

SANGAMO BIOSCIENCES INC

Form 424B5

September 17, 2013

Table of Contents

Filed pursuant to Rule 424(b)(5)
Registration File No.: 333-179634

The information in this preliminary prospectus supplement and the accompanying prospectus, relating to an effective registration statement under the Securities Act of 1933, as amended, is not complete and may be changed. This preliminary prospectus supplement and the accompanying prospectus are not an offer to sell these securities and we are not soliciting an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED SEPTEMBER 17, 2013

Prospectus Supplement

(To Prospectus dated April 12, 2012)

Shares

Sangamo BioSciences, Inc.

Common Stock

We are offering shares of our common stock. Shares of our common stock trade on The NASDAQ Global Select Market under the symbol SGMO. On September 16, 2013, the last reported sale price of our common stock was \$10.73 per share.

Investing in our common stock involves a high degree of risk. See Risk Factor beginning on page S-6 of this prospectus supplement.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus supplement or the accompanying prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

| | Per Share | Total |
|---|----------------------|--------------|
| Public Offering Price | \$ | \$ |
| Underwriting Discounts and Commission | \$ | \$ |
| Proceeds to Sangamo BioSciences, Inc. (Before Expenses) | \$ | \$ |

We estimate the total expenses of this offering, excluding the underwriting discounts and commissions, will be approximately \$240,000. The underwriters may also purchase up to an additional _____ shares of our common stock from us at the public offering price, less underwriting discounts and commissions, to cover over-allotments, if any, within 30 days of the date of this prospectus supplement.

We anticipate that delivery of the shares of our common stock will be made through the facilities of the Depository Trust Company on or about September _____, 2013, subject to customary closing conditions.

Joint Book Running Managers

Lazard Capital Markets

JMP Securities
Prospectus Supplement dated September _____, 2013.

Piper Jaffray & Co.

Table of Contents

Table Of Contents

Prospectus Supplement

| | |
|--|------|
| <u>About This Prospectus Supplement</u> | S-1 |
| <u>Prospectus Supplement Summary</u> | S-2 |
| <u>Risk Factors</u> | S-6 |
| <u>Special Note Regarding Forward Looking Statements</u> | S-23 |
| <u>Use Of Proceeds</u> | S-24 |
| <u>Dividend Policy</u> | S-24 |
| <u>Dilution</u> | S-25 |
| <u>Underwriting</u> | S-27 |
| <u>Legal Matters</u> | S-31 |
| <u>Where You Can Find More Information</u> | S-31 |
| <u>Incorporation Of Certain Documents By Reference</u> | S-32 |

Prospectus

| | |
|--|----|
| <u>About This Prospectus</u> | 1 |
| <u>Special Note Regarding Forward-Looking Statements</u> | 2 |
| <u>About Sangamo BioSciences, Inc.</u> | 2 |
| <u>Risk Factors</u> | 3 |
| <u>Use Of Proceeds</u> | 4 |
| <u>Ratio Of Earnings To Fixed Charges</u> | 4 |
| <u>Plan Of Distribution</u> | 4 |
| <u>The Securities We May Offer</u> | 6 |
| <u>Description Of Common Stock</u> | 7 |
| <u>Description Of Preferred Stock</u> | 7 |
| <u>Description Of Debt Securities</u> | 8 |
| <u>Description Of Warrants</u> | 14 |
| <u>Legal Matters</u> | 14 |
| <u>Experts</u> | 15 |
| <u>Where You Can Find More Information</u> | 15 |
| <u>Incorporation Of Certain Documents By Reference</u> | 15 |

Table of Contents

ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying prospectus dated April 12, 2012 is part of a shelf registration statement on Form S-3 we filed on February 22, 2012 with the Securities and Exchange Commission and was declared effective by the Securities and Exchange Commission on April 12, 2012. By using a shelf registration statement, we may sell shares of common stock, preferred stock, debt securities, warrants to purchase common stock and/or warrants to purchase preferred stock, as described in the accompanying prospectus, from time to time in one or more offerings up to a total of \$100,000,000.

This document is in two parts. The first part is this prospectus supplement, which describes the specific terms of this common stock offering and also adds to and updates information contained in the accompanying prospectus and the documents incorporated by reference herein. The second part, the accompanying prospectus, provides more general information. Generally, when we refer to this prospectus, we are referring to both parts of this document combined. To the extent there is a conflict between the information contained in this prospectus supplement and the information contained in the accompanying prospectus or any document incorporated by reference therein filed prior to the date of this prospectus supplement, you should rely on the information in this prospectus supplement; provided that if any statement in one of these documents is inconsistent with a statement in another document having a later date for example, a document incorporated by reference in the accompanying prospectus the statement in the document having the later date modifies or supersedes the earlier statement.

We further note that the representations, warranties and covenants made by us in any agreement that is filed as an exhibit to any document that is incorporated by reference herein were made solely for the benefit of the parties to such agreement, including, in some cases, for the purpose of allocating risk among the parties to such agreements, and should not be deemed to be a representation, warranty or covenant to you. Moreover, such representations, warranties or covenants were accurate only as of the date when made. Accordingly, such representations, warranties and covenants should not be relied on as accurately representing the current state of our affairs.

You should rely only on the information contained in this prospectus supplement or the accompanying prospectus, or incorporated by reference herein. We have not authorized, and the underwriters have not authorized, anyone to provide you with information that is different. The information contained in this prospectus supplement or the accompanying prospectus, or incorporated by reference herein, is accurate only as of the respective dates thereof, regardless of the time of delivery of this prospectus supplement and the accompanying prospectus or of any sale of our common stock. It is important for you to read and consider all information contained in this prospectus supplement and the accompanying prospectus, including the documents incorporated by reference herein and therein, in making your investment decision. You should also read and consider the information in the documents to which we have referred you in the sections entitled *Where You Can Find More Information* and *Incorporation of Certain Information by Reference* in this prospectus supplement and in the accompanying prospectus.

We are offering to sell, and seeking offers to buy, shares of our common stock only in jurisdictions where offers and sales are permitted. The distribution of this prospectus supplement and the accompanying prospectus and the offering of the common stock in certain jurisdictions may be restricted by law. Persons outside the United States who come into possession of this prospectus supplement and the accompanying prospectus must inform themselves about, and observe any restrictions relating to, the offering of the common stock and the distribution of this prospectus supplement and the accompanying prospectus outside the United States. This prospectus supplement and the accompanying prospectus do not constitute, and may not be used in connection with, an offer to sell, or a solicitation of an offer to buy, any securities offered by this prospectus supplement and the accompanying prospectus by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation.

Unless otherwise stated, all references in this prospectus supplement and the accompanying prospectus to we, us, our, Sangamo, the Company and similar designations refer to Sangamo BioSciences, Inc. and its subsidiaries on a consolidated basis.

S-1

Table of Contents

PROSPECTUS SUPPLEMENT SUMMARY

*This summary highlights certain information about us, this offering and selected information contained elsewhere in or incorporated by reference in this prospectus supplement. This summary is not complete and does not contain all of the information that you should consider before deciding whether to invest in our common stock. For a more complete understanding of our company and this offering, we encourage you to read and consider carefully the more detailed information in this prospectus supplement and the accompanying prospectus, including the information referred to under the heading *Risk Factors* in this prospectus supplement beginning on page S-6 the information incorporated by reference in this prospectus supplement and the accompanying prospectus, and the information included in any free writing prospectus that we have authorized for use in connection with this offering.*

Our Business

Overview

We are a clinical stage biopharmaceutical company focused on the research, development and commercialization of engineered DNA-binding proteins for the development of novel therapeutic strategies for unmet medical needs. Our current mission is to develop ZFP Therapeutics, or human therapeutics based on our proprietary ZFP technology, through early stage clinical testing, strategically partner with biopharmaceutical companies at points of value inflection and have the partner execute late-stage clinical trials and commercial development. In the long term, our goal is to integrate marketing and development operations and to capture the value of late-stage and commercial ZFP Therapeutic products for ourselves.

We, and our licensed partners, are the leaders in the research, development and commercialization of zinc finger DNA-binding proteins (ZFPs), a naturally occurring class of proteins. We have used our knowledge and expertise to develop a proprietary technology platform. ZFPs can be engineered to make ZFP nucleases (ZFNs), proteins that can be used to modify DNA sequences in a variety of ways and ZFP transcription factors (ZFP TFs), proteins that can be used to turn genes on or off. As ZFPs act at the DNA level, they have broad potential applications in several areas including human therapeutics, plant agriculture and research reagents, as well as production of transgenic animals and cell-line engineering.

The main focus for our company is the development of novel human therapeutics and we are building a pipeline of ZFP Therapeutics. Our lead ZFP Therapeutic, SB-728-T, a ZFN-modified autologous T-cell product for the treatment of HIV/AIDS, is the first therapeutic application of our ZFN technology and is being evaluated in ongoing clinical trials, the most advanced of which are a Phase 2 study (SB-728-902 Cohort 5) and a Phase 1/2 study (SB-728-1102) in HIV-infected subjects. We expect to present data from these programs at appropriate scientific and medical meetings in 2013.

In January 2012, we established a collaborative partnership with Shire AG (Shire) to research, develop and commercialize some of our preclinical ZFP Therapeutic development programs, including programs in hemophilia, Huntington's disease and other monogenic diseases. We also have several proprietary preclinical programs in monogenic diseases, including hemoglobinopathies such as sickle cell disease and β -thalassemia and several lysosomal storage disorders. In addition, we have research stage programs in other monogenic diseases, including certain immunodeficiencies.

We believe the potential commercial applications of ZFPs are broad-based and we have also licensed our ZFP platform in fields outside human therapeutics as follows to facilitate the sale or license of ZFNs and ZFP TFs:

We have a license agreement with the research reagent company Sigma-Aldrich Corporation (Sigma). Sigma has the exclusive rights to develop and market high value laboratory research reagents based

S-2

Table of Contents

upon our ZFP technology as well as ZFP-modified cell lines for commercial production of protein pharmaceuticals and ZFP-engineered transgenic animals. Sigma is marketing ZFN-derived gene editing tools under the trademark CompoZr®.

We have a license agreement with Dow AgroSciences, LLC (DAS), a wholly owned subsidiary of Dow Chemical Corporation. Under the agreement, we have provided DAS with access to our ZFP technology and the exclusive rights to use it to modify the genomes or alter protein expression of plant cells, plants, or plant cell cultures. DAS markets our ZFN technology under the trademark EXZACT™ Precision Technology. We have retained rights to use plants or plant-derived products to deliver ZFP TFs or ZFNs into human or animals for diagnostic, therapeutic, or prophylactic purposes.

On August 23, 2013, we entered into a definitive agreement to acquire Ceregene, Inc. (Ceregene), a privately held biotechnology company focused on the development of adeno-associated virus (AAV) gene therapies. The acquired assets include all of Ceregene's therapeutic programs, including CERE-110, an AAV vector delivery system for the treatment of Alzheimer's disease that is currently in a Phase 2 clinical trial, certain intellectual property rights relating to the manufacturing of AAV, and certain toxicology and safety data from Ceregene's human clinical trials. We believe that these additional assets provide valuable reference materials for us in the preparation and filing of IND applications for our *in vivo* ZFP Therapeutics, particularly those that target the brain. The acquisition is expected to close in September 2013, subject to customary closing conditions.

We have a substantial intellectual property position in the design, selection, composition, and use of engineered ZFPs to support all of these commercial activities. As of June 30, 2013, we either owned outright or have exclusively licensed the commercial rights to approximately 389 patents issued in the United States and foreign national jurisdictions, and we have 526 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 ZFP technology across our chosen applications.

