus, it is understood and agreed that the general rule that ambiguities are to be construed against the drafter shall not apply to this Agreement. In the event that any language of this Agreement is found to be ambiguous, each party shall have an opportunity to present evidence as to the actual intent of the parties with respect to any such ambiguous language.

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

19. **Counterparts**. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original, all of which together shall constitute one and the same instrument.

THE SIGNATORIES HAVE CAREFULLY READ THIS ENTIRE AGREEMENT. ITS CONTENTS HAVE BEEN FULLY EXPLAINED TO THEM BY THEIR ATTORNEYS. THE SIGNATORIES FULLY UNDERSTAND THE FINAL AND BINDING EFFECT OF THIS AGREEMENT. THE ONLY PROMISES MADE TO ANY SIGNATORY ABOUT THIS AGREEMENT, AND TO SIGN THIS AGREEMENT, ARE CONTAINED IN THIS AGREEMENT. THE SIGNATORIES ARE SIGNING THIS AGREEMENT VOLUNTARILY.

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

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

SANGAMO BIOSCIENCES, INC.:

DATE:

EMPLOYEE:

DATE:

EXHIBIT B

Proprietary Information, Inventions and Materials Agreement

DB2/ 30746911.1

Exhibit 10.4

SANGAMO THERAPEUTICS, INC.
EXECUTIVE SEVERANCE PLAN

INTRODUCTION

The Sangamo Therapeutics, Inc. Executive Severance Plan (the "Plan") is adopted effective as of March 14, 2017 (the "Effective Date").

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

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

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

Article 1
Definitions

1.1 "Base Salary" means 1/12 of the amount of annual base salary payable to the Participant at the salary rate in effect on the last day of the Participant's employment with the Company.

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

1.3 "Cause" means misconduct, including the following:

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

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

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

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

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

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

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

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

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

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

1.7 "Eligible Employee" means an employee of the Company serving as (i) the Chief Executive Officer of the Company, (ii) an executive officer (other than as the Chief Executive

Officer) or Senior Vice President of the Company or (iii) a Vice President of the Company, unless the Plan Administrator determines otherwise.

1.8 "Employer Group" means the Company and any other corporation or business controlled by, controlling or under common control with, the Company as determined in accordance with Sections 414(b) and (c) of the Code and the Treasury Regulations thereunder, except that in applying Sections 1563(a)(1), (2) and (3) for purposes of determining the controlled group of corporations under Section 414(b) of the Code, the phrase "at least 50 percent" shall be used instead of "at least 80 percent" each place the latter phrase appears in such sections and in applying Section 1.414(c)-2 of the Treasury Regulations for purposes of determining trades or businesses that are under common control for purposes of Section 414(c) of the Code, the phrase "at least 50 percent" shall be used instead of "at least 80 percent" each place the latter phrase appears in Section 1.414(c)-2 of the Treasury Regulations.

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

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

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

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

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

In order for a termination of employment to be for Good Reason, the Participant must provide written notice to the Plan Administrator of the existence of one or more conditions described above and the Participant's intent to resign for Good Reason hereunder within a period not to exceed thirty (30) days of the Participant's knowledge of the initial existence of the condition. Following the Participant providing this notice, the Company shall be provided a period of at least thirty (30) days during which to remedy the condition. The Participant shall continue to receive the Participant's compensation and benefits during the cure period and if the condition is not cured during such period, then at the end of such period the Participant's employment shall cease and the Participant may become entitled to the severance benefits described in this Plan. If the condition is cured, the Participant shall not be deemed to have "Good Reason" to terminate the Participant's employment.

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

1.11 "Severance Period" means the period during which the Participant is receiving cash severance pay under either Section 4.1 or Section 4.2.

