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# Biotechnology Focus

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COVER STORY

They say that two heads are better than one. If this is true, then it stands to reason that five heads are even better than two.

That's the tack the Myelin Repair Foundation (Saratoga, CA) has taken in addressing multiple sclerosis (MS) research. By bringing together a diverse group of researchers in two countries to share discoveries and resources, the foundation aims to bring about definitive solutions for those suffering with MS — and fast.

Rusty Bromley, chief operating officer for the foundation, says that in tackling complex conditions such as MS, collaborative research just makes sense.

"People are starting to recognize that many of the complex questions that we're trying to answer in medical research, especially in neurosciences, go beyond the scope of any individual laboratory or any individual researcher," he says.

Though sharing resources seems logical, Bromley says many other organizations struggle with how to bring together a cross-functional team with complementary skills within the confines of traditional research funding and infrastructure.

The Myelin Repair Foundation tackled this issue by changing the way in which medical research was conducted. Though a non-profit organization, the foundation was put together in much the same way a business is, and, contrary to how some medical research is conducted, lists efficiency as a top priority.

A UNIQUE STRUCTURE  
ALLOWS THE MYELIN  
REPAIR FOUNDATION  
TO ADVANCE THE  
DEVELOPMENT OF MULTIPLE  
SCLEROSIS THERAPIES

## HEAD Rush

### Feasibility

The foundation was formed in 2003 by businessman and Silicon Valley entrepreneur Scott Johnson, who suffers from MS.

In reading an article in *Business Weekly*, Johnson caught wind of a unique research project that was focusing on repairing myelin, the protective sheath made of proteins and fats that coats nerves.

MS is a disease of the central nervous system in which myelin is slowly destroyed, leaving nerve endings unprotected and unable to properly conduct electrical impulses to and from the brain.

Johnson was so intrigued by the type of research going on in this area that he brought together friends he knew from the business world — fellow entrepreneurs and venture capitalists — and did a feasibility study on whether or not an entity could be created to support this kind of research and bring new MS drugs and therapies to market faster.

"In a pretty short period of time they concluded that, yes, this really was feasible, but it was so early stage that no company or venture capitalist would get behind it, and that most of the very best scientists in the field were located at academic research institutions," Bromley explains.

The group had to then decide what the best course of action would be. In this case, it was to create a non-profit organization.

Bromley says that while Johnson knew nothing of medical research at that time, he again used his business and consulting skills to systematically identify who the leading MS researchers were.

"He went about identifying the top people in the field . . . much along the lines that you put together cross-functional teams in industry, and was very fortunate to find five of the top guys who said yes, this was something that they wanted to do for their entire careers, but the environments they worked in and the funding sources and the reward systems in which they live really didn't enable them to do this," he says.

That was the point at which Bromley joined the foundation, and was tasked with figuring out how to co-ordinate the researcher's activities. The foundation must act as a facilitator — raising money, assisting with strategic planning and identifying and eliminating roadblocks that might get in the way of targets getting to market — all the

while working with researchers spread across the U.S. and Canada.

Getting the group together — which includes Dr. Ben Barres, PhD of Stanford University (Stanford, CA); David R. Colman, PhD from the Montreal Neurological Institute at McGill University (Montreal, QC); Robert H. Miller, PhD at Case Western Reserve University (Cleveland, OH); Stephen D. Miller, PhD at the Interdepartmental Immunobiology Center at Northwestern University (Evanston, IL); and Brian Popko, PhD at the University of Chicago (Chicago, IL) — was easy Bromley says.