Recent Development

On September 12, 2013, we presented new data from our ongoing Phase 2 clinical trial (SB-728-902 Cohort 5) to evaluate a single infusion of our novel ZFP Therapeutic, SB-728-T, for treatment of HIV/AIDS at the 53rd Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC). The data demonstrated functional control of the virus at or below the limit of detection in CCR5 delta 32 heterozygote HIV-infected subjects treated with SB-728-T. Also on September 11, 2013, we presented data at ICAAC demonstrating depletion of the HIV viral reservoir in SB-728-T treated subjects in cohorts 1-3 of the SB-728-902 study.

Data from the presentation demonstrated that viral load (VL) became undetectable during a treatment interruption (TI) from standard antiretroviral therapy (ART) in a total of three of seven evaluable CCR5 delta 32 heterozygote HIV-infected subjects, including two of six subjects that had completed TI in the ongoing SB-728-902 Cohort 5 study and an additional subject from an earlier Phase 1 clinical trial of SB-728-T. In one SB-728-T treated subject featured in the presentation, the VL has remained undetectable (at or below the limits of quantification (LOQ) of the current ultra-sensitive assays for HIV) for seven weeks (to last measurement taken) and the TI is ongoing. Reduction in VL from peak during TI showed a statistically significant correlation ($p=0.015$) with estimated numbers of engrafted ZFN modified cells (SB-728-T) in which both copies of the CCR5 gene had been disrupted (biallelic modification) in line with previously presented data from this program.

In addition, the data we presented on September 11, 2013 demonstrated that treatment of HIV-infected subjects with SB-728-T leads to a long-term increase in CD4 counts. The effect on total CD4 counts in SB-728-T treated subjects was significantly greater than those observed in previously published T-cell infusion studies without CCR5 modification and correlated with increased CD4 central memory and increased CCR5-disrupted

S-3

Table of Contents

central memory cells. In addition, a median 0.6 log reduction decrease in the size of the HIV reservoir at twelve months was observed, as demonstrated by measurement of HIV total DNA in peripheral blood mononuclear cells (PBMCs). The decrease in reservoir showed a statistically significant correlation with the improvement in CD4 count. Finally, data were presented describing possible predictors of robust CD4 T-cell reconstitution and immunological response post SB-728-T infusion.

Risk Factors

An investment in our common stock is subject to a number of risks and uncertainties. Before investing in our common stock, you should carefully consider the following, as well as the more detailed discussion of risk factors and other information included in this prospectus supplement:

ZFP Therapeutics have undergone limited testing in humans and our ZFP Therapeutics may fail safety studies in clinical trials;

Our progress in early Phase 1 and Phase 2 trials may not be indicative of long-term efficacy in late stage clinical trials;

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 of our product candidates;

While we have stated that we intend to file IND applications for several ZFP Therapeutic programs over the next three years, we may encounter difficulties that may delay, suspend or scale back these efforts;

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

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; and

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.

Company and Other Information

Our principal offices are located at 501 Canal Boulevard, Richmond, California, 94804, and our telephone number there is (510) 970-6000. Our website address is www.sangamo.com. We do not incorporate the information on or accessible through our website into this prospectus, and you should not consider any information on, or that can be accessed through, our website as part of this prospectus. For further information regarding us and our financial information, you should refer to our recent filings with the Securities and Exchange Commission. See [Where You Can Find More Information](#) and [Incorporation of Certain Documents by Reference](#).

ZFP Therapeutics® is a registered trademark of Sangamo BioSciences, Inc. This prospectus supplement and the accompanying prospectus and information incorporated by reference into this prospectus supplement and the accompanying prospectus also contain trademarks and trade names that are the property of their respective owners.

S-4

Table of Contents

THE OFFERING

Common stock offered by us in this offering shares

Option to purchase additional shares We have granted the underwriters an option for a period of up to 30 days from the date of this prospectus supplement to purchase up to additional shares of common stock at the public offering price less the underwriting discounts and commissions to cover over-allotments, if any.

Common stock to be outstanding immediately after this offering shares (or shares if the underwriters exercises in full their over-allotment option to purchase additional shares).

Use of proceeds We intend to use the net proceeds from this offering for working capital and other general corporate purposes, including support for our continuing research and development of our ZFP Therapeutic product candidates and research programs, commercialization activities, clinical trials, business development activities and, if opportunities arise, acquisitions of businesses, products, technologies or licenses that are complementary to our business. See Use of Proceeds on page S-24.

Risk Factors You should carefully read Risk Factors on page S-6 in this prospectus for a discussion of factors that you should consider before deciding to invest in our common stock.

NASDAQ Global Select Market symbol SGMO

The number of shares of common stock to be outstanding after this offering is based on 53,974,452 shares outstanding on June 30, 2013. It excludes:

8,344,138 shares of common stock issuable upon exercise of options outstanding as of June 30, 2013, of which 6,038,091 shares are exercisable under our 2013 Stock Incentive Plan (2013 Plan), at a weighted average exercise price of \$6.76 per share;

1,006,750 shares of common stock issuable upon settlement of outstanding restricted stock units;

4,406,666 shares available for grant as of June 30, 2013 under our 2013 Plan;

1,618,084 shares available for grant as of June 30, 2013 under our employee stock purchase plan; and

100,000 shares to be issued upon closing of the acquisition of Ceregene, Inc.

Except as otherwise indicated, all information in this prospectus supplement assumes no exercise of the underwriter's option to purchase additional shares to cover over-allotment.

S-5

Table of Contents**RISK FACTORS**

An investment in our common stock involves a high degree of risk. Before deciding whether to invest in our common stock, you should consider carefully the risks described below, together with other information in this prospectus supplement, the accompanying prospectus, the information and documents incorporated by reference, and in any free writing prospectus that we have authorized for use in connection with this offering. If any of these risks actually occurs, our business, financial condition, results of operations or cash flow could be seriously harmed. This could cause the trading price of our common stock to decline, resulting in a loss of all or part of your investment. The risks and uncertainties described below are not the only ones facing us. Additional risks and uncertainties not presently known to us, or that we currently see as immaterial, may also harm our business

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

ZFP Therapeutics have undergone limited testing in humans and our ZFP Therapeutics may fail safety studies in clinical trials.

In December 2008, in collaboration with scientists at the University of Pennsylvania, we filed an Investigational New Drug (IND) application for a Phase 1 trial of our CCR5 ZFN-based therapeutic, SB-728-T, for treatment of HIV/AIDS. In September 2009, we announced the FDA's review and acceptance of our IND application to initiate an open-label, repeat-dosing Phase 1 clinical trial of SB-728-T (SB-728-902). Preliminary data from these studies demonstrated that, to date, treatment of aviremic HIV-infected subjects with SB-728-T has been well-tolerated. We also have an on-going Phase 2 (SB-728-902, Cohort 5) and two Phase 1/2 trials (SB-728-1101 and 1002) for this indication. In addition, we have previously completed enrollment and the treatment phase of a Phase 1 and several Phase 2 clinical trials of our ZFP Therapeutic, SB-509, for diabetic neuropathy and ALS and the drug was well tolerated in these studies. However, if one of our ZFP Therapeutic fails one of its safety studies, it could reduce our ability to attract new investors and corporate partners.

All of these studies are designed primarily to evaluate the safety and tolerability of this ZFP Therapeutic approach. Our clinical studies are a highly visible test of our ZFP Therapeutics. Since we have increased our focus on therapeutic research and development, investors increasingly assess the value of our technology based on the continued progress of ZFP Therapeutic products into and through clinical trials. If clinical trials of our ZFP Therapeutic products were halted due to safety concerns, this would negatively affect our operations and the value of our stock.

Our progress in early Phase 1 and Phase 2 trials may not be indicative of long-term efficacy in late stage clinical trials.

The results in early phases of clinical testing are based upon limited numbers of patients and a limited follow-up period. Typically, our Phase 1 clinical trials for indications of safety enroll less than 25 patients. Our Phase 2 and late-stage clinical trials generally enroll a larger number of patients. Accordingly, any positive data obtained in early Phase 1 and Phase 2 trials may not be indicative of long-term efficacy in late-stage clinical trials. In September 2011, we announced preliminary data from our Phase 1 clinical program to develop SB-728-T for the treatment of HIV/AIDS. The data demonstrated a statistically significant relationship between SB-728-T and the reduction of HIV viral load. In January 2012, we initiated a Phase 2 clinical study (SB-728-902, Cohort 5) and a Phase 1/2 clinical study (SB-728-1101) for the treatment of HIV/AIDS. In May 2013, we presented preliminary data from these two ongoing clinical trials. Two of four evaluable subjects in Cohort 5 showed a decrease of greater than one log in their viral load during a sixteen week treatment interruption (TI) with one subject achieving a transiently undetectable viral load during the TI period. In subjects in which viral load decreased, a measureable anti-HIV immune response was also

observed. Additional data were presented from the Company's Phase 1 study (SB-728-902, Cohorts 1-3) that demonstrated a long-term decrease in the peripheral blood mononuclear cell (PBMC) HIV reservoir. In September 2013, we presented new data from our ongoing

S-6

Table of Contents

Phase 2 clinical trial (SB-728-902 Cohort 5) for treatment of HIV/AIDS, demonstrating functional control of the virus at or below the limit of detection in HIV-infected subjects treated with SB-728-T, as well as additional data demonstrating depletion of the HIV viral reservoir in SB-728-T treated subjects in cohorts 1-3 of the SB-728-902 study. We expect to present a full data set from these trials in the second half of 2013. However, there is no guarantee that these and other future studies of SB-728-T in later stage trials involving larger patient groups may produce positive or similar results as those obtained in earlier trials.

In addition, the initial results from the Phase 1 clinical trial of our ZFP Therapeutic product, SB-509, became available in the first half of 2006 and the complete data set was presented in June 2008. The primary end point of the trial was clinical and laboratory safety; however, we collected some preliminary efficacy data that showed trends of clinical improvement in some subjects. Notwithstanding this preliminary efficacy data, the top-line data from our Phase 2b clinical study for SB-509-901 did not meet the key primary or secondary endpoints for the study and as a result we discontinued development of our SB-509 program in October 2011.

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. Failure to confirm favorable results from earlier trials by demonstrating the safety and effectiveness of our ZFP Therapeutic products in late stage clinical trials with larger patient populations 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 the development of a ZFP Therapeutic. If these potential products are not approved, we will not be able to commercialize 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 during the next several years, 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. Clinical trials are subject to oversight by institutional review boards and the FDA. In addition, our proposed clinical studies 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. We will typically submit a proposed clinical protocol and other product-related information to the RAC three to six months prior to the expected IND application filing date.

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;

S-7

Table of Contents

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.

We have limited experience in conducting clinical trials.

Our ZFP Therapeutics may fail to show the desired safety and efficacy in initial clinical trials. We have an ongoing Phase 2 trial and two Phase 1/2 studies of a ZFP Therapeutic for HIV/AIDS. However, the FDA will require additional clinical testing which involves significantly greater resources, commitments and expertise and so it is likely that we would need to enter into a collaborative relationship with a pharmaceutical company that could assume responsibility for late-stage development and commercialization. We have limited experience in conducting clinical trials and may not possess the necessary resources and expertise to complete such trials, and there is no guarantee that we will be able to enter into collaborative relationships with third parties that can provide us with the funding and expertise for such trials. In our collaborative agreement to develop ZFP Therapeutics with Shire AG (Shire), we are responsible for all activities through submission of IND Applications and European Clinical Trial Applications (CTA) and Shire is responsible for clinical development and commercialization of products arising from the alliance.

While we have stated that we intend to file IND applications for several ZFP Therapeutic programs over the next three years, we may encounter difficulties that may delay, suspend or scale back our efforts.

We have previously announced a strategy for our ZFP Therapeutic programs that enables the potential filing of seven IND applications by the end of 2015. The preparation and submission of IND applications requires us to conduct rigorous and time-consuming pre-clinical testing, studies, and documentation relating to, among other things, the toxicity, safety, manufacturing, chemistry and clinical protocol of new ZFP Therapeutic products. 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 ZFP Therapeutic products and fail to demonstrate consistency in the formulation of the drug. Our pre-clinical tests may produce negative or inconclusive results, which may lead us to decide, or regulators may require us, to conduct additional pre-clinical testing. If we cannot obtain positive results in pre-clinical testing, we may decide to abandon the projects altogether. 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 pre-clinical 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 affect on our business.

