



*Collaboration. Acceleration. Results.*

## NEWS RELEASE

For more information contact:

Carol Menaker

408-927-5164 or 408-871-2410

[carol@myelinrepair.org](mailto:carol@myelinrepair.org)

<http://www.myelinrepair.org>

### **Scientists Identify Molecular “Switches” Affecting Myelin Repair in Multiple Sclerosis**

SARATOGA, Calif. – June 14, 2005 – The Myelin Repair Foundation today announced that its collaboration of five of the world’s leading neuroscientists has identified three new “switches,” or signals, operating in the brain and spinal column that appear to turn on and off the nerve cell’s ability to repair myelin. Myelin is the protective coating surrounding nerve cells that is damaged by MS. The scientists’ findings are a critical first step in understanding myelin repair and its role in treatments for MS and other demyelinating diseases.

“We believe there are a number of mechanisms at work in MS which prevent immature brain cells from developing into myelinating cells, or cause the death of myelinating cells,” says Rusty Bromley, COO of the Saratoga, California-based Myelin Repair Foundation. “We are excited that just one year into our research program our scientists have identified three key signals: one which causes the death of myelinating cells, one which amplifies the production of that signal, and one which stimulates developing cells to remyelinate. These findings point to specific opportunities to develop drugs to repair the damage being caused by Multiple Sclerosis.” (See below for discovery details and references.)

The Myelin Repair Foundation is a nonprofit research foundation focused exclusively on identifying drug targets that repair myelin by the year 2009. MRF's team of scientists, working together virtually, from five different university laboratories in the U.S. and Canada, have been able to accelerate their research by working on a common research plan, sharing their findings in real time, and piggybacking experiments that might otherwise have taken years to accomplish. MRF scientists, including **Dr. Ben Barres**, Professor of Developmental Biology and Neurobiology at Stanford University School of Medicine; **Dr. David Colman**, Director and Penfield Professor at the Montreal Neurological Institute at McGill University; **Dr. Robert Miller**, Professor of Neurosciences at Case Western Reserve University; **Dr. Stephen Miller**, Professor of Microbiology-Immunology

at Northwestern University; and **Dr. Brian Popko**, Professor of Neurology at the University of Chicago, believe that by working together and sharing data that they can reduce the time to drug discovery by as much as 75%.

“It’s been our goal from day one to accelerate this process,” says MRF President and Founder Scott Johnson. “The team of scientists has collaborated exceptionally well and the results speak for themselves. Each small step we take brings us that much closer to possible treatments and that’s our ultimate goal.” Johnson, a former Silicon Valley entrepreneur who suffers from MS, founded MRF in 2002 with a single purpose: to identify drug targets that would lead to treatments for MS within five years. The research team will complete the first year of the five-year research plan on July 1. To date Johnson has raised \$6 million of the \$25 million needed to support the research, including an initial \$1 million donation from Intuit co-founder Scott Cook and a \$250,000 award from Boston biopharmaceutical company Biogen Idec.

“These five scientists and the post docs and students who work in their labs have exceeded all of our expectations,” says Johnson. “Now we just have to raise enough money to keep pace with the rate at which they are coming up with new experiments. I can’t say that working within the constraints of our model has been easy for them. The model is very different from the traditional model of scientific research. But once the ball got rolling, it just kept picking up more and more momentum.”

**Discovery details:**

- (1) Interferon- $\gamma$ , a potent chemical signaling molecule secreted by the reactive immune T cells that create inflammation in MS, creates sufficient stress on cells during myelin production to kill them before they can produce myelin.— Wensheng Lin, Heather P. Harding, David Ron, Brian Popko. 2005. Endoplasmic reticulum stress modulates the response of myelinating oligodendrocytes to the immune cytokine interferon- $\gamma$ . *The Journal of Cell Biology* Vol. 169, No 4, 630-612
- (2) Antigen presenting dendritic cells enter the CNS and stimulate localized production of new myelin-reactive immune T-cells, amplifying the production of Interferon- $\gamma$ , that may act to damage myelin and prevent myelin repair. — McMahon, E. J., S. L. Bailey, C. L. Vanderlugt-Castenada, H. Waldner, and S. D. Miller. 2005. Epitope spreading initiates in the CNS in two mouse models of multiple sclerosis. *Nature Medicine* 11:335-339.
- (3) The identification of a class of compounds that promote the final step in the development of myelin producing cells and stimulates myelin formation. —Ben Barres, Publication pending.

Patent filings are under consideration for all three discoveries.

###