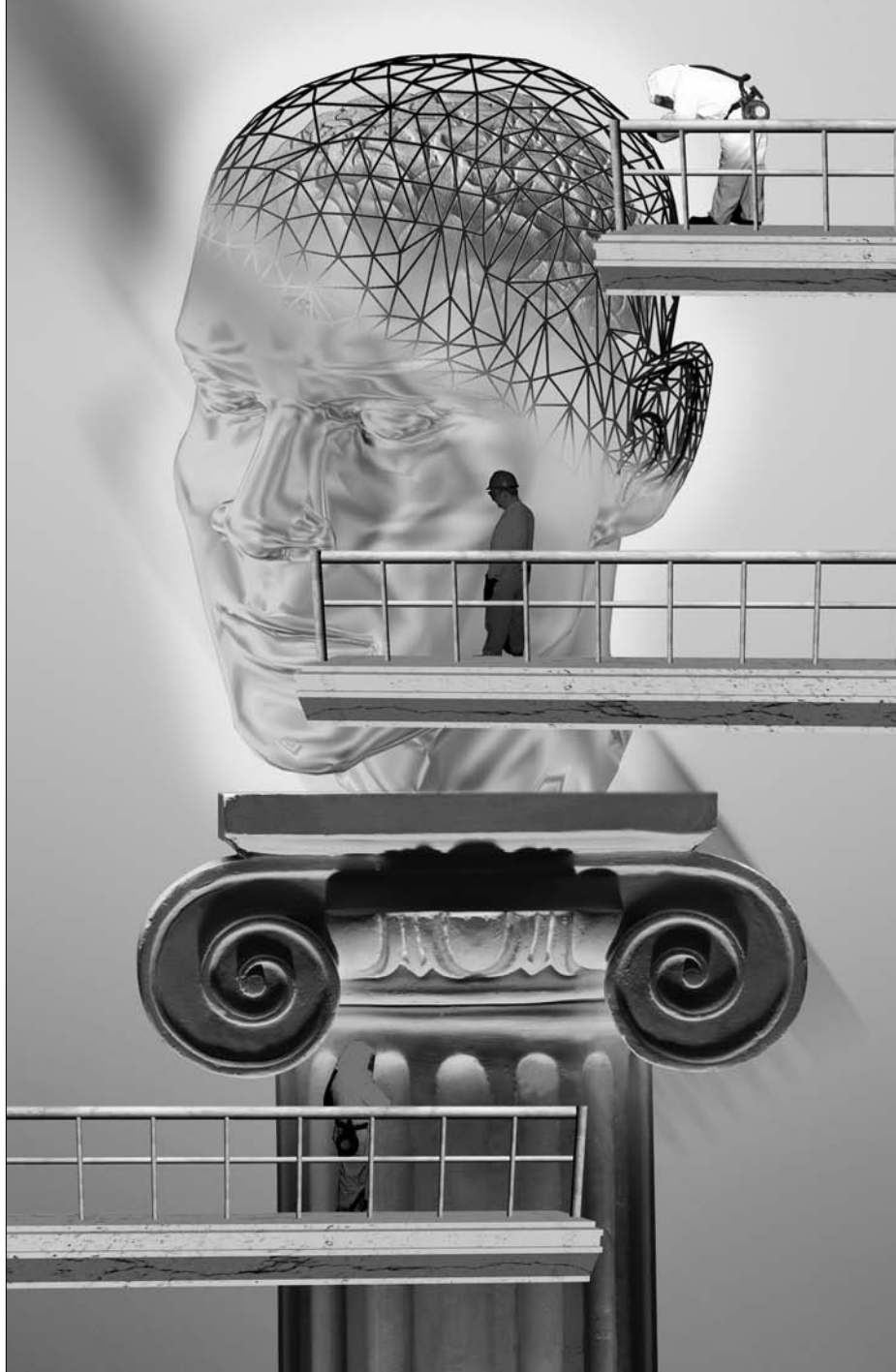
"The culture of co-operation and the willingness to become interdependent has evolved much more quickly than either Scott or I would have predicted when we started out," he says.

In addition to the team's progress, the projects themselves have also advanced at a rapid pace.

In its first year, the foundation funded 12 projects. At the time, 10 of those projects were expected to require three years' time and \$750,000 to complete, Bromley says.

"All 10 of those projects have already been completed for significantly less money," he says.

By allowing the researchers to keep



any funding they requested for ongoing research, even if the initial project was completed for less money, Bromley says the Myelin Repair Foundation has truly created a supportive research environment.

“By changing the paradigm, what we really have done is enable people to work at a pace in a different way than they had in the past,” he says. “In our case, by finishing early, they not only get to propose additional projects that may be more intellectually challenging and more relevant to finding new drug targets, but they also don’t suffer any economic penalties.”

### Working Together

The collaborative nature at the foundation also comes into play in getting faster results.

“I can think of half a dozen examples of where the activities going on in one lab have cut six months or a year off of the time to complete experiments in another lab,” Bromley says.

One such example was a project conducted by Popko’s lab, in which a mutant mouse that might be relevant to the MS disease process was identified. Gene expression data from the Barris lab was then used to identify the mutated gene in three

weeks — a process that could normally take a year or more.

Additionally, the other labs can provide third-party validation for results.

“We believe in many cases that not only are we accelerating the science, but we’re also accelerating the time in which they bring some of these things to publication in the major scientific journals,” Bromley says. “So not only is it helping our group move faster, but we’re also putting more relevant and recent information into the public domain to assist other researchers both in our field as well as in other neurological diseases like Alzheimer’s and Parkinson’s.”

Bromley points out that whatever discoveries come out of foundation-supported research will be made available to university and non-profit research entities at no cost.

When the foundation first began, it set a goal of having one target validated for commercial development by 2009. Bromley says they are now confident that by that time, they may have as many as three or four validated targets.

“They went from a group that initially said, ‘well, maybe we can do this in five years,’ to a group that now says, ‘absolutely we can do this in five years,’” he says.

At the same time, however, getting products and therapies to patients means having to be vigilant with patent protection, Bromley says.

“The thing that concerned us more than anything else is, if you look at, for instance, statins . . . the basic research was in the literature in the 1970s and most of the drug companies wouldn’t have anything to do with it, because there were no patents. It took over 10 years before somebody could figure out how to modify that finding in a way that they could file for a patent and finally bring those drugs to market in the late 1990s,” he says.

“That really worries us, because for 2.5 million people worldwide who have multiple sclerosis, this is a degenerative disease. Rome is burning,” Bromley says. “People say, why are you so interested in intellectual property, doesn’t that make you a company? No, it makes us a group of people that really wants to ensure that whatever discoveries are made based on our support, make it to the clinic as quickly as possible. And if having strong patents is the best way to do that, then that’s what we’re going to do.”