S-8

Table of Contents

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 ZFP Therapeutics 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.

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 ZFP Therapeutic 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. 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 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 ZFP Therapeutic products. If we are unable to find partners or if the partners we find, such as Shire, are unable or unwilling to advance our programs, or if they do not diligently pursue product approval, this may slow our progress and defer our revenues. Our partners may sublicense or abandon development programs or we may have disagreements with our partners, which would cause associated product development to slow or cease. There can be no assurance that we will be able to establish further strategic collaborations for ZFP Therapeutic product development. 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.

S-9

Table of Contents

The loss of partnering agreements would not only 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 ZFP Therapeutic candidates for specific genes. If any partner fails to conduct the collaborative activities successfully and 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 a ZFP Therapeutic product 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. 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, including ZFP Therapeutics. However, we may not be able to license the gene transfer technologies required to develop and commercialize our ZFP Therapeutics. 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 gene modification 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 gene modification. Although we have generated ZFPs for thousands of gene sequences, we have not created ZFPs for all gene sequences and may not be able to 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 benefit of this technology 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 modification 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 gene 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, the ZFP Therapeutic must be delivered to sufficient numbers of cells in the targeted tissue. The ZFN or ZFP TF must be

S-10

Table of Contents

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 our ZFP Therapeutics as a nucleic acid that encodes the ZFN or ZFP TF. We use different formulations to deliver the ZFP Therapeutic depending on the required duration of expression, the targeted tissue and the indication that we intend to treat. 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 ZFP Therapeutic 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 which 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 and 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 which 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 ZFP Therapeutics 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 ZFP Therapeutic 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 ZFP Therapeutic products, we may not be able to commercialize these products successfully if we cannot achieve an adequate level of market acceptance.

S-11

Table of Contents

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 HIV/AIDS programs, 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.

We may not be able to fully realize the expected benefits from the acquisition of Ceregene, Inc., and the operation of the new business of Ceregene, Inc. may subject us to additional risks.

On August 23, 2013, we entered into a definitive agreement to acquire Ceregene Inc. (Ceregene), including all of its therapeutic programs and related intellectual property and other assets. Although we expect to realize strategic, operational and financial benefits as a result of the acquisition, we cannot be certain whether, and to what extent, such benefits will be achieved in the future. In particular, the success of the acquisition will depend on our ability to efficiently and successfully integrate Ceregene's business, including the prosecution of its CERE-110 Phase 2 clinical trial, and to apply Ceregene's technology for a delivery vector based on adeno-associated virus (AAV) to advance our ZFP Therapeutics. There is no guarantee that any existing and future clinical trials of Ceregene's product candidates, including CERE-110, will produce positive results, and failure to do so may adversely affect our ability to validate the AAV delivery technology and apply such technology to our ZFP products as well as negatively impact our stock price. In April 2013, Ceregene reported that its top line data for the CERE-120 Phase 2b clinical trial for Parkinson's disease did not demonstrate statistically significant efficacy in the primary endpoint. In addition, even if we obtain positive data from such clinical trials, there is no guarantee that the AAV delivery technology can be applied to our ZFP Therapeutics safely and effectively.

The acquisition of Ceregene also subjects us to additional operational and financial risks, including the following:

additional costs that we may need to incur in order to conduct and complete Ceregene's therapeutic programs, including the CERE-110 Phase 2 clinical trial, and to comply with new regulatory requirements;

difficulties acquiring and developing the necessary expertise to continue the development of AAV technologies and other acquired assets of Ceregene;

difficulties in coordinating research and development activities;

uncertainties in the business relationships with our collaborators and suppliers due to the acquisition;

difficulties integrating Ceregene's accounting systems and procedures, including internal control over financial reporting as required by Sarbanes-Oxley Act; and

lack of previous experiences in conducting Phase 2 trials of a gene therapy based on AAV vector delivery system.

In addition, the market price of our common stock may decline as a result of the merger if the integration of Ceregene is unsuccessful, takes longer than expected or fails to achieve the expected benefits to the extent anticipated by financial analysts or investors, or the effect of the acquisition on our financial results is otherwise not consistent with the expectations of financial analysts or investors.

S-12

Table of Contents

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 ZFP Therapeutics 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 ZFP Therapeutics:

small molecule drugs;

monoclonal antibodies;

recombinant proteins;

gene therapy/cDNAs;

antisense;

siRNA and microRNA approaches, exon skipping;

TALE proteins; and

Meganucleases.

For our Non-Therapeutic Applications:

Edgar Filing: SANGAMO BIOSCIENCES INC - Form 424B5

For protein production: gene amplification, meganucleases, TALE technology, insulator technology, mini-chromosomes and CRISPR/Cas9 technology;

For target validation: antisense, siRNA, TALE technology and CRISPR/Cas9 technology;

For plant agriculture: recombination approaches, mutagenesis approaches, meganucleases, TALE technology, CRISPR/Cas9 technology, mini-chromosomes; and

For transgenic animals: somatic nuclear transfer, embryonic stem cell, TALE, CRISPR/Cas9 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.

Table of Contents

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 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 for the prevention or treatment of human diseases. Public attitudes may be influenced by claims that gene therapy is unsafe, and, consequently, our products may not gain the acceptance of the public or the medical community. Negative public reaction to gene therapy in general could result in greater government regulation and stricter labeling requirements of gene therapy 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 Dow AgroSciences (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.

Table of Contents**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, 2012, 2011 and 2010 were \$22.3 million, \$35.8 million and \$24.8 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 strategic partnering agreements, other collaborations in non-therapeutic applications of our technology, federal government research grants and grants awarded by research foundations. As of June 30, 2013, we had an accumulated deficit of \$287.8 million. From 2005 to date, we have generated an aggregate of approximately \$157.2 million in net 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 expand and extend our research and development activities into human therapeutic product development. 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.

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 ZFP Therapeutic product development activities. While we believe our financial resources will be adequate to sustain our current operations at least through 2014, 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. 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 ZFP Therapeutic products. 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 ZFP Therapeutic product development, and we have incurred significant losses since inception. To date, our revenues have been generated from strategic partners, other collaborations in non-therapeutic applications of our technology, and federal government and research foundation grants. Our focus on higher-value therapeutic product development and related strategic partnerships 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;

S-15

Table of Contents

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.

For some programs, we depend on third party collaborators and strategic partners to design and conduct our clinical trials. 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.

In January 2012, we entered into a research and 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 hemophilia, Huntington's disease and other monogenic diseases based on our ZFP technology. Under this agreement, we are responsible for all research activities through the submission of an IND or CTA, while 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. Under the agreement, we may be eligible to receive milestone payments upon the achievement of specified clinical development, commercialization and post-commercialization milestones. The total amount of potential milestone payments for each gene target, assuming the achievements of all specified milestones in the agreement, is \$213.5 million. We may receive royalty payments based on specified percentages of net sales of products, if any. Once an IND or CTA is submitted, Shire will have control and broad discretion over all aspects of the clinical development and commercialization of any product developed under the program, and we will have little, if any, influence on how such programs will be conducted. Our lack of control over the clinical development of gene targets in our agreement with Shire could cause delays or other difficulties in the development and commercialization of our product candidates, which may prevent us from receiving any milestone,

royalty payments and other benefits under the agreement.

S-16

Table of Contents

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 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-Aldrich Corporation (Sigma) to collaborate in 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. This relationship was expanded in October 2009 when we amended our license agreement with Sigma to provide Sigma with the 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 June 2008, following a research period, DAS exercised its commercial license option under a license agreement with us relating to plant agriculture. This agreement provides DAS with the exclusive right to develop agricultural products using our ZFP technology in plant cells, plants, or plant cell cultures. Both companies also 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.

S-17

Table of Contents

Risks Relating to our Intellectual Property and Business Operation

Because it is difficult and costly to protect our proprietary rights, and third parties have filed patent applications that are similar to ours, we cannot ensure 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.

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 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 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

Table of Contents

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 could be prevented from making, using, or selling the relevant product or process unless we 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 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.

We are a small company with 81 full-time employees as of July 31, 2013, and 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 personnel and academic and other research collaborations is intense. We have experienced a rate of employee turnover that we believe is typical of emerging biotechnology companies. If we lose the services of personnel with the necessary skills, 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 ZFP Therapeutic development programs may be delayed or may not succeed.

Table of Contents

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 June 30, 2013, the closing price our common stock price, as reported by the NASDAQ Global Select Market, ranged from a low of \$7.31 to high of \$10.65. During the fiscal year ended December 31, 2012, our common stock price fluctuated, ranging from a low of \$2.95 to a high of \$6.49. 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 ZFP Therapeutics;

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 or changes in recommendation, estimate or coverage by securities analysts;

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;

regulatory developments;

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.

S-20

Table of Contents

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.

Risks Related to This Offering

Management will have broad discretion as to the use of the net proceeds from this offering, and we may not use the proceeds effectively.

Our management will have broad discretion in the application of the net proceeds from this offering and could spend the proceeds in ways that do not improve our results of operations or enhance the value of our common stock. Our failure to apply these funds effectively could have a material adverse effect on our business, delay the development of our product candidates and cause the price of our common stock to decline.

You will experience immediate and substantial dilution in the net tangible book value per share of the common stock you purchase.

Since the price per share of our common stock being offered is substantially higher than the net tangible book value per share of our common stock, you will suffer substantial dilution in the net tangible book value of the common stock you purchase in this offering. Based on the assumed public offering of 5,500,000 shares at the assumed price of \$10.73 per share (the closing price on The NASDAQ Global Select Market on September 16, 2013), and without deducting underwriting discounts and commissions but after deducting estimated offering expenses payable by us, and

based on a net tangible book value of our common stock of \$1.10 per share as of June 30, 2013, if you purchase shares of common stock in this offering, you will suffer immediate and substantial dilution of \$8.74 per share in the net tangible book value of common stock. See the section entitled "Dilution" below for a more detailed discussion of the dilution you will incur if you purchase common stock in this offering.

S-21

Table of Contents

If securities and/or industry analysts fail to continue publishing research about our business, if they change their recommendations adversely or if our results of operations do not meet their expectations, our stock price and trading volume could decline.

The trading market for our common stock will be influenced by the research and reports that industry or securities analysts publish about us or our business. If one or more of these analysts cease coverage of our company or fail to publish reports on us regularly, we could lose visibility in the financial markets, which in turn could cause our stock price or trading volume to decline. In addition, it is likely that in some future period our operating results will be below the expectations of securities analysts or investors. If one or more of the analysts who cover us downgrade our stock, or if our results of operations do not meet their expectations, our stock price could decline.

S-22

Table of Contents

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

Some statements contained in this prospectus supplement and the accompanying prospectus and the information incorporated by reference into this prospectus supplement and the accompanying prospectus 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 view 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 heading **Risk Factors** in this prospectus supplement, the accompanying prospectus and certain documents incorporated by reference herein. Also, these forward-looking statements represent our estimates and assumptions only as of the date of the document containing the applicable statement. We undertake no obligation to publicly release any revisions or updates to forward-looking statements to reflect events or circumstances arising after the date of this prospectus supplement and the accompanying prospectus.

Table of Contents

USE OF PROCEEDS

We estimate that the net proceeds to us from the assumed sale of 5,500,000 shares of our common stock offered hereby, at an assumed public offering price of \$10.73 per share, the closing price on The NASDAQ Global Select Market on September 16, 2013, will be approximately \$55.2 million, or approximately \$63.6 million if the underwriters exercise in full their over-allotment option to purchase additional shares of common stock, after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us.

