



NEW RESEARCH

Newly Funded Projects/ Fall 2010

\$14.6 Million for 34 New MS Research Projects

Despite a challenging economic environment, the National MS Society has just launched 34 new MS research projects, with cumulative multiyear commitments of \$14.6 million. These new projects are part of our comprehensive research program and our commitment to move research forward.

The scope of this current launch is made possible by generous support of Society chapters and individual donors. When the National MS Society makes research commitments that span into future years, the money is not yet in hand to meet those needs. Contributions to the Society to help support these projects are essential to ensure that this important research proceeds in future years.

The new projects include studies focusing on discovering risk factors that lead to progressive disability, projects

aimed at speeding diagnosis, research on protective mechanisms of vitamin D and estrogen, and tests determining whether a new device can improve walking ability.

Following are brief summaries of the new research projects, grouped according to avenues of MS investigation as they fit into the major goals of stopping MS, restoring function and ending MS forever.

STOPPING MS AND ENDING MS FOREVER

Epidemiology: Who Gets MS?

Epidemiologists evaluate disease patterns among people with a certain disease, taking into account variations in geography, demographics, socioeconomic status, genetics, and exposure to infectious and toxic agents. These types of studies, when carefully done, can help us to understand why this disease appears more frequently in certain populations, and why it progresses. Epidemiological studies ultimately seek to discover the cause of MS, and may also serve as the basis for developing future treatments. The National MS Society is currently funding 8 research projects in epidemiology, with multi-year commitments totaling \$2.1 million.

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Alberto Ascherio, MD, DrPH

Harvard School of Public Health
Boston, MA

Area: Greater New England/Northeast

Term/Amount: 10/1/10-9/30/14; \$121,728

"MS risk and progression: role of vitamin D, EBV, and smoking" Identifying modifiable factors that affect conversion and progression from a first neurological episode (CIS) to MS.

Research into risk factors that influence whether a person develops MS is key to finding the cause of and cure for this disease. Alberto Ascherio, MD, DrPH, and his team have previously found that higher vitamin D intake and high blood levels of vitamin D are associated with a significantly lower risk of developing MS, and that smoking, and elevated levels of antibodies to Epstein-Barr virus (EBV, a herpesvirus known to cause infectious mononucleosis), are associated with an increased risk of MS.

Now this expert group is attempting to determine whether these factors play a role in the progression from clinically isolated syndrome (CIS, a first demyelinating event indicating high risk for developing MS) to MS, and early progression of the disease. They are evaluating blood samples and data from more than 1600 individuals with CIS who were followed for progression to MS with clinical and MRI exams.

This study, which is being co-funded by the National Institutes of Health, presents a unique opportunity to examine links among vitamin D levels, EBV infection, and cigarette smoking and their possible impact on early MS progression.

Tanuja Chitnis, MD

Brigham and Women's Hospital
Boston, MA

Area: Greater New England/Northeast

Term/Amount: 10/1/10-9/30/13; \$430,234

"Biomarkers and risk factors for disease progression in MS" Determining factors that may influence whether, and how rapidly, MS may develop and progress.

In most cases, MS initially presents as a relapsing-remitting disease, in which neurological symptoms come and go. However, as time goes by, many people with MS enter the secondary-progressive stage in which neurological symptoms do not go away, and disability becomes chronic. There is increasing evidence that the biological processes that cause disease progression are different than those that cause relapses. It is also becoming apparent that progressive disability may begin to accumulate early in the disease course.

Little is understood about why people with MS progress at different rates, and what are the biological processes that are important in progression. Also, there are no biological markers or indicators that would predict who may progress at a higher rate than others. Dr. Chitnis is tapping into a large group of people with MS for whom there is detailed clinical information, serial MRIs and longitudinal immunological blood studies, as well as stored serum samples, to begin addressing many of these unknowns.

The team hopes to identify clinical risk factors including those that are potentially modifiable, such as hormones and vitamin D levels, which may affect the rate of disease progression. In addition, the team will develop statistical models that can allow

Howard Weiner, MD

Brigham and Women's Hospital
Boston, MA

Area: Greater New England/Northeast

Term/Amount: 10/1/10-9/30/12; \$627,400

Funded in full by the National MS Society's
Greater Delaware Valley Chapter

"The Dr. John R. Richert Pilot Study on Risk Factors for Progression in MS" Identifying factors that influence the course and progression of MS.

