



Biotech

New startup Convelo links old and new compounds to myelin repair in MS

by [Conor Hale](#) | Jul 25, 2018 5:01pm



With research from Case Western Reserve University, a Cleveland-based startup aims to develop a new class of medicines that help regenerate the insulating myelin sheath around nerve cells, which is degraded in neurological disorders such as multiple sclerosis.

Convelo Therapeutics—its name comes from the Latin for “to wrap around”—emerged from stealth with \$7.8 million in financing and a newly appointed president and CEO, the Harvard Stem Cell Institute’s Derrick Rossi, Ph.D., one of the founding scientific members of the CRISPR/Cas9 company Intellia Therapeutics.

“In the case of MS, the most prevalent chronic neurological disease in young adults, patients have been limited to immunomodulatory drugs. These can be effective in slowing the progression of disease but do not halt it,” Rossi said [in a statement](#).

“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,” he said.

Discoveries made in the laboratories of Convelo’s scientific co-founders—Case Western Reserve’s Paul Tesar, Ph.D., and Drew Adams, Ph.D.—identified a pathway that stimulates the regeneration of myelin-producing cells using both new and old compounds, including a common antifungal treatment for athlete’s foot, miconazole.

“Many labs, including at Case Western Reserve, had identified drug candidates that kickstart the formation of new myelin, but exactly how each of these molecules affected brain cell function wasn’t clear,” said Adams [in a statement](#).

They found that the common thread linking the small molecules was their shared ability to inhibit specific enzymes in the brain that help produce cholesterol. Using this platform, Adams, Tesar and their colleagues have identified more than 20 new drugs that enhance myelin formation, and the company plans to enter clinical trials next year.

“The idea that almost all drug candidates that promote myelin repair inhibit the same enzyme targets represents a bold new paradigm for the field and may redirect the course of ongoing drug discovery efforts,” said Tesar. Their findings were published in the journals [Nature](#) and [Nature Methods](#), in



Myelin is formed by oligodendrocytes, specialized cells that help wrap and protect nerve fibers as they transmit the nervous system's electrical signals—its loss or dysfunction is seen in several childhood disorders, including Pelizaeus-Merzbacher disease, and is common in spinal cord injury, stroke and traumatic brain injury, as well as age-related dementias and Alzheimer's disease.

Convelo's brain-penetrating drugs stimulate oligodendrocyte differentiation and myelin regeneration from oligodendrocyte precursor cells. In preclinical studies, its approach showed regeneration of myelin and reversal of paralysis in MS mouse models, the company said.

"The discovery of agents that can restore myelin represents a new therapeutic paradigm for patients with neurodegenerative diseases characterized by loss of myelin," said Rossi, who also co-founded Moderna Therapeutics and Magenta Therapeutics and led the development of a method to reprogram skin cells into stem cells using modified messenger RNA. In 2010, Time magazine listed the discovery as one of the year's top ten medical breakthroughs, and later named Rossi one of its 100 Most Influential People.

Meanwhile, Convelo's initial \$7.8 million financing was led by a group of private investors managed by its chairman of the board, Bill Sanford, who previously served as chairman and CEO of the Steris Corporation.

The startup also signed a worldwide license agreement with Case Western Reserve University, including a portfolio covering stem cell screening systems, remyelination platforms and drug candidates.