We intend to use the net proceeds from this offering for working capital and other general corporate purposes, including support for our continuing research and development of our ZFP Therapeutic product candidates and research programs, commercialization activities, clinical trials, business development activities, and, if opportunities arise, acquisitions of businesses, products, technologies or licenses that are complementary to our business.

The amounts and timing of the expenditures may vary significantly, depending upon numerous factors, including our proprietary research and therapeutic programs and our clinical trials as well as the amount of cash used in our operations. Accordingly, our management will have broad discretion in the application of the net proceeds and investors will be relying upon the judgment of our management regarding the application of these proceeds. We reserve the right to change the use of these proceeds.

Pending these uses, we intend to invest the proceeds of this offering in short-term, investment grade interest -bearing securities.

DIVIDEND POLICY

We have not paid dividends on our common stock, and currently do not plan to pay any cash dividends in the foreseeable future.

Table of Contents**DILUTION**

If you purchase our common stock in this offering, your interest will be diluted to the extent of the difference between the offering price per share and the net tangible book value per share of our common stock after this offering. Our net tangible book value as of June 30, 2013 was approximately \$59.4 million, or \$1.10 per share. Net tangible book value per share is determined by dividing our total tangible assets, less total liabilities, by the number of shares of our common stock outstanding as of June 30, 2013. Dilution in net tangible book value per share represents the difference between the amount per share paid by purchasers of shares of common stock in this offering and the net tangible book value per share of our common stock immediately after this offering.

After taking into account the assumed sale by us of 5,500,000 shares of our common stock in this offering at the assumed public offering price of \$10.73 per share, the closing price on The NASDAQ Global Select Market on September 16, 2013, without any deduction for underwriting discounts and commissions but after deducting estimated offering expenses payable by us, our as adjusted net tangible book value as of June 30, 2013 would have been approximately \$118.2 million, or \$1.99 per share. This would represent an immediate increase in net tangible book value of \$0.89 per share to existing stockholders and in immediate dilution of \$8.74 per share to investors purchasing our common stock in this offering at the assumed public offering price. The following table illustrates this dilution on a per share basis:

| | |
|---|----------|
| Public offering price per share | \$ 10.73 |
| Net tangible book value per share as of June 30, 2013 | \$ 1.10 |
| Increase in net tangible book value per share after this offering | \$ 0.89 |
| Net tangible book value per share after this offering | \$ 1.99 |
| Dilution per share to new investors | \$ 8.74 |

Each \$1.00 increase (decrease) in the assumed public offering price of \$10.73 per share would increase (decrease) our as adjusted net tangible book value after this offering by approximately \$5.5 million, or approximately \$0.09 per share, and the dilution per share to new investors by approximately \$0.91 per share, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus supplement, remains the same and without deducting the estimated underwriting discounts and commissions, but after deducting estimated offering expenses payable by us.

We may also increase or decrease the number of shares we are offering. An increase of 1,000,000 shares in the number of shares offered by us would increase our as adjusted net tangible book value after this offering by approximately \$10.7 million, or \$0.14 per share, and the dilution per share to new investors would be approximately \$8.60 per share, assuming that the assumed public offering price remains the same, and without deducting the estimated underwriting discounts and commissions, but after deducting estimated offering expenses payable by us.

Similarly, a decrease of 1,000,000 shares in the number of shares offered by us would decrease our as adjusted net tangible book value after this offering by approximately \$10.7 million, or \$0.15 per share, and the dilution per share to new investors would be approximately \$8.89 per share, assuming that the assumed public offering price remains the same, without deducting the estimated underwriting discounts and commissions, but after deducting estimated offering expenses payable by us.

The information discussed above is illustrative only and will adjust based on the actual public offering price and other terms of this offering determined at pricing.

S-25

Table of Contents

The number of shares of common stock to be outstanding immediately after this offering as shown above assumes that all of the shares offered hereby are sold and is based on 53,974,452 shares of common stock outstanding as of June 30, 2013. This number of shares excludes,

8,344,138 shares of common stock issuable upon exercise of options outstanding as of June 30, 2013, of which 6,038,091 shares are exercisable under our 2013 Stock Incentive Plan (2013 Plan), at a weighted average exercise price of \$6.76 per share;

1,006,750 shares of common stock issuable upon settlement of outstanding restricted stock units;

4,406,666 shares available for grant as of June 30, 2013 under our 2013 Plan;

1,618,084 shares available for grant as of June 30, 2013 under our employee stock purchase plan; and

100,000 shares to be issued upon closing of the acquisition of Ceregene, Inc.

This discussion of dilution, and the table quantifying it, assumes no exercise of any outstanding options to purchase shares of our common stock as of June 30, 2013 and no issuance of up to 825,000 shares of common stock that we may sell to the underwriter upon exercise of its option to purchase additional shares of common stock. The exercise of outstanding options to purchase shares of our common stock having an exercise price less than the public offering price would increase the dilutive effect to new investors.

If the underwriters exercise in full their option to purchase 825,000 additional shares of common stock at the assumed public offering price of \$10.73 per share, the pro forma as adjusted net tangible book value after this offering would be approximately \$2.11 per share, representing an increase in net tangible book value of approximately \$1.01 per share to existing stockholders and immediate dilution in net tangible book value of approximately \$8.62 per share to investors purchasing our common stock in this offering at the public offering price.

Table of Contents**UNDERWRITING**

Under the terms and subject to the conditions in an underwriting agreement dated the date of this prospectus supplement, the underwriters named below, for whom Lazard Capital Markets, JMP Securities and Piper Jaffray are acting as the representatives, have severally agreed to purchase, and we have agreed to sell to them, the number of shares of our common stock at the public offering price, less the underwriting discounts and commissions, as set forth on the cover page of this prospectus supplement as indicated below.

| Underwriter | Number of Shares |
|----------------------------|-------------------------|
| Lazard Capital Markets LLC | |
| JMP Securities LLC | |
| Piper Jaffray & Co. | |
| Total | |

The underwriters are offering the shares of common stock subject to their acceptance of the shares from us and subject to prior sale. The underwriting agreement provides that the obligations of the underwriters to pay for and accept delivery of the shares of common stock offered by this prospectus supplement are subject to the approval of certain legal matters by their counsel and to other conditions. The underwriters are obligated to take and pay for all of the shares of common stock offered by this prospectus supplement if any such shares are taken.

The underwriters have an option to buy up to _____ additional shares of common stock from us to cover sales of shares by the underwriters which exceed the number of shares specified in the table above. The underwriters may exercise this option at any time and from time to time during the 30-day period from the date of this prospectus supplement. If any additional shares of common stock are purchased, the underwriters will offer the additional shares on the same terms as those on which the shares are being offered.

The underwriters initially propose to offer the shares of common stock directly to the public at the public offering price listed on the cover page of this prospectus supplement. After the initial offering of the shares of common stock, the offering price and other selling terms may from time to time be varied by the underwriters.

The underwriting agreement provides that the obligations of the underwriters are subject to certain conditions precedent, including the absence of any material adverse change in our business and the receipt of customary legal opinions, letters and certificates.

Commissions and Discounts

The following table summarizes the public offering price, underwriting discounts and commissions and proceeds before expenses to us assuming both no exercise and full exercise of the underwriters' option to purchase additional shares:

| | Per Share | Total Without Over-Allotment | Total With Over-Allotment |
|-----------------------|------------------|-------------------------------------|----------------------------------|
| Public offering price | \$ | \$ | \$ |

Underwriting discounts and commissions

| | | | |
|----------------------------------|----|----|----|
| Proceeds, before expenses, to us | \$ | \$ | \$ |
|----------------------------------|----|----|----|

We estimate that the total expenses of this offering, including registration, filing and listing fees, printing fees, and legal and accounting expenses, but excluding the underwriting discounts and commissions, will be approximately \$240,000.

S-27

Table of Contents

The relationship between Lazard Frères & Co. LLC and Lazard Capital Markets LLC is governed by a business alliance agreement between their respective parent companies. Pursuant to such agreement, Lazard Frères & Co. LLC referred this transaction to Lazard Capital Markets LLC and will receive a referral fee from Lazard Capital Markets LLC in connection therewith; however, such referral fee is not in addition to the fee paid by us to Lazard Capital Markets LLC described above.

Indemnification

We and the underwriters have agreed to indemnify each other, and we have also agreed to indemnify the underwriters against certain liabilities, including certain liabilities under the Securities Act of 1933, as amended, and liabilities arising from breaches of representations and warranties contained in the underwriting agreement. We have also agreed to contribute to payments the underwriters may be required to make in respect of such liabilities.

No Sales of Similar Securities

We and each of our executive officers and directors, subject to certain exceptions, have agreed with the underwriters not to dispose of or hedge any of our shares of common stock or securities convertible into or exercisable or exchangeable for common stock for (ninety) 90 days after the date of this prospectus supplement without first obtaining the written consent of the representative. The exceptions to the lock-up for executive officers and directors include: (a) transfers of beneficially owned shares, common stock or securities convertible into or exercisable or exchangeable for common stock (i) as a bona fide gift or gifts, (ii) to any trust for the direct or indirect benefit of the undersigned or the immediate family of the undersigned or (iii) by will or intestacy to the executive officer s or director s, as applicable, legal representative, heir or legatee; (b) pursuant to any plan that complies with Rule 10b5-1 under the Securities Exchange Act of 1934, as amended, entered into prior to the date of the lock-up, (c) the acquisition or exercise of any stock option issued under our existing stock option plan; (d) any conversion of restricted stock units into shares of our common stock as provided in the applicable restricted stock issuance agreement, (e) any transfer of shares of our common stock in connection satisfying tax withholding obligation upon issuance of such shares; provided that in the case of any transfer or distribution pursuant to clause (a), each donee or distributee or transferee shall execute and deliver to Lazard a lock-up letter for the balance of the lock-up period in the form required. The exceptions to the lock-up for us include: (w) our sale of shares in this offering; (x) the issuance of restricted common stock or options to acquire common stock pursuant to our benefit plans, qualified equity incentive plans or other compensation plans; and (y) the issuance of up to shares for strategic alliances occurring after this offering. The 90-day lock-up period during which we and our executive officers and directors are restricted from engaging in transactions in our common stock or securities convertible into or exercisable or exchangeable for common stock may be subject to extension in the event that either (i) during the last 17 days of the lock-up period, we issue an earnings or financial results release or material news or a material event relating to us occurs, or (ii) prior to the expiration of the lock-up period, we announce that we will release earnings or financial results during the 16-day period beginning on the last day of the lock-up period, then in either case the expiration of the lock-up period will be extended until the expiration of the 18-day period beginning on the issuance of the earnings or financial results release or the occurrence of the material news or material event, as applicable, unless the representative waives, in writing, such an extension.

Price Stabilization, Short Positions

In order to facilitate the offering of our common stock, the underwriters may engage in transactions that stabilize, maintain or otherwise affect the price of our common stock. Specifically, the underwriters may sell more shares than they are obligated to purchase under the underwriting agreement, creating a short position. The underwriters must close out any short position by purchasing shares in the open market. A short position may be created if the

underwriters are concerned that there may be downward pressure on the price of the common stock in the open market after pricing that could adversely affect investors who purchased in this offering. As an additional means of facilitating this offering, the underwriters may bid for, and purchase, shares of our common

S-28

Table of Contents

stock in the open market to stabilize the price of the common stock. These activities may raise or maintain the market price of our common stock above independent market levels or prevent or slow a decline in the market price of our common stock. The underwriters are not required to engage in these activities, and may end any of these activities at any time.

A prospectus in electronic format may be made available on websites maintained by the underwriters. The representative may agree to allocate a number of shares of common stock to other underwriters for sale to their online brokerage account holders. Internet distributions will be allocated by the underwriters on the same basis as other allocations.