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

Article 2
Eligibility

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

Article 3
Plan Administration

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

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

Article 4
Severance Benefits

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

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

(b) Reimbursement for Health Coverage. If the Participant is eligible for and timely elects to receive continued health coverage under the Company's health plan under COBRA at a level of coverage at or below the Participant's level of coverage in effect on the date of the Participant's Separation from Service, then for the period beginning on the date of the Participant's Separation from Service and ending on the earlier of (i) the date on which the Participant first becomes covered by any other "group health plan" as described in Section 4980B(g)(2) of the Code or (ii) the last day of the Severance Period (the "Coverage Period"), the Company shall reimburse the Participant monthly an amount equal to the monthly COBRA premium paid by the Participant, less the premium charge that is paid by the Company's active employees for such coverage as in effect on the date of the Participant's Separation from Service. The payments shall

commence within the sixty (60)-day period measured from the date of the Participant's Separation from Service. However, should such sixty (60)-day period span two (2) taxable years, then the first such payment shall be made during the portion of that sixty (60)-day period that occurs in the second taxable year. The remaining payments shall be made in accordance with the Company's regular payroll schedule for its salaried employees. In order to receive reimbursements hereunder, the Participant must provide proof of payment of the applicable premiums prior to the applicable reimbursement payment date. The first payment shall include any payments for the period from the date of the Participant's Separation from Service to the commencement date. The Company shall reimburse the Participant under this Section 4.1(b) only for the portion of the Coverage Period during which the Participant continues coverage under the Company's health plan. The Participant agrees to promptly notify the Company of the Participant's coverage under an alternative health plan upon becoming covered by such alternative plan. The COBRA health care continuation coverage period under Section 4980B of the Code shall run concurrently with the Coverage Period. Notwithstanding the foregoing, the Company reserves the right to restructure the foregoing COBRA premium reimbursement arrangement in any manner necessary or appropriate to avoid fines, penalties or negative tax consequences to the Company or the Participant (including, without limitation, to avoid any penalty imposed for violation of the nondiscrimination requirements under the Patient Protection and Affordable Care Act (or any other applicable laws and regulations) or the guidance issued thereunder), as determined by the Company in its sole and absolute discretion, including treating such reimbursements as taxable benefits subject to withholding.

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

(i) Chief Executive Officer: 12

(ii) Executive Officer (other than Chief Executive Officer) or Senior Vice President: 9

(iii) Vice President: 6

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

(a) Cash Severance. The Company shall pay in cash an amount equal to the sum of (i) the CIC Applicable Multiple (as set forth in subsection (d)

below) of the Participant's Base Salary plus (ii) the Participant's target bonus for the year in which the Separation from Service occurs, subject to any reduction provided for in the Incentive Compensation Plan (for purpose of which "Employment Agreement" shall include this Plan) or any successor bonus plan for any bonus paid to the Participant under such plan in connection with such Change in Control and based in whole or in part on the target bonus amount. Such cash severance payments shall be made in the form and at the times set forth in Section 4.1(a) over a period of months equal to (i) the Applicable Multiple set forth in Section 4.1(c) above for the Chief Executive Officer and (ii) the CIC Applicable Multiple set forth in Section 4.2(d) below for the other Participants.

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

(c) Accelerated Vesting. The Participant shall vest on an accelerated basis with respect to 100% of the unvested shares subject to any option to purchase shares of the Company's common stock or any other equity award granted to the Participant to the extent outstanding and unvested at the time of the Participant's Separation from Service. Each of the Participant's stock options to the extent outstanding and as so vested at the time of the Participant's Separation from Service under this Section 4.2(c) shall remain exercisable for a period of twelve (12) months measured from the date of Separation from Service, but in no event beyond the expiration of the maximum option term.

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

(i) Chief Executive Officer: 18

(ii) Executive Officer (other than Chief Executive Officer) or Senior Vice President: 12

(iii) Vice President: 9

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

4.4 Release Requirement. Notwithstanding anything to the contrary in this Plan, in order to receive any severance payments or benefits under this Plan, the Participant must first execute and deliver to the Company, within twenty-one (21) days (or forty-five (45) days if such longer period is required under applicable law) after the effective date of the Participant's Separation from Service, a general settlement and release agreement in substantially the form attached hereto as Exhibit A (the "General Release") and such General Release must become effective and enforceable in accordance with its terms following the expiration of any applicable revocation period under federal or state law. If such General Release is not executed and delivered to the Company within the applicable twenty-one (21) (or forty-five (45))-day period hereunder or does not otherwise become effective and enforceable in accordance with its terms, then no severance payments or benefits will provided to the Participant under this Plan.

