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Convelo Therapeutics, founded on discoveries at Case Western Reserve, to develop regenerative medicines for neurological disorders

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Convelo Therapeutics Inc., a company founded on seminal scientific discoveries made in the laboratories of Paul Tesar and Drew Adams at Case Western Reserve University School of Medicine, has launched from working in stealth mode with a mission to discover and develop a new class of medicines that regenerate the protective myelin coating around nerve cells lost in an array of neurological diseases, including multiple sclerosis (MS).

Convelo Therapeutics executed an exclusive worldwide license agreement with Case Western Reserve, which includes an intellectual property portfolio related to stem-cell screening systems, remyelination platforms and drug candidates. The agreement was in conjunction with \$7.8 million in financing secured from a group of private investors managed by Bill Sanford, the company's board chairman.

"I am personally and professionally very excited to see the hard work of Drs. Tesar and Adams come to fruition," said Michael Haag, executive director for Technology Management in the university's Office of Research and Technology Management. "Multiple Sclerosis is a devastating, disease and their work has the potential to create meaningful disease-modifying therapies."

Their most recent work, recently published online in the journals *Nature* (<http://thedaily.case.edu/new-roadmap-repairing-damage-multiple-sclerosis/>) and *Nature Methods* (<http://thedaily.case.edu/new-milestone-laboratory-grown-human-brain-tissue/>), identified a central molecular pathway for stimulating the regeneration of new myelinating cells in the central nervous system.

"The discovery of agents that can restore myelin represents a new therapeutic paradigm for patients with neurodegenerative diseases characterized by loss of myelin," said Derrick Rossi, president and chief executive officer of Convelo Therapeutics.

Previously, Rossi was on the faculty at Harvard Medical School and the Department of Stem Cell and Regenerative Biology at Harvard University. He also served as an investigator at Boston Children's Hospital, where his lab was focused on stem-cell biology and regenerative medicine.

“In the case of MS, the most prevalent chronic neurological disease in young adults, patients have been limited to immunomodulatory drugs,” Rossi said. “These can be effective in slowing the progression of disease, but do not halt it. Our thesis is that therapeutics that act directly within the central nervous system to stimulate myelin regeneration may be what is needed to stop or reverse the progressive nature of these types of diseases altogether. I am thrilled to lead the team at Convelo as we translate these remarkable findings of Drs. Tesar and Adams into tangible, life-altering therapies for people living with demyelinating disorders.”

Convelo’s co-founders

In addition to Rossi, Convelo was co-founded by:

- Tesar, associate professor of the Department of Genetics and Genome Sciences and the Dr. Donald and Ruth Weber Goodman Professor of Innovative Therapeutics at Case Western Reserve’s School of Medicine;
- Adams, assistant professor of the Department of Genetics and Genome Sciences, the Thomas F. Peterson Jr. Professor of Novel Therapeutics, and director of Small Molecule Drug Development Core at Case Western Reserve’s School of Medicine;
- and Steven Landau, the company’s chief of development.

Convelo Therapeutics has named two world-renowned experts in neurology and MS to its clinical and scientific advisory boards:

Jeffrey Cohen, director of Cleveland Clinic’s Mellen Center for Multiple Sclerosis Treatment and Research, and Robert H. Miller, senior associate dean for research at the George Washington University School of Medicine and Health Sciences.

Scientific approach

Myelin is a critical component of a functioning central-nervous system. Formed by specialized cells, called oligodendrocytes, myelin wraps and insulates nerve fibers to allow proper transmission of electrical signals in the nervous system.

Convelo Therapeutics is developing brain-penetrant small molecule therapeutics that stimulate oligodendrocyte differentiation and myelin regeneration from oligodendrocyte precursor cells. In preclinical studies, the company’s approach has demonstrated regeneration of myelin and reversal of paralysis in mouse models of MS.

In addition to MS, myelin loss or dysfunction also underlies several childhood leukodystrophies, including Pelizaeus-Merzbacher disease, and is a common characteristic of spinal-cord injury, stroke and traumatic brain injury, as well as age-related dementias such as Alzheimer’s disease.

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