United Kingdom

This document is only being distributed to and is only directed at (i) persons who are outside the United Kingdom or (ii) to investment professionals falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (the Order) or (iii) high net worth entities, and other persons to whom it may lawfully be communicated, falling within Article 49(2)(a) to (e) of the Order (all such persons together being referred to as relevant persons). The shares of common stock are only available to, and any invitation, offer or agreement to subscribe, purchase or otherwise acquire such common stock will be engaged in only with, relevant persons. Any person who is not a relevant person should not act or rely on this document or any of its contents.

Each underwriter has represented and agreed that:

(a) it has only communicated or caused to be communicated and will only communicate or cause to be communicated an invitation or inducement to engage in investment activity (within the meaning of Section 21 of the Financial Services and Markets Act 2000 or FSMA) received by it in connection with the issue or sale of the shares in circumstances in which Section 21(1) of the FSMA does not apply to us, and

(b) it has complied with, and will comply with all applicable provisions of FSMA with respect to anything done by it in relation to the shares in, from or otherwise involving the United Kingdom.

European Economic Area

To the extent that the offer of the common stock is made in any Member State of the European Economic Area that has implemented the Prospectus Directive before the date of publication of a prospectus in relation to the common stock which has been approved by the competent authority in the Member State in accordance with the Prospectus Directive (or, where appropriate, published in accordance with the Prospectus Directive and notified to the competent authority in the Member State in accordance with the Prospectus Directive), the offer (including any offer pursuant to this document) is only addressed to qualified investors in that Member State within the meaning of the Prospectus Directive or has been or will be made otherwise in circumstances that do not require us to publish a prospectus pursuant to the Prospectus Directive.

In relation to each Member State of the European Economic Area which has implemented the Prospectus Directive (each, a Relevant Member State), each underwriter has represented and agreed that with effect from and including the date on which the Prospectus Directive is implemented in that Relevant Member State (the Relevant Implementation Date) it has not made and will not make an offer of shares to the public in that Relevant Member State prior to the publication of a prospectus in relation to the shares which has been approved by the competent authority in that Relevant Member State or, where appropriate, approved in another Relevant Member State and notified to the competent authority in that Relevant Member State, all in accordance with the Prospectus Directive, except that it

may, with effect from and including the Relevant Implementation Date, make an offer of shares to the public in that Relevant Member State at any time:

(a) to legal entities which are authorized or regulated to operate in the financial markets or, if not so authorized or regulated, whose corporate purpose is solely to invest in securities,

S-29

Table of Contents

(b) to any legal entity which has two or more of (1) an average of at least 250 employees during the last financial year; (2) a total balance sheet of more than 43,000,000 and (3) an annual net turnover of more than 50,000,000, as shown in its last annual or consolidated accounts, or

(c) in any other circumstances which do not require the publication by us of a prospectus pursuant to Article 3 of the Prospectus Directive. For the purposes of this provision, the expression an offer of shares to the public in relation to any shares in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and the shares to be offered so as to enable an investor to decide to purchase or subscribe the shares, as the same may be varied in that Relevant Member State by any measure implementing the Prospectus Directive in that Relevant Member State and the expression Prospectus Directive means Directive 2003/71/EC and includes any relevant implementing measure in each Relevant Member State.

The EEA selling restriction is in addition to any other selling restrictions set out below. In relation to each Relevant Member State, each purchaser of shares of common stock (other than the underwriters) will be deemed to have represented, acknowledged and agreed that it will not make an offer of shares of common stock to the public in any Relevant Member State, except that it may, with effect from and including the date on which the Prospectus Directive is implemented in the Relevant Member State, make an offer of shares of common stock to the public in that Relevant Member State at any time in any circumstances which do not require the publication by us of a prospectus pursuant to Article 3 of the Prospectus Directive, provided that such purchaser agrees that it has not and will not make an offer of any shares of common stock in reliance or purported reliance on Article 3(2)(b) of the Prospectus Directive. For the purposes of this provision, the expression an offer of shares to the public in relation to any shares of common stock in any Relevant Member State has the same meaning as in the preceding paragraph.

Switzerland

This document does not constitute a prospectus within the meaning of Art. 652a of the Swiss Code of Obligations. The shares of common stock may not be sold directly or indirectly in or into Switzerland except in a manner which will not result in a public offering within the meaning of the Swiss Code of Obligations. Neither this document nor any other offering materials relating to the shares of common stock may be distributed, published or otherwise made available in Switzerland except in a manner which will not constitute a public offer of the shares of common stock in Switzerland.

Listing on The NASDAQ Global Select Market

Our common shares are traded on The NASDAQ Global Select Market under the symbol SGMO. The transfer agent for our common shares to be issued in this offering is Computershare.

Table of Contents

LEGAL MATTERS

The legality of the common stock offered by this prospectus supplement has been passed upon for us by Morgan, Lewis & Bockius LLP, San Francisco, California. As of August 7, 2013, partners of Morgan, Lewis & Bockius LLP beneficially owned a total of approximately 312,326 shares of our common stock. The underwriter is being represented in connection with this offering by Proskauer Rose LLP.

EXPERTS

The consolidated financial statements incorporated in this prospectus supplement by reference to our Annual Report on Form 10-K have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their reports thereon, including therein, and incorporated herein by reference. Such consolidated financial statements are incorporated herein by reference in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We have filed a shelf registration statement with the Securities and Exchange Commission, or the Commission, covering the shares of common stock we are offering under this prospectus supplement. This prospectus supplement and the accompanying prospectus do not contain all of the information set forth in the registration statement and the exhibits to the registration statement. For further information with respect to us and the securities we are offering under this prospectus supplement, we refer you to the registration statement and the exhibits and schedules filed as part of the registration statement.

We file annual, quarterly and current reports, proxy statements and other information with the Commission. You may read and copy any document we file at the Commission's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. Please call the Commission at 1-800-SEC-0330 for further information on the Public Reference Room. Our public filings, including reports, proxy and information statements, are also available on the Commission's web site at <http://www.sec.gov>. We maintain a website at www.sangamo.com. The information contained on our website is not incorporated by reference in this prospectus supplement or the accompanying prospectus, and you should not consider it a part of this prospectus supplement or the accompanying prospectus.

Table of Contents

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The Commission allows us to incorporate by reference information from other documents that we file with them, which means that we can disclose important information by referring to those documents. The information incorporated by reference is considered to be part of this prospectus supplement and the accompanying prospectus, and information that we file later with the Commission will automatically update and supersede this information. We incorporate by reference into this prospectus supplement and the accompanying prospectus the documents listed below, and any future filings (other than the portions thereof deemed to be furnished to the Commission pursuant to Item 2.02 or Item 7.01 of Current Report on Form 8-K) we make with the Commission under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934 prior to the termination of this offering:

our annual report on Form 10-K for the year ended December 31, 2012, filed with the Commission on February 26, 2013;

our quarterly report on Form 10-Q for the quarter ended June 30, 2013, filed with the Commission on August 2, 2013;

our quarterly report on Form 10-Q for the quarter ended March 31, 2013, filed with the Commission on May 9, 2013;

our current reports on Form 8-K filed with the SEC on June 14, 2013, August 26, 2013 and September 17, 2013;

our definitive proxy statement filed pursuant to Section 14 of the Exchange Act in connection with our 2013 Annual Meeting of Stockholders filed with the SEC on April 25, 2013; and

the description of our common stock contained in our registration statement on Form 8-A filed under Section 12(g) of the Securities Exchange Act of 1934 with the Commission on March 31, 2000, including any amendment or reports filed for the purpose of updating such description.

To the extent that any statement in this prospectus supplement or the accompanying prospectus is inconsistent with any statement that is incorporated by reference and that was made on or before the date of this prospectus supplement or the accompanying prospectus, the statement in this prospectus supplement or the accompanying prospectus shall supersede such incorporated statement. The incorporated statement shall not be deemed, except as modified or superseded, to constitute a part of this prospectus supplement, the accompanying prospectus or the registration statement. Statements contained in this prospectus supplement and the accompanying prospectus as to the contents of any contract or other document are not necessarily complete and, in each instance, we refer you to the copy of each contract or document filed as an exhibit to the registration statement.

We will furnish without charge to each person, including any beneficial owner of our securities, to whom a copy of this prospectus supplement and the accompanying prospectus is delivered, upon written or oral request, a copy of the information that has been incorporated into this prospectus supplement and the accompanying prospectus by reference

(except exhibits, unless they are specifically incorporated into this prospectus supplement and the accompanying prospectus by reference). You should direct any requests for copies to:

Sangamo BioSciences, Inc.

501 Canal Boulevard, Suite A100

Richmond, CA 94804

Attention: Investor Relations

(510) 970-6000

S-32

Table of Contents

PROSPECTUS

SANGAMO BIOSCIENCES, INC.

\$100,000,000

Common Stock

Preferred Stock

Debt Securities

Warrants to Purchase Common Stock

Warrants to Purchase Preferred Stock

We may offer and sell from time to time shares of common stock, shares of preferred stock, debt securities or warrants to purchase shares of common stock or shares of preferred stock. We may sell any combination of the above described securities, in one or more offerings in amounts, at prices and on terms determined at the time of the offering. We refer to the shares of common stock, shares of preferred stock, debt securities and warrants to purchase shares of common stock or shares of preferred stock collectively as the securities.

This prospectus provides you with a general description of the securities that we may offer. Each time we sell securities, we will provide a prospectus supplement that will contain specific information about the terms of that offering. The prospectus supplement may also add information or update information contained in this prospectus. You should read both this prospectus and any prospectus supplement together with the documents incorporated by reference and described under the heading **Where You Can Find More Information** before you make your investment decision.

We will sell the securities to underwriters or dealers, through agents, or directly to investors.

An investment in the securities offered under this prospectus involves a high degree of risk. You should carefully consider the risk factors described in the applicable prospectus supplement and certain of our filings with the Securities and Exchange Commission, as described under Risk Factors on page 3.

Our common stock trades on the Nasdaq Global Market under the symbol SGMO. On February 21, 2012, the last reported sale price of our common stock on the Nasdaq Global Market was \$5.46.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus is April 12, 2012

Table of Contents

TABLE OF CONTENTS

| | Page |
|--|-------------|
| <u>ABOUT THIS PROSPECTUS</u> | 1 |
| <u>SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS</u> | 2 |
| <u>ABOUT SANGAMO BIOSCIENCES, INC</u> | 2 |
| <u>RISK FACTORS</u> | 3 |
| <u>USE OF PROCEEDS</u> | 4 |
| <u>RATIO OF EARNINGS TO FIXED CHARGES</u> | 4 |
| <u>PLAN OF DISTRIBUTION</u> | 4 |
| <u>THE SECURITIES WE MAY OFFER</u> | 6 |
| <u>DESCRIPTION OF COMMON STOCK</u> | 7 |
| <u>DESCRIPTION OF PREFERRED STOCK</u> | 7 |
| <u>DESCRIPTION OF DEBT SECURITIES</u> | 8 |
| <u>DESCRIPTION OF WARRANTS</u> | 14 |
| <u>LEGAL MATTERS</u> | 14 |
| <u>EXPERTS</u> | 15 |
| <u>WHERE YOU CAN FIND MORE INFORMATION</u> | 15 |
| <u>INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE</u> | 15 |

Table of Contents

ABOUT THIS PROSPECTUS

This prospectus is part of a shelf registration statement we filed with the Securities and Exchange Commission, or the SEC. By using a shelf registration statement, we may sell any combination of securities described in this prospectus from time to time for an aggregate offering price of up to \$100,000,000.

You should rely only on the information contained in or specifically incorporated by reference into this prospectus or a prospectus supplement. No dealer, sales person, agent or other individual has been authorized to give any information or to make any representations not contained in this prospectus. If given or made, such information or representations must not be relied upon as having been authorized by us.

This prospectus does not constitute an offer to sell, or a solicitation of an offer to buy, the securities offered hereby in any jurisdiction where, or to any person to whom, it is unlawful to make such offer or solicitation.