4.5 Benefit Limit. In the event any payment to which the Participant becomes entitled under this Plan would otherwise constitute a parachute payment under Section 280G of the Code, then that payment shall be subject to reduction to the extent necessary to assure that such payment will be limited to the greater of (a) the dollar amount which can be paid to the Participant without triggering a parachute payment under Section 280G of the Code or (b) the dollar amount of that payment which provides the Participant with the greatest after-tax amount after taking into account any excise tax the Participant may incur under Section 4999 of the Code with respect to such payment and any other benefits or payments to which the Participant may be entitled in connection with any change in control or ownership of the Company or the subsequent termination of the Participant's service.

Article 5
Claims and Review Procedures

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

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

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

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

(i) The specific reason for the denial;

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

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

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

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

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

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

(b) Additional Submissions - Information Access. The claimant shall then have the opportunity to submit written comments, documents, records and other information relating to the claim. The Plan Administrator shall also provide the claimant, upon request and free of charge, reasonable access to, and copies of, all documents, records and other information relevant (as defined in applicable ERISA regulations) to the claimant's claim for benefits.

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

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

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

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

Article 6
Amendment and Termination

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

Article 7
Miscellaneous

7.1 Section 409A.

(a) The severance payments and other benefits under this Plan are intended, where possible, to comply with the "short term deferral exception" and the "involuntary separation pay exception" to Section 409A of the Code. Accordingly, the provisions of this Plan applicable to the severance payments described in Article 4 and the determination of the Participant's Separation from Service due to termination of the Participant's employment without Cause or the Participant's resignation for Good Reason shall be applied, construed and administered so that those payments and benefits qualify for one or both of those exceptions, to the maximum extent allowable. However, to the extent any payment or benefit to which the Participant becomes entitled under this Plan is deemed to constitute an item of deferred compensation subject to the requirements of Section 409A of the Code, the provisions of this Plan applicable to that payment or benefit shall be applied, construed and

administered so that such payment or benefit is made or provided in compliance with the applicable requirements of Section 409A of the Code. In addition, should there arise any ambiguity as to whether any other provisions of this Plan would contravene one or more applicable requirements or limitations of Section 409A of the Code and the Treasury Regulations thereunder, such provisions shall be interpreted, administered and applied in a manner that complies with the applicable requirements of Section 409A of the Code and the Treasury Regulations thereunder. The severance payments under Article 4 shall be treated as a right to a series of separate payments for purposes of Section 409A of the Code.

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

(c) During the period the COBRA premium reimbursement arrangement remains in effect, the following provisions shall govern the arrangement: (i) the amount of the COBRA premiums eligible for reimbursement in any one calendar year during the Coverage Period shall not affect the amount of such costs eligible for reimbursement in any other calendar year for which such reimbursement is to be provided hereunder; (ii) no costs shall be reimbursed after the close of the calendar year following the calendar

year in which those costs were incurred; and (iii) the Participant's right to the reimbursement of such costs cannot be liquidated or exchanged for any other benefit.

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

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

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

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

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

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

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

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

SANGAMO THERAPEUTICS, INC.

By: /s/ Alexander D. Macrae

Its: President and Chief Executive Officer

Exhibit 31.1

CERTIFICATION

I, Alexander D. Macrae, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Sangamo Therapeutics, Inc. ("registrant")

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

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

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

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

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

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

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

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

   (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: May 10, 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. ("registrant")

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

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

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

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

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

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

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

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

   (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: May 10, 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

Each of the undersigned hereby certifies pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002 in his capacity as an officer of Sangamo Therapeutics, Inc. (the "Company"), that:

(1) the Quarterly Report of the Company on Form 10-Q for the quarterly period ended March 31, 2017, as filed with the Securities and Exchange Commission (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

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

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

Date: May 10, 2017

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

Date: May 10, 2017