Neuralstem Announces Topline Results Of Phase II ALS Trial

GERMANTOWN, Md., March 12, 2015 /PRNewswire/ -- Neuralstem, Inc. (NYSE MKT: CUR) announced top line data from the Phase II trial of NSI-566 spinal cord-derived neural stem cells under development for the treatment of amyotrophic lateral sclerosis (ALS). The study met primary safety endpoints. The maximum tolerated dose of 16 million transplanted cells and the surgery was well tolerated.

Secondary efficacy endpoints at nine months post-surgery indicate a 47% response rate to the stem cell treatment, as measured by either near-zero slope of decline or positive slope of ALSFRS score in seven out of 15 patients and by either a near-zero decline, or positive strengthening, of grip strength in seven out of 15 patients. Grip strength is an indicator of direct muscle strength of the lower arm. ALSFRS is a standard clinical test used to evaluate the functional status of ALS patients. The average ALSFRS score for responders at 9 months after treatment was 37. Non-responders scored an average of 14. These scores represent 93%, versus 35%, of the baseline score retained, respectively, by the responders versus non-responders at 9 months, which is a statistically significant difference. As measured by an average slope of decline of ALSFRS, responders' disease progression was -0.007 point per day, while non-responders' disease progression was -0.1 per day, which was again statistically significant. Lung function as measured by Seated Vital Capacity shows that responder patients remained within 94% of their starting scores, versus 71% for non-responder patients. The trial met its primary safety endpoints. Both the surgery and cells were well-tolerated, with one patient experiencing a surgical serious adverse event.

"In this study, cervical intervention was both safe and well-tolerated with up to 8 million cells in 20 bilateral injections," said Karl Johe, PhD, Neuralstem Chief Scientific Officer. "The study also demonstrated biological activity of the cells and stabilization of disease progression in a subset of patients. As in the first trial, there were both responders and non-responders within the same cohort, from patients whose general pre-surgical presentation is fairly similar. However, we believe that through the individual muscle group measurements, we may now be able to differentiate the responders from the non-responders.

"Our therapy involves transplanting NSI-566 cells directly into specific segments of the cord where the cells integrate into the host motor neurons. The cells surround, protect and nurture the patient's remaining motor neurons in those various cord segments. The approximate strength of those remaining motor neuron pools can be measured indirectly through muscle testing of the appropriate areas, such as in the grip strength tests. We believe these types of endpoints, measuring muscle strength, will allow us to effectively predict patients that will respond to treatment, adding a sensitive measure of the therapeutic effects after treatment. Testing this hypothesis will be one of the primary goals of our next trial." The full data is being compiled into a manuscript for publication.

"We believe the top-line data are encouraging," said Eva Feldman MD, PhD, Director of the A. Alfred Taubman Medical Research Institute and Director of Research of the ALS Clinic at the University of Michigan Health System, and an unpaid consultant to Neuralstem. "We were able to dose up to 16 million cells in 40 injections, which we believe to be the maximum tolerated dose. As in the first trial, the top-line data show disease stabilization in a subgroup of patients. Perhaps equally as important, we believe the top-line data may support a method of differentiating responders from non-responders, which we believe will support our efforts as we move into the next, larger controlled trial expected to begin this summer."

"The top-line data look very positive and encouraging. If this proportion of patients doing well after treatment can be corroborated in future therapeutic trials, it will be better than any response seen in any previous ALS trials," said site principal investigator, Jonathan D. Glass, MD, Director of the Emory ALS Center. "Elucidating which factors define a patient who may have a therapeutic response to the stem cell treatment will be the next key challenge. We are hopeful that a set of predictive algorithms can be established to help pre-select the responders in our future trials."

"We were very excited to participate as a site in this clinical trial," said  Merit Cudkowicz, MD, Chief of Neurology, Massachusetts General Hospital and Co-Chair of the Northeast ALS Consortium (NEALS). "We are hopeful with respect to the top-line results and we need to move swiftly and safely forward to confirm the responder effect and identify people who might benefit from this treatment approach."

The open-label, dose-escalating trial treated 15 ambulatory patients, divided into 5 dosing cohorts, at three centers, Emory UniversityHospital in Atlanta, Georgia, the ALS Clinic at the University of Michigan Health System, in Ann Arbor, Michigan, and Massachusetts General Hospital in Boston, Massachusetts, and under the direction of principal investigator (PI), Eva Feldman, MD, PhD, Director of the A. Alfred Taubman Medical Research Institute and Director of Research of the ALS Clinic at the University of Michigan Health System. Dosing increased from 1 million to 8 million cells in the cervical region of the spinal cord. The final trial cohort also received an additional 8 million cells in the lumbar region of the spinal cord.

The company anticipates commencing a later-stage, multicenter trial of NSI-566 for treatment of ALS in 2015. Neuralstem has received orphan designation by the FDA for NSI-566 in ALS.

About Neuralstem

Neuralstem's patented technology enables the production of multiple types of central nervous system stem cells in FDA GMP commercial quantities. These stem cells are under development for the potential treatment of central nervous system diseases and conditions.

Neuralstem's ability to generate human neural stem cell lines for chemical screening has led to the discovery and patenting of compounds that Neuralstem believes may stimulate the brain's capacity to generate neurons, potentially reversing pathologies associated with certain central nervous system (CNS) conditions. The company has completed Phase Ia and Ib trials evaluating NSI-189, its first neurogenic small molecule product candidate, for the treatment of major depressive disorder (MDD), and is expecting to initiate a Phase II study for MDD and a Phase Ib study for cognitive deficit in Schizophrenia in 2015.

Neuralstem's first stem cell product candidate, NSI-566, a spinal cord-derived neural stem cell line, is under development for treatment of amyotrophic lateral sclerosis (ALS, or Lou Gehrig's disease). The primary endpoints were met in Phase II. In addition to ALS, NSI-566 is also in a Phase I trial in chronic spinal cord injury at UC San Diego School of Medicine. NSI-566 is also in clinical development to treat neurological diseases such as ischemic stroke and acute spinal cord injury.

Neuralstem's next generation stem cell product, NSI-532.IGF, consists of human cortex-derived neural stem cells that have been engineered to secrete human insulin-like growth factor 1 (IGF-1). In animal data presented at the Congress of Neurological Surgeons 2014 Annual Meeting, the cells rescued spatial learning and memory deficits in an animal model of Alzheimer's disease.

For more information, please visit [www.neuralstem.com](http://www.neuralstem.com/) or connect with us on [Twitter](https://twitter.com/Neuralstem_Inc), [Facebook](http://www.facebook.com/Neuralstem) and [LinkedIn](http://www.linkedin.com/company/neuralstem-inc-?trk=hb_tab_compy_id_1846340)

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This news release contains "forward-looking statements" made pursuant to the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995.  Such forward-looking statements relate to future, not past, events and may often be identified by words such as "expect," "anticipate," "intend," "plan," "believe," "seek" or "will." Forward-looking statements by their nature address matters that are, to different degrees, uncertain. Specific risks and uncertainties that could cause our actual results to differ materially from those expressed in our forward-looking statements include risks inherent in the development and commercialization of potential products, uncertainty of clinical trial results or regulatory approvals or clearances, need for future capital, dependence upon collaborators and maintenance of our intellectual property rights. Actual results may differ materially from the results anticipated in these forward-looking statements. Additional information on potential factors that could affect our results and other risks and uncertainties are detailed from time to time in Neuralstem's periodic reports, including the annual report on Form 10-K for the year ended December 31, 2013 and Form 10Q, for the period ended September 30, 2014.