The information contained in this prospectus is accurate only as of the date of this prospectus, regardless of the time of delivery of this prospectus or of any sale of securities. Neither the delivery of this prospectus nor any sale made hereunder shall, under any circumstances, create an implication that there has not been any change in the facts set forth in this prospectus or in our affairs since the date of this prospectus.

ZFP Therapeutic is a registered trademark of Sangamo BioSciences, Inc.

Table of Contents

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

Some statements contained in this prospectus and the information incorporated by reference into this prospectus are forward-looking with respect to our operations, research, development and commercialization activities and financial condition. Such forward-looking statements are based on our current views and assumptions regarding future events, future business conditions and the outlook for the company based on currently available information. Statements that are forward-looking in nature should be read with caution because they involve risks and uncertainties, which are included, for example, in specific and general discussions about:

our strategy;

product development and commercialization of our products;

clinical trials;

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.

Various terms and expressions similar to them are intended to identify these cautionary statements. These terms include: anticipates, believes, continues, could, estimates, expects, intends, may, plans, seeks, should and will. Actual results may differ materially from those implied in those statements. Factors that could cause these differences include, but are not limited to, those discussed under Risk Factors. Sangamo undertakes no obligation to publicly release any revisions to forward-looking statements to reflect events or circumstances arising after the date of this prospectus. Readers are cautioned not to place undue reliance on the forward-looking statements, which speak only as of the date of this prospectus.

ABOUT SANGAMO BIOSCIENCES, INC.

We are a clinical stage biopharmaceutical company focused on the research, development and commercialization of engineered DNA-binding proteins for the development of novel therapeutic strategies for unmet medical needs. Our current mission is to develop ZFP Therapeutics[®] through early stage clinical testing and strategically partner with biopharmaceutical companies at key value inflection points to execute late-stage clinical trials and commercial development. In the long term, our goal is to forward integrate to capture the value of late-stage and commercial ZFP Therapeutic products.

We, and our licensed partners, are the leaders in the research, development and commercialization of zinc finger DNA-binding proteins (ZFPs), a naturally occurring class of proteins. We have used our knowledge and expertise to develop a proprietary technology platform. ZFPs can be engineered to make ZFP nucleases (ZFNs), proteins that can be used to modify DNA sequences in a variety of ways and ZFP transcription factors (ZFP TFs), proteins that can be used to turn genes on or off. As ZFPs act at the DNA level, they have broad potential applications in several areas including human therapeutics, plant agriculture, research reagents, as well as production of transgenic animals and cell-line engineering.

Edgar Filing: SANGAMO BIOSCIENCES INC - Form 424B5

The main focus for our company is the development of novel human therapeutics and we are building a pipeline of ZFP Therapeutics. Our lead ZFP Therapeutic, SB-728-T, a ZFN-modified autologous T-cell product for the treatment of HIV/AIDS, is the first therapeutic application of our ZFN technology and is being evaluated in an ongoing Phase 2 and two Phase 1/2 clinical trials.

Table of Contents

We have preclinical ZFP Therapeutic development programs in hemophilia and Parkinson's disease. In addition, we have research stage programs in other monogenic diseases, genetic conditions that result from a defect in a single gene, including hemoglobinopathies such as sickle cell anemia, lysosomal storage diseases and certain immunodeficiencies. On January 31, 2012, we entered into a collaboration and license agreement with Shire AG (Shire), pursuant to which we will collaborate with Shire to research, develop and commercialize human therapeutics for hemophilia and other monogenic diseases based on our ZFP technology.

Our principal offices are located at 501 Canal Boulevard, Richmond, California 94804, and our telephone number there is (510) 970-6000.

RISK FACTORS

An investment in the securities offered through this prospectus involves certain risks. You should carefully consider the specific risks set forth under the caption "Risk Factors" in the applicable prospectus supplement and under the caption "Risk Factors" in our filings with the Securities and Exchange Commission pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended, incorporated by reference herein, before making an investment decision. The risks and uncertainties we have described are not the only ones facing our company. Additional risks and uncertainties not presently known to us or that we currently consider immaterial may also affect our business operations. To the extent that a particular offering implicates additional significant risks, we will include a discussion of those risks in the applicable prospectus supplement.

Table of Contents**USE OF PROCEEDS**

Except as may be otherwise set forth in the prospectus supplement accompanying this prospectus, we will use the net proceeds we receive from sales of the securities offered hereby for general corporate purposes, including support for our continuing research and development, commercialization activities, business development activities, and, if opportunities arise, acquisitions of businesses, products, technologies or licenses that are complementary to our business, although we have no current plans, commitments or agreements with respect to any acquisitions as of the date of this prospectus.

RATIO OF EARNINGS TO FIXED CHARGES

The following summary is qualified by the more detailed information appearing in the computation table found in Exhibit 12.1 to the registration statement of which this prospectus is part and the historical financial statements, including the notes to those financial statements, incorporated by reference in this prospectus. The following table sets forth our ratio of earnings to fixed charges for each of the periods indicated:

| | Year Ended December 31 | | | | |
|---|------------------------|---------|---------|---------|---------|
| | 2011 | 2010 | 2009 | 2008 | 2007 |
| Ratio of earnings to fixed charges (1) | N/A (2) | N/A (2) | N/A (2) | N/A (2) | N/A (2) |

- (1) The ratio of earnings to fixed charges was computed by dividing earnings by fixed charges. For this purpose, earnings consist of net loss before fixed charges. Fixed charges consist of interest expense on outstanding lease liabilities, interest expense, amortization of debt expense and discount or premium related to indebtedness, whether expensed or capitalized.
- (2) Earnings were insufficient to cover fixed charges for these periods. We have not included a ratio of earnings to combined fixed charges and preferred stock dividends because we do not have any preferred stock outstanding as of the date of this prospectus. The amount of the coverage deficiency was \$35.8 million, \$24.9 million, \$18.6 million, \$24.3 million and \$21.5 million for the years ended December 31, 2011, 2010, 2009, 2008 and 2007, respectively.

PLAN OF DISTRIBUTION

We may sell the securities being offered by us in this prospectus:

directly to purchasers or investors;

through agents;

through dealers;

through underwriters; or

through a combination of any of these methods of sale.

We and our agents and underwriters may sell the securities being offered by us in this prospectus from time to time in one or more transactions:

at a fixed price or prices which may be changed;

at market prices prevailing at the time of sale;

at prices related to such prevailing market prices; or

at negotiated prices.

Offers to purchase securities may be solicited directly by us, or by agents designated by us, from time to time. Any such agent, which may be deemed to be an underwriter as that term is defined in the Securities Act of 1933, as amended (the Securities Act), involved in the offer or sale of the securities in respect of which this prospectus is delivered will be named, and any commissions payable by us to such agent will be set forth, in the applicable prospectus supplement.

Table of Contents

If an underwriter is, or underwriters are, utilized in the offer and sale of securities in respect of which this prospectus and the accompanying prospectus supplement are delivered, we will execute an underwriting agreement with such underwriter(s) for the sale to it or them and the name(s) of such underwriter(s) and the terms of the transaction, including any underwriting discounts, commissions and other items constituting compensation of the underwriters and dealers, if any, will be set forth in such prospectus supplement, which will be used by the underwriter(s) to make resales of the securities in respect of which this prospectus and such prospectus supplement are delivered to the public. The securities will be acquired by the underwriters for their own accounts and may be sold by the underwriters from time to time in one or more transactions, including negotiated transactions, at a fixed public offering price or at varying prices determined at the time of sale. Any public offering price and any discounts, commissions or concessions allowed or reallocated or paid to dealers may be changed from time to time. We may grant underwriters who participate in the distribution of securities an option to purchase additional securities to cover over-allotments, if any, in connection with the distribution.

We may sell directly to, and solicit offers from institutional investors, individuals, or the public. We will describe the terms of any such sales in the applicable prospectus supplement relating to the offering.

If a dealer is utilized in the sale of the securities in respect of which this prospectus is delivered, we will sell such securities to the dealer, as principal. The dealer may then resell such securities to the public at varying prices to be determined by such dealer at the time of resale. The name of the dealer and the terms of the transaction will be identified in the applicable prospectus supplement relating to the offering.

If an agent is used in an offering of securities being offered by this prospectus, the agent will be named, and the terms of the agency will be described, in the applicable prospectus supplement relating to the offering. Unless otherwise indicated in the prospectus supplement, an agent will act on a best efforts basis for the period of its appointment.

If indicated in the applicable prospectus supplement, we will authorize underwriters or their agents to solicit offers by certain institutional investors to purchase our securities pursuant to contracts providing for payment and delivery at a future date. Institutional investors with which these contracts may be made include commercial and savings banks, insurance companies, pension funds, investment companies, educational and charitable institutions and others. In all cases, these purchasers must be approved by us. The obligations of any purchaser under any of these contracts will not be subject to any conditions except that (a) the purchase of the securities must not at the time of delivery be prohibited under the laws of any jurisdiction to which that purchaser is subject and (b) if the securities are also being sold to underwriters, we must have sold to these underwriters the securities not subject to delayed delivery. Underwriters and other agents will not have any responsibility in respect of the validity or performance of these contracts.

Certain of the underwriters, dealers or agents utilized by us in any offering may be customers of, including borrowers from, engage in transactions with, and perform services for us or one or more of our affiliates in the ordinary course of business. Underwriters, dealers, agents and other persons may be entitled, under agreements which may be entered into with us, to indemnification against and contribution toward certain civil liabilities, including liabilities under the Securities Act. The terms of any indemnification provisions will be set forth in a prospectus supplement.

Until the distribution of the securities is completed, rules of the Securities and Exchange Commission may limit the ability of the underwriters and certain selling group members, if any, to bid for and purchase the securities. As an exception to these rules, the representatives of the underwriters, if any, are permitted to engage in certain transactions that stabilize the price of the securities in accordance with Regulation M, but only in the case of a fixed-price offering. Such transactions may consist of bids or purchases for the purpose of pegging, fixing or maintaining the price of the securities.

If underwriters create a short position in the securities in connection with the offering thereof (i.e., if they sell more securities than are set forth on the cover page of the applicable prospectus supplement), the representatives of

Table of Contents

such underwriters may reduce that short position by purchasing securities in the open market. Any such representatives also may elect to reduce any short position by exercising all or part of any over-allotment option described in the applicable prospectus supplement.

Any such representatives also may impose a penalty bid on certain underwriters and selling group members. This means that if the representatives purchase securities in the open market to reduce the underwriters' short position or to stabilize the price of the securities, they may reclaim the amount of the selling concession from the underwriters and selling group members who sold those shares as part of the offering thereof.

In general, purchases of a security for the purpose of stabilization or to reduce a syndicate short position could cause the price of the security to be higher than it might otherwise be in the absence of such purchases. The imposition of a penalty bid might have an effect on the price of a security to the extent that it were to discourage resales of the security by purchasers in the offering.

Neither we nor any of the underwriters, if any, makes any representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the price of the securities. In addition, neither we nor any of the underwriters, if any, makes any representation that the representatives of the underwriters, if any, will engage in such transactions or that such transactions, once commenced, will not be discontinued without notice.

Each series of securities covered by this prospectus would be a new issue with no established trading market, other than our common stock which is listed on the Nasdaq Global Market. Any shares of common stock sold pursuant to a prospectus supplement will be listed on the Nasdaq Global Market or a stock exchange on which the common stock offered is then listed, subject (if applicable) to an official notice of issuance. Any underwriters for whom securities are sold by us for public offering and sale may make a market in the securities, but the underwriters will not be obligated to do so and may discontinue any market making at any time without notice. The securities other than the common stock may or may not be listed on a national securities exchange or eligible for quotation or trading on the Nasdaq Global Market. Therefore, we cannot provide any assurance to you concerning the liquidity of any of the securities covered by this prospectus.