The question of what factors influence the course and progression of MS is the focus of a new research initiative. The goal of this first step is for a consortium of investigators to test the feasibility of a longitudinal study to determine why some people with MS have mild courses while others experience serious worsening of symptoms over time.

As one of the two projects launched in response to a Request for Applications from the National MS Society, Dr. Weiner has established the "SUMMIT" core consortium. Four major academic MS Centers (representative of divergent geographical populations) that have established patient cohorts will, in a prospective pilot study that combines cohorts from each center, collect uniform data (clinical, MRI, blood, and genetics) on 1500 MS patients over a two-year period. In addition, five categories of epidemiological data will be collected: 1) Background and Family History; 2) Vaccination and Infectious Diseases History; 3) Tobacco Smoking History, 4) Diet and Sun Exposure, and 5) Gender Hormones and Pregnancy.

They will focus on factors or combination of factors that link to disease progression using data from this two year collection period, as well as data obtained in 5 years prior.

Researchers are seeking

factors that influence

whether a person will

develop MS, and whether

their MS will cause

progressive disability

Bianca Weinstock-Guttman, MD

State University of New York at Buffalo
Buffalo, NY

Area: Upstate NY/Northeast

Term/Amount: 10/1/10-9/30/12; \$646,012

Funded in part by the National MS Society's
Greater Delaware Valley Chapter

"Clinical, MRI, neuropsychological and gene-environmental risk factors for progression in MS" Identifying factors that influence the course and progression of MS.

The question of what factors influence the course and progression of MS is the focus of a new research initiative. The goal of this first step is for a consortium of investigators to test the feasibility of a longitudinal study to determine why some people with MS have mild courses while others experience serious worsening of symptoms over time.

The New York State MS Consortium was created in 1996 to develop a unique demographic and clinical long-term follow-up database of MS patients to provide a durable resource for interdisciplinary research.

For this pilot study, one of two launched to test the feasibility of tracking risk factors that influence MS progression, Dr. Weinstock-Guttman and colleagues will define a distinct incidence cohort of 500 people with MS within the Consortium. They will look at genetic and environmental factors, such as vitamin D, smoking. They will include individuals with relapsing MS and primary-progressive MS, with a disease onset within 5 years. They will also include 20% African-Americans, who have been found to be at higher risk for more rapidly progressive disease.

The team hopes to demonstrate the feasibility of developing and maintaining a prospective longitudinal cohort to investigate risk factor roles and interactions.

STOPPING MS

Diagnosing MS and Tracking its Course

To better understand the course of MS and factors that may influence that course, researchers are using advances in imaging and other techniques. This vital information may eventually be used to diagnose MS earlier, and to help track disease changes – either progression of disease, or improvements due to experimental treatments – before they are apparent clinically.

The National MS Society has current, multi-year commitments of about \$7.5 million to support research projects focusing on improving diagnosis of MS and ways of tracking disease activity in MS.

Pallab Bhattacharyya, PhD

Cleveland Clinic Foundation
Cleveland, OH

Area: Ohio Buckeye/East

Term/Amount: 10/1/10-9/30/12; \$333,609

"Role of inhibitory neurotransmitter GABA in motor performance in MS" Studying how a molecule used by nerves to communicate with each other may contribute to physical disability in MS.

"Motor performance," the strength and dexterity of limb and trunk movements, often declines in people with MS. Much of this deficit may be due to direct effects of slowed or blocked nerve signals caused by damage to myelin, the material that surrounds and protects nerve fibers in the brain and spinal cord. Nerve fibers themselves are also damaged. However, there may be other factors that contribute to movement difficulty in MS.

Pallab Bhattacharyya, PhD, is looking at the possible role of a substance called "gamma amino butyric acid (GABA). GABA is a "neurotransmitter," one of a number of signaling molecules that nerve cells use to communicate with each other. While some neurotransmitters are excitatory, increasing the activity of the cells they reach, GABA is an inhibitory molecule that reduces the activity of nerve cells. Using a sophisticated version of MRI called magnetic resonance spectroscopy (MRS), Dr. Bhattacharyya found indication of increased brain levels of GABA in a sampling of people with MS. Now he is attempting to correlate the amount of GABA with the severity of motor deficit in people with MS.

This research could establish a new way to measure MS activity and a very sensitive method to evaluate the effect of treatments in clinical trials for MS.