Sangamo BioSciences Announces Presentation of Phase 2 Data in Amyotrophic Lateral Sclerosis (ALS) at Society for Neuroscience Meeting

Additional Preclinical Data Presentations from ZFP Therapeutic® Parkinson's Disease, Stroke and Spinal Cord Injury Programs

RICHMOND, Calif., Nov. 17, 2010 /PRNewswire-FirstCall/ -- Sangamo BioSciences, Inc. (Nasdaq: SGMO) announced today the presentation of Phase 2 clinical data from its ZFP Therapeutic program to develop SB-509, a zinc finger protein transcriptional activator (ZFP-TF) of the vascular endothelial growth factor (VEGF)-A gene as a treatment for ALS. The data from study SB-509-801 demonstrated that the drug was well-tolerated in subjects with ALS and that 40% of SB-509 treated subjects had delayed deterioration of toe and ankle muscle strength as measured by manual muscle testing (MMT) compared to 23% of baseline-matched historic controls. In addition, positive improvements in electrophysiological measures of motor nerves were observed in a subset of treated subjects. The data were presented at the Society for Neuroscience Annual Meeting which is being held in San Diego.

"These data are consistent with the delay in muscle deterioration that we have observed in both preclinical models of ALS as well as in clinical studies of this drug in subjects with diabetic neuropathy, a condition that is also characterized by degeneration and deterioration of nerve function," stated Dale Ando, M.D., Sangamo's vice president of therapeutic development and chief medical officer. "Our primary aim in this trial was to assess safety and tolerability of treatment with SB-509 in this vulnerable patient population and to conduct a signal-seeking study in which we assessed the effect of treatment on several clinical measures of function in ALS. As this was an early-stage trial, for safety reasons we treated subjects twice over a 90 day period, although our positive preclinical animal data were achieved with a more frequent dosing schedule. With that said, the delayed deterioration in muscle strength in the ankle and toe are very encouraging and may reflect the importance of focused regional dosing, as the leg muscles received the highest volume of SB-509 compared to the neck and arms. These data provide valuable information for the design of future studies which would include more frequent and focused dosing with SB-509."

"We are developing SB-509 as a first-in-class, disease modifying drug to protect and restore the function of damaged nerves," stated Edward Lanphier, Sangamo's president and chief executive officer. "To this end we have assessed the effect of SB-509 in a range of degenerative neurologic conditions and obtained positive clinical data in diabetic
neuropathy and ALS, as well as preclinical data in models of spinal cord injury, stroke and traumatic brain injury. In addition to demonstrating safety, this clinical trial of SB-509 in ALS has provided us with valuable information for the design of future studies in this population in terms of potential end-points and dosing distribution and frequency. As we have previously reported, our clinical development resources are currently focused on our most advanced clinical program in this area, a Phase 2b study (SB-509-901) in subjects with moderate severity diabetic neuropathy from which we expect to have data in the fourth quarter of 2011."

**Details of Presentation of ALS Data from SB-509-801 Study**

**Wednesday, November 17, 2010**

"Plasmid Gene Transfer of Zinc Finger Protein VEGF-A Transcription Activator (SB-509) for Treatment of Amyotrophic Lateral Sclerosis (ALS) - a Phase 2 Clinical Trial."

Subjects with non-bulbar onset ALS (45 total) were randomized into two groups, both of which were treated at Day 0 and Day 90 either by intramuscular injection of 60 mg of SB-509 bilaterally into the legs, arms and neck (39 subjects) or into the legs only (6 subjects). In addition to the assessment of the safety and tolerability of SB-509 treatment, the effect on ALS progression was assessed over the 120 day study using a variety of measures. These included the Revised ALS Functional Rating Scale (ALSFRS-R), a validated rating instrument for monitoring the quality of life and progression of disability, manual muscle testing (MMT), a commonly used ALS endpoint which assesses strength of 34 muscles over the whole body, neurophysiological index (NI) to assess neurologic impairment, and forced vital capacity (FVC), a measure of lung function. As a control, SB-509–treated subjects were compared to the entire population of non-bulbar onset subjects and to subjects matched for baseline MMT values from a database from the placebo arm of a Phase 3 clinical trial of minocycline (Lancet Neurol.2007, 6 (12) :1045-53). The minocycline trial database was used as it was the only trial for which MMT data were available. Baseline characteristics for demographics, FVC, ALSFRS-R and MMT between the SB-509-treated (N=45) and the minocycline placebo population (N=165), were well matched.

At Day 120 a trend for delayed deterioration of ankle and toe muscle strength was observed in 40% of SB-509 treated subjects compared to 23% of baseline matched historic controls and 27% of the global control population. A subset of SB-509–treated subjects showed a large increase in motor muscle action potential amplitude (AMP), an electrophysiologic measure of muscle activity. In addition, subjects with positive amplitudes showed trends for decreased worsening in ALSFRS-R motor subscores when compared to subjects with negative amplitudes or matched placebo controls. Positive amplitude changes also correlated with a trend for decreased progression of disease as assessed by the gross and fine motor skill component of the ALSFRS-R score.

**Other Sangamo Abstracts Presented at Society for Neuroscience Meeting**
In addition to the presentation of Sangamo's data from its SB-509 clinical program in diabetic neuropathy, data were presented from its preclinical programs in Parkinson's disease, stroke and spinal cord injury:

**Sunday, November 14, 2010**

-- "Engineered Zinc Finger Protein Transcription Factors Drive Highly Specific Activation of the Endogenous GDNF Gene and Functional Neuroprotection in vivo."