Under the securities laws of some states, the securities registered by the registration statement that includes this prospectus may be sold in those states only through licensed brokers or dealers.

The anticipated date of delivery of the securities offered by this prospectus will be described in the applicable prospectus supplement relating to the offering. The securities offered by this prospectus may or may not be listed on a national securities exchange or a foreign securities exchange. We cannot give any assurances that there will be a market for any of the securities offered by this prospectus and any prospectus supplement.

THE SECURITIES WE MAY OFFER

The descriptions of the securities contained in this prospectus, together with the applicable prospectus supplement, summarize the material terms and provisions of the various types of securities that we may offer. We will describe in the applicable prospectus supplement relating to any securities the particular terms of the securities offered by that prospectus supplement. If we so indicate in a prospectus supplement, the terms of the securities may revise, amend, modify or supersede the terms we have summarized below. We will also include in the prospectus supplement information, where applicable, about material United States federal income tax considerations relating to the securities, and the securities exchange or market, if any, on which the securities will be listed or quoted.

We may sell from time to time, in one or more offerings, one or more of the following securities:

common stock;

preferred stock;

Table of Contents

debt securities;

warrants to purchase common stock; and

warrants to purchase preferred stock.

These securities may be offered and sold from time to time for an aggregate offering price not to exceed \$100,000,000.

This prospectus may not be used to consummate a sale of securities unless it is accompanied by a prospectus supplement.

DESCRIPTION OF COMMON STOCK

For a description of the material terms and provisions of our common stock and each other class of our securities which qualifies or limits our common stock, please see the applicable prospectus supplement, as well as the description of our capital stock in our Registration Statement on Form 8-A dated March 31, 2000 which is incorporated by reference in this prospectus.

DESCRIPTION OF PREFERRED STOCK

Under Delaware law and our certificate of incorporation, our board of directors is authorized, without stockholder approval, to issue shares of preferred stock from time to time in one or more series. Our board of directors may fix the rights, preferences, privileges and restrictions of this stock. Some of the rights, preferences and privileges that our board of directors may designate include dividend rights, conversion rights, voting rights, terms of redemption, liquidation preferences and sinking fund terms. Our board of directors may determine the number of shares constituting any series or the designation of such series. Any or all of the rights, preferences and privileges selected by the board of directors may be greater than the rights of the common stock.

If we offer a specific series of preferred stock under this prospectus, we will describe the terms of the preferred stock in the applicable prospectus supplement and will file a copy of the certificate of designation establishing the terms of the preferred stock with the SEC. To the extent required or applicable, this description will include:

the title and stated value;

the number of shares offered, the liquidation preference per share and the offering price;

the dividend rate(s), period(s) and/or payment date(s), or method(s) of calculation for such dividends;

whether dividends will be cumulative or non-cumulative and, if cumulative, the date from which dividends accumulate;

the provisions for any sinking fund, if any;

the provisions for redemption, if any;

any listing of the preferred stock on any securities exchange or market;

Edgar Filing: SANGAMO BIOSCIENCES INC - Form 424B5

whether preferred stock will be convertible into or exchangeable for our common stock or other of our securities, and, if applicable, the conversion or exchange price (or how it will be calculated) and conversion or exchange period;

voting rights, if any;

if appropriate, a discussion of any applicable U.S. federal income tax considerations;

Table of Contents

the relative ranking and preference of the preferred stock as to dividend rights and rights upon liquidation, dissolution or winding up of the affairs of Sangamo; and

any other specific terms, preferences, rights, limitations or restrictions.

The transfer agent and registrar for any class or series of preferred stock will be set forth in the applicable prospectus supplement.

DESCRIPTION OF DEBT SECURITIES

The following description, together with the additional information we include in any applicable prospectus supplements, summarizes the material terms and provisions of the debt securities that we may offer under this prospectus, but is not complete. We may issue debt securities, in one or more series, as either senior or subordinated debt or as senior or subordinated convertible debt. While the terms we have summarized below will apply generally to any future debt securities we may offer under this prospectus, we will describe the particular terms of any debt securities that we may offer in more detail in the applicable prospectus supplement. The terms of any debt securities we offer under a prospectus supplement may revise, amend, modify or supersede the terms we describe below. As of the date of this prospectus, we have no outstanding registered debt securities. Unless the context requires otherwise, whenever we refer to the indentures, we also are referring to any supplemental indentures that specify the terms of a particular series of debt securities.

We will issue any senior debt securities under the senior indenture that we will enter into with the trustee named in the senior indenture. We will issue any subordinated debt securities under the subordinated indenture that we will enter into with the trustee named in the subordinated indenture. We have filed forms of these documents as exhibits to the registration statement, of which this prospectus is a part, and supplemental indentures. Forms of debt securities containing the terms of the debt securities being offered, and other related documents will be filed as exhibits to the registration statement of which this prospectus is a part or will be incorporated by reference from reports that we file with the SEC.

The indentures and the trustee will be qualified under the Trust Indenture Act of 1939, as amended, or the Trust Indenture Act. We use the term trustee to refer to either the trustee under the senior indenture or the trustee under the subordinated indenture, as applicable.

The following summaries of material provisions of the senior debt securities, the subordinated debt securities and the indentures are subject to, and qualified in their entirety by reference to, all of the provisions of the indenture applicable to a particular series of debt securities. We urge you to read the applicable prospectus supplements related to the debt securities that we may offer under this prospectus, as well as the complete indentures that contains the terms of the debt securities. Except as we may otherwise indicate, the terms of the senior indenture and the subordinated indenture are identical.

General

The terms of each series of debt securities will be established by or pursuant to a resolution of our board of directors and set forth or determined in the manner provided in an officers certificate or by a supplement indenture. Debt securities may be issued in separate series without limitation as to aggregate principal amount. We may specify a maximum aggregate principal amount for the debt securities of any series. We will describe in the applicable prospectus supplement the terms of the series of debt securities being offered, including:

the title;

the principal amount being offered, and if a series, the total amount authorized and the total amount outstanding;

any limit on the amount that may be issued;

Table of Contents

whether or not we will issue the series of debt securities in global form, and, if so, the terms and who the depositary will be;

the maturity date;

whether and under what circumstances, if any, we will pay additional amounts on any debt securities held by a person who is not a United States person for tax purposes, and whether we can redeem the debt securities if we have to pay such additional amounts;

the annual interest rate, which may be fixed or variable, or the method for determining the rate and the date interest will begin to accrue, the dates interest will be payable and the regular record dates for interest payment dates or the method for determining such dates;

whether or not the debt securities will be secured or unsecured, and the terms of any secured debt;

the terms of the subordination of any series of subordinated debt;

the place where payments will be payable;

restrictions on transfer, sale or other assignment, if any;

our right, if any, to defer payment of interest and the maximum length of any such deferral period;

the date, if any, after which, and the price at which, we may, at our option, redeem the series of debt securities pursuant to any optional or provisional redemption provisions and the terms of those redemption provisions;

the date, if any, on which, and the price at which we are obligated, pursuant to any mandatory sinking fund or analogous fund provisions or otherwise, to redeem, or at the holder's option, to purchase, the series of debt securities and the currency or currency unit in which the debt securities are payable;

whether the indenture will restrict our ability or the ability of our subsidiaries to:

incur additional indebtedness;

issue additional securities;

create liens;

pay dividends or make distributions in respect of our capital stock or the capital stock of our subsidiaries;

redeem capital stock;

place restrictions on our subsidiaries ability to pay dividends, make distributions or transfer assets;

make investments or other restricted payments;

sell or otherwise dispose of assets;

enter into sale-leaseback transactions;

engage in transactions with stockholders or affiliates;

issue or sell stock of our subsidiaries; or

effect a consolidation or merger;

whether the indenture will require us to maintain any interest coverage, fixed charge, cash flow-based, asset-based or other financial ratios;

a discussion of certain material or special United States federal income tax considerations applicable to the debt securities;

Table of Contents

information describing any book-entry features;

provisions for a sinking fund purchase or other analogous fund, if any;

the applicability of the provisions in the indenture on discharge;

whether the debt securities are to be offered at a price such that they will be deemed to be offered at an original issue discount as defined in paragraph (a) of Section 1273 of the Internal Revenue Code of 1986, as amended;

the denominations in which we will issue the series of debt securities, if other than denominations of \$1,000 and any integral multiple thereof;

the currency of payment of debt securities if other than U.S. dollars and the manner of determining the equivalent amount in U.S. dollars; and

any other specific terms, preferences, rights or limitations of, or restrictions on, the debt securities, including any additional events of default or covenants provided with respect to the debt securities, and any terms that may be required by us or advisable under applicable laws or regulations.

Conversion or Exchange Rights

We will set forth in the applicable prospectus supplement the terms on which a series of debt securities may be convertible into or exchangeable for our common stock, our preferred stock or other securities (including securities of a third-party). We will include provisions as to whether conversion or exchange is mandatory, at the option of the holder or at our option. We may include provisions pursuant to which the number of shares of our common stock, our preferred stock or other securities (including securities of a third-party) that the holders of the series of debt securities receive would be subject to adjustment.

Consolidation, Merger or Sale

Unless we provide otherwise in the prospectus supplement applicable to a particular series of debt securities, the indentures will not contain any covenant that restricts our ability to merge or consolidate, or sell, convey, transfer or otherwise dispose of all or substantially all of our assets.

Events of Default under the Indenture

Unless we provide otherwise in the prospectus supplement applicable to a particular series of debt securities, the following are events of default under the indentures with respect to any series of debt securities that we may issue:

if we fail to pay interest when due and payable and our failure continues for 90 days and the time for payment has not been extended;

if we fail to pay the principal, premium or sinking fund payment, if any, when due and payable at maturity, upon redemption or repurchase or otherwise, and the time for payment has not been extended;

if we fail to observe or perform any other covenant contained in the debt securities or the indentures, other than a covenant specifically relating to another series of debt securities, and our failure continues for 90 days after we receive notice from the trustee

Edgar Filing: SANGAMO BIOSCIENCES INC - Form 424B5

or we and the trustee receive notice from the holders of at least 51% in aggregate principal amount of the outstanding debt securities of the applicable series; and

if specified events of bankruptcy, insolvency or reorganization occur.

We will describe in each applicable prospectus supplement any additional events of default relating to the relevant series of debt securities.

Table of Contents

If an event of default with respect to debt securities of any series occurs and is continuing, other than an event of default specified in the last bullet point above, the trustee or the holders of at least 51% in aggregate principal amount of the outstanding debt securities of that series, by notice to us in writing, and to the trustee if notice is given by such holders, may declare the unpaid principal, premium, if any, and accrued interest, if any, due and payable immediately. If an event of default specified in the last bullet point above occurs with respect to us, the unpaid principal, premium, if any, and accrued interest, if any, of each issue of debt securities then outstanding shall be due and payable without any notice or other action on the part of the trustee or any holder.

Subject to the terms of the indentures, the holders of a majority in principal amount of the outstanding debt securities of an affected series may waive any default or event of default with respect to the series and its consequences, except defaults or events of default regarding payment of principal, premium, if any, or interest, unless we have cured the default or event of default in accordance with the indentures. Any waiver shall cure the default or event of default.

Subject to the terms of the indentures, if an event of default under an indentures shall occur and be continuing, the trustee will be under no obligation to exercise any of its rights or powers under such indentures at the request or direction of any of the holders of the applicable series of debt securities, unless such holders have offered the trustee reasonable indemnity or security satisfactory to it against any loss, liability or expense. The holders of a majority in principal amount of the outstanding debt securities of any series will have the right to direct the time, method and place of conducting any proceeding for any remedy available to the trustee, or exercising any trust or power conferred on the trustee, with respect to the debt securities of that series, provided that:

the direction so given by the holder is not in conflict with any law or the applicable indentures; and

subject to its duties under the Trust Indenture Act, the trustee need not take any action that might involve it in personal liability or might be unduly prejudicial to the holders not involved in the proceeding.

