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NEURALSTEM INC.

Neuralstem Announces NSI-189 Shows Enhancement of Long-Term Potentiation In Vitro

Data Contribute to Understanding NSI-189 Mechanism of Action

GERMANTOWN, Md., June 21, 2016 (GLOBE NEWSWIRE) -- Neuralstem, Inc. (Nasdaq:CUR), a biopharmaceutical company focused on the development of central nervous system therapies based on its neural stem cell technology, announced that new in vitro data on NSI-189 provide insight into the neurogenic drug's mode of action. In a study entitled, "NSI-189, a neurogenic compound enhances short-term and long-term potentiation in C57Bl/6 mice and reverses LTP impairment in a mouse model of Angelman syndrome," researchers led by Michel Baudry, PhD, Dean of the Graduate College of Biomedical College, at Western University of Health Sciences, in Pomona, CA, found that 1-3.5 hours of pre-treatment of C57Bl/6 mouse hippocampal slices with NSI-189 produced a time- and concentration-dependent enhancement of both short-term potentiation (STP) and long-term potentiation (LTP) magnitude. STP, and more specifically LTP, refer to the strengthening of communication between neurons, a key component of synaptic plasticity, which play critical roles in memory formation and cognition.

Additionally, 3.5 hours of pre-treatment with NSI-189 restored LTP in hippocampal slices from a mouse model of Angelman syndrome ($Ube3a^{m-/p+}$ mice), which exhibits a deficit in LTP and learning and memory. Angelman syndrome is a genetic disease that occurs in 1 in 15,000 live births, which leads to mental disabilities and other neurological problems.

"This is an intriguing and novel effect," said Dr. Baudry, the study lead researcher. "NSI-189 had no effect on synaptic transmission and no effect on NMDA receptor properties, but increased LTP magnitude in a time-dependent manner within hours of incubation in hippocampal slices. Plus, a short-term treatment with the drug restored LTP in hippocampal slices from genetically defective Angelman mice, suggesting NSI-189 may enhance cognition under many different conditions."

"NSI-189 is a neurogenic compound in vitro and in vivo, which takes days-to-weeks to produce biological effects," said Karl Johe, PhD, Neuralstem's Chief Scientific Officer and discoverer of NSI-189. "Now, with the results in brain slices, we see that NSI-189 can directly and powerfully enhance brain functions in a few hours. This means that NSI-189 activates a specific molecular pathway within hours and its effect is cumulative over exposure time. I am confident that with this brain slice assay, along with our proprietary human hippocampal neural stem cell lines, we will be able to uncover the underlying molecular pathway."

About Neuralstem

Neuralstem's patented technology enables the commercial-scale production of multiple types of central nervous system stem cells, which are being developed as potential therapies for multiple central nervous system diseases and conditions.

Neuralstem's ability to generate neural stem cell lines from human hippocampus, which were used for systematic chemical screening for neurogenesis effect, has led to the discovery and patenting of molecules that Neuralstem believes may stimulate the brain's capacity to generate new neurons, potentially reversing pathophysiologies associated with certain central nervous system (CNS) conditions.

The company has completed Phase 1a and 1b trials evaluating NSI-189, its first neurogenic small molecule product candidate, for the treatment of major depressive disorder or MDD, and is currently conducting a Phase 2 efficacy study for MDD.

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). Neuralstem has completed two clinical studies, in a total of thirty patients, which met primary safety endpoints. In addition to ALS, NSI-566 is also in a Phase 1 study to treat paralysis due to chronic spinal cord injury, as well as in a Phase 1 study to treat paralysis from ischemic stroke.

Cautionary Statement Regarding Forward Looking Information:

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, 2015, and Form 10-Q for the three months ended March 31, 2016, filed with the Securities and Exchange Commission (SEC), and in other reports filed with the SEC.

Contact:
Neuralstem – Investor Relations:
Danielle Spangler
301.366.1481

Planet Communications - Media Relations:
Deanne Eagle
917.837.5866

Source: Neuralstem, Inc.