

Society Invests \$19 Million to Launch 40 New MS Research Projects to Drive Pathways to Cures

The National MS Society has just committed \$19 million to launch 40 new multi-year research awards as part of our commitment to support the research workforce and to drive progress in the [Pathways to Cures for MS](#). The awards include new training fellowships, early career awards, research grants, and special initiatives including renewal of support for the Network of Pediatric MS Centers, a one-of-its-kind, expanding network for research to advance understanding of the triggers and impacts of MS in both children and adults.

The Society aligns the global MS research community around the most promising areas outlined in the [Pathways to Cures Roadmap](#). We utilize our leadership, influence, and funding to drive progress and propel the next generation of research leaders.

The new research awards described in the following pages align with the Roadmap’s three Pathways: STOPPING MS disease activity, RESTORING function by reversing damage and symptoms, and ENDING MS by preventing new cases. Here are a few examples:

STOPPING MS:

- Researchers at Oregon Health and Science University are investigating signals that cause nerve cells to die when myelin is lost in MS, and how to block those signals. (see p. 3)

RESTORING what’s been lost:

- Case Western researchers are identifying new targets for treatments that could repair the damage that occurs to the nervous system in people with MS (see p. 14), and researchers at Johns Hopkins are testing a potential treatment for MS-related fatigue. (see p. 20)

ENDING MS:

- A team at the University of California, San Francisco is determining the targets recognized by immune cells in the spinal fluid of people with MS for clues to what triggers MS. (see p. 25)

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Pathways to Cures: STOP/How do we stop disease activity and progression?

Stopping MS is defined as achieving a state of no new disease activity, no worsening of daily living or quality of life, and no change in disease manifestations or clinical activity in people living with either relapsing or progressive forms of MS. Two key objectives have been targeted for the next three years: to advance the STOP pathway: early detection before symptoms appear, and precision medicine for individualized treatment and lifestyle strategies to prevent further progression.

* * *

Francesca Bovis, PhD

University of Genoa
Genoa, Italy

Award: Biostatistics/Informatics Junior Faculty Award

Term: 7/1/2022-6/30/2025

Funding: \$99,000

Paid by the Marilyn Hilton MS Research Fund

Title: Personalizing treatment effect based on patient's baseline profile: A statistical modelling approach applied to observational study data

Summary: A team at the University of Genoa is using statistical methods to identify traits supporting personalized selection of treatment for MS.

Background: Many medications are available to treat relapsing forms of MS. Clinical trial results are usually combined to provide average responses to a therapy, but treatment