The indentures provide that if an event of default has occurred and is continuing, the trustee will be required in the exercise of its powers to use the degree of care that a prudent person would use in the conduct of its own affairs. The trustee, however, may refuse to follow any direction that conflicts with law or the indentures, or that the trustee determines is unduly prejudicial to the rights of any other holder of the relevant series of debt securities, or that would involve the trustee in personal liability. Prior to taking any action under the indentures, the trustee will be entitled to indemnification against all costs, expenses and liabilities that would be incurred by taking or not taking such action.

Modification of Indentures; Waiver

Subject to the terms of the indentures for any series of debt securities that we may issue, we and the trustee may change an indentures without the consent of any holders with respect to the following specific matters:

to fix any ambiguity, defect or inconsistency in the indentures;

to comply with the provisions described above under "Description of Debt Securities - Consolidation, Merger or Sale";

to comply with any requirements of the SEC in connection with the qualification of any indentures under the Trust Indenture Act;

to add to, delete from or revise the conditions, limitations, and restrictions on the authorized amount, terms, or purposes of issue, authentication and delivery of debt securities, as set forth in the indentures;

to provide for the issuance of and establish the form and terms and conditions of the debt securities of any series as provided under "Description of Debt Securities - General," to establish the form of any certifications required to be furnished pursuant to the terms of

the indenture or any series of debt securities, or to add to the rights of the holders of any series of debt securities;

Table of Contents

to evidence and provide for the acceptance of appointment hereunder by a successor trustee;

to provide for uncertificated debt securities and to make all appropriate changes for such purpose;

to add to our covenants such new covenants, restrictions, conditions or provisions for the benefit of the holders, to make the occurrence, or the occurrence and the continuance, of a default in any such additional covenants, restrictions, conditions or provisions an event of default or to surrender any right or power conferred to us in the indenture; or

to change anything that does not adversely affect the interests of any holder of debt securities of any series in any material respect. In addition, under the indentures, the rights of holders of a series of debt securities may be changed by us and the trustee with the written consent of the holders of at least a majority in aggregate principal amount of the outstanding debt securities of each series that is affected. However, subject to the terms of the indenture for any series of debt securities that we may issue or otherwise provided in the prospectus supplement applicable to a particular series of debt securities, we and the trustee may only make the following changes with the consent of each holder of any outstanding debt securities affected:

extending the stated maturity of the series of debt securities;

reducing the principal amount, reducing the rate of or extending the time of payment of interest, or reducing any premium payable upon the redemption or repurchase of any debt securities; or

reducing the percentage of debt securities, the holders of which are required to consent to any amendment, supplement, modification or waiver.

Discharge

Each indenture provides that, subject to the terms of the indenture and any limitation otherwise provided in the prospectus supplement applicable to a particular series of debt securities, we can elect to be discharged from our obligations with respect to one or more series of debt securities, except for specified obligations, including obligations to:

register the transfer or exchange of debt securities of the series;

replace stolen, lost or mutilated debt securities of the series;

maintain paying agencies;

recover excess money held by the trustee;

compensate and indemnify the trustee; and

appoint any successor trustee.

In order to exercise our rights to be discharged, we must deposit with the trustee money or government obligations sufficient to pay all the principal of, any premium and interest on, the debt securities of the series on the dates payments are due.

Form, Exchange and Transfer

We will issue the debt securities of each series only in fully registered form without coupons and, unless we otherwise specify in the applicable prospectus supplement, in denominations of \$1,000 and any integral multiple thereof. The indentures provide that we may issue debt securities of a series in temporary or permanent global form and as book-entry securities that will be deposited with, or on behalf of, The Depository Trust Company or another depository named by us and identified in a prospectus supplement with respect to that series. See Legal Ownership of Securities below for a further description of the terms relating to any book-entry securities.

Table of Contents

At the option of the holder, subject to the terms of the indentures and the limitations applicable to global securities described in the applicable prospectus supplement, the holder of the debt securities of any series can exchange the debt securities for other debt securities of the same series, in any authorized denomination and of like tenor and aggregate principal amount.

Subject to the terms of the indentures and the limitations applicable to global securities set forth in the applicable prospectus supplement, holders of the debt securities may present the debt securities for exchange or for registration of transfer, duly endorsed or with the form of transfer endorsed thereon duly executed if so required by us or the security registrar, at the office of the security registrar or at the office of any transfer agent designated by us for this purpose. Unless otherwise provided in the debt securities that the holder presents for transfer or exchange, we will make no service charge for any registration of transfer or exchange, but we may require payment of any taxes or other governmental charges.

We will name in the applicable prospectus supplement the security registrar, and any transfer agent in addition to the security registrar, that we initially designate for any debt securities. We may at any time designate additional transfer agents or rescind the designation of any transfer agent or approve a change in the office through which any transfer agent acts, except that we will be required to maintain a transfer agent in each place of payment for the debt securities of each series.

If we elect to redeem the debt securities of any series, we will not be required to:

issue, register the transfer of, or exchange any debt securities of that series during a period beginning at the opening of business 15 days before the day of mailing of a notice of redemption of any debt securities that may be selected for redemption and ending at the close of business on the day of the mailing; or

register the transfer of or exchange any debt securities so selected for redemption, in whole or in part, except the unredeemed portion of any debt securities we are redeeming in part.

Information Concerning the Trustee

The trustee, other than during the occurrence and continuance of an event of default under an indenture, undertakes to perform only those duties as are specifically set forth in the applicable indenture and is under no obligation to exercise any of the powers given it by the indentures at the request of any holder of debt securities unless it is offered reasonable security and indemnity against the costs, expenses and liabilities that it might incur. However, upon an event of default under an indenture, the trustee must use the same degree of care as a prudent person would exercise or use in the conduct of his or her own affairs.

Payment and Paying Agents

Unless we otherwise indicate in the applicable prospectus supplement, we will make payment of the interest on any debt securities on any interest payment date to the person in whose name the debt securities, or one or more predecessor securities, are registered at the close of business on the regular record date for the interest.

We will pay principal of and any premium and interest on the debt securities of a particular series at the office of the paying agents designated by us, except that unless we otherwise indicate in the applicable prospectus supplement, we will make interest payments by check that we will mail to the holder or by wire transfer to certain holders. Unless we otherwise indicate in the applicable prospectus supplement, we will designate the corporate trust office of the trustee as our sole paying agent for payments with respect to debt securities of each series. We will name in the applicable prospectus supplement any other paying agents that we initially designate for the debt securities of a particular series. We will maintain a paying agent in each place of payment for the debt securities of a particular series.

Table of Contents

DESCRIPTION OF WARRANTS

We may issue warrants to purchase shares of common stock or shares of preferred stock. The warrants may be issued independently or together with any other securities and may be attached to or separate from the other securities. Each series of warrants may be issued under a separate warrant agreement to be entered into between us and a bank or trust company, as warrant agent. The warrants will be evidenced by warrant certificates. Unless otherwise specified in the prospectus supplement, the warrant certificates may be traded separately from the securities with which the warrant certificates were issued. Warrant certificates may be exchanged for new warrant certificates of different denominations at the office of an agent that we will appoint. Until a warrant is exercised, the holder of a warrant does not have any of the rights of a holder of our securities and is not entitled to any payments on any securities issuable upon exercise of the warrants.

The prospectus supplement relating to a series of warrants will describe the specific terms of the warrants including the following:

the title of the warrants;

the aggregate number of the warrants;

the price or prices at which the warrants will be issued and the currency in which the price for the warrants may be paid;

the price at which and the currency in which the securities purchasable upon exercise of the warrants may be purchased and the various factors considered in determining that price;

the dates on which the right to exercise the warrants will commence and expire and whether the exercise of warrants will be at the option of holders, at our option, or automatic;

whether the warrants are exercisable by payment of cash, surrender of other securities, or both;

provisions for changes to or adjustments in the exercise price of the warrants;

if applicable, the minimum or maximum amount of the warrants that may be exercised at any one time;

if applicable, the designation and terms of the series of preferred stock with which the warrants are issued;

if applicable, the designation and terms of the other securities with which the warrants are issued and the number of the warrants issued with each such other security;

if applicable, the date on and after which the warrants and other related securities will be separately transferable;

if applicable, any anti-dilution protection against future issuances;

whether the warrants will be issued in registered form or bearer form;

information with respect to book-entry procedures, if any;

if applicable, a discussion of material U.S. federal income tax considerations; and

any other terms of the warrants, including terms, procedures, and limitations relating to the exchange or exercise of the warrants.

LEGAL MATTERS

The legality of the securities offered by this prospectus has been passed upon for us by Morgan, Lewis & Bockius LLP, San Francisco, California.

Table of Contents

EXPERTS

The consolidated financial statements of Sangamo BioSciences, Inc. appearing in Sangamo BioSciences, Inc.'s Annual Report (Form 10-K) for the year ended December 31, 2011, and the effectiveness of Sangamo BioSciences, Inc.'s internal control over financial reporting as of December 31, 2011, have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their reports thereon, included therein, and incorporated herein by reference. Such consolidated financial statements are incorporated herein by reference in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

This prospectus is part of a registration statement that we filed with the SEC. The registration statement that contains this prospectus, including the exhibits to the registration statement, contains additional information about us and the securities offered by this prospectus.

We file annual, quarterly and current reports, proxy statements and other information with the SEC. You may read and copy any document we file at the SEC's Public Reference Room at 100 F. Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the Public Reference Room. Our public filings, including reports, proxy and information statements, are also available on the SEC's web site at <http://www.sec.gov>. We maintain a website at www.sangamo.com. The information contained on our website is not incorporated by reference in this prospectus and any accompanying prospectus supplement, and you should not consider it a part of this prospectus and any accompanying prospectus supplement.

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The SEC allows us to incorporate by reference information from other documents that we file with them, which means that we can disclose important information by referring to those documents. The information incorporated by reference is considered to be part of this prospectus, and information that we file later with the SEC will automatically update and supersede this information. We incorporate by reference into this prospectus the documents listed below, and any future filings (other than the portions thereof deemed to be furnished to the SEC pursuant to Item 2.02 or Item 7.01 of Current Report on Form 8-K) we make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended (the Exchange Act), until we have sold all of the securities to which this prospectus relates or the offering is otherwise terminated, including any such filing prior to the effectiveness of this registration statement:

our annual report on Form 10-K for the year ended December 31, 2011, filed with the SEC on February 22, 2012;

our current report on Form 8-K filed with the SEC on February 1, 2012; and

the description of our common stock contained in our registration statement on Form 8-A filed under Section 12(g) of the Exchange Act with the SEC on March 31, 2000, including any amendment or reports filed for the purpose of updating such description.

To the extent that any statement in this prospectus is inconsistent with any statement that is incorporated by reference and that was made on or before the date of this prospectus, the statement in this prospectus shall supersede such incorporated statement. The incorporated statement shall not be deemed, except as modified or superseded, to constitute a part of this prospectus or the registration statement. Statements contained in this prospectus as to the contents of any contract or other document are not necessarily complete and, in each instance, we refer you to the copy of each contract or document filed as an exhibit to the registration statement.

Table of Contents

We will furnish without charge to each person, including any beneficial owner, to whom a copy of this prospectus is delivered, upon written or oral request, a copy of any or all of the information that has been incorporated into this prospectus by reference (except exhibits, unless they are specifically incorporated into this prospectus by reference) but not delivered with this prospectus. You should direct any requests for copies to:

Sangamo BioSciences, Inc.

501 Canal Boulevard

Richmond, CA 94804

(510) 970-6000

Table of Contents

Shares

Sangamo BioSciences, Inc.

Common Stock

Prospectus Supplement

Joint Book Running Managers

Lazard Capital Markets

JMP Securities
September , 2013

Piper Jaffray & Co.