Researchers observed in vivo efficacy in a rat model of Parkinson's disease, demonstrating functional and histological neuroprotection provided by upregulation of GDNF using a ZFP TF activator. This study was funded by the Michael J Fox Foundation for Parkinson's Research (MJFF). Further studies, also funded by MJFF, are underway in non-human primates.

-- "Engineered VEGF-A Zinc Finger Activator is Neuroprotective Following Traumatic CNS Injury and Stroke."

The study examines the therapeutic effects of VEGF-A upregulation using a ZFP TF following Central Nervous System (CNS) injury and ischemia models of trauma and stroke. The models tested included optic nerve transection (trauma) and ophthalmic artery ligation (ischemia) that result in the degeneration of retinal ganglion cells (RGCs) and a cortical model of focal cerebral devascularization. Researchers observed that VEGF-ZFP increases retinal ganglion cell survival after axotomy and ischemia and promoted functional improvement of the pupillary light reflex after ischemia although treatment did not alter retinal vasculature. In a focal cerebral devascularization model, VEGF-ZFP reduced overall lesion volume, promoted wound contraction and increased neuron survival as well as reducing glial reactivity and producing a short term behavioral improvement in forelimb motor function. Overall, the findings demonstrate that VEGF-ZFP gene therapy has therapeutic potential for the treatment of CNS trauma and stroke.

-- "Administration of a VEGF-A Gene Therapy May Have Angiogenic and Neuroprotective Effects When Administered in a Delayed Fashion Following Spinal Cord Injury."

Researchers observed that in an animal model of spinal cord injury, 24 hour delayed administration of a ZFP transcription factor that upregulates VEGF-A (a form of SB-509) decreased the degradation of NF200, a marker of cell injury, decreased apoptosis or cell death of nerve cells in and around the spinal cord and enhanced new blood vessel growth around the injured cord.

**About SB-509**
SB-509 is an injectable plasmid encoding a ZFP TF designed to upregulate the endogenous expression of the VEGF-A gene. VEGF-A has been demonstrated to have direct angiogenic, neurotrophic and neuroprotective properties.

About Amyotrophic Lateral Sclerosis (ALS)

More than 30,000 Americans have ALS, according to the ALS Association, a nonprofit organization that supports ALS research and public and patient education about the disease. 3,000 to 5,000 new cases of the disease are diagnosed every year. Men and women of all ethnic and racial groups are equally affected, usually between the ages of 40 and 70. The disease attacks the motor nerves, nerve cells in the brain and spinal cord that control the body's voluntary muscles. As the motor nerves begin to die, the muscles weaken and shrink. Early symptoms of ALS may include unusual tiredness and clumsiness, muscle weakness, slurred speech, and difficulty swallowing. As the disease progresses, patients gradually lose the use of their hands, arms, legs, and neck muscles, ultimately becoming paralyzed. They can speak and swallow only with great difficulty. About half of the people with ALS die within three to five years of diagnosis.

About Sangamo

Sangamo BioSciences, Inc. is focused on research and development of novel DNA-binding proteins for therapeutic gene regulation and modification. The most advanced ZFP Therapeutic® development program is currently in a Phase 2b clinical trial for evaluation of safety and clinical effect in patients with diabetic neuropathy and a Phase 2 trial in ALS. Sangamo also has a Phase 1 / 2 clinical trial and two ongoing Phase 1 clinical trials to evaluate safety and clinical effect of a treatment for HIV/AIDS as well as a Phase 1 trial of a treatment for recurrent glioblastoma multiforme. Other therapeutic development programs are focused on Parkinson's disease, monogenic diseases, neuropathic pain and nerve regeneration. Sangamo's core competencies enable the engineering of a class of DNA-binding proteins known as zinc finger DNA-binding proteins (ZFPs). By engineering ZFPs that recognize a specific DNA sequence Sangamo has created ZFP transcription factors (ZFP TF) that can control gene expression and, consequently, cell function. Sangamo is also developing sequence-specific ZFP Nucleases (ZFN) for gene modification. Sangamo has established strategic partnerships with companies in non-therapeutic applications of its technology including Dow AgroSciences and Sigma-Aldrich Corporation. For more information about Sangamo, visit the company's website at http://www.sangamo.com/.

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

*This press release may contain forward-looking statements based on Sangamo's current expectations. These forward-looking statements include, without limitation, references to the safety and tolerability of the SB 509 treatment, the efficacy of SB 509 for the treatment of Amyotrophic Lateral Sclerosis, the clinical trials of SB-509, research and development of novel ZFP TFs and ZFNs and therapeutic applications of Sangamo's ZFP technology platform. Actual results may differ materially from these forward-looking statements due to a number of factors, including uncertainties relating to the initiation and completion of stages of the SB-509 clinical trials, whether the SB-509 clinical trials will validate and support tolerability and efficacy of SB-509, technological challenges, Sangamo's ability to*
develop commercially viable products and technological developments by our competitors. See Sangamo’s SEC filings, and in particular, the risk factors described in its Annual Report on Form 10-K and its most recent Quarterly Report on Form 10-Q. Sangamo BioSciences, Inc. assumes no obligation to update the forward-looking information contained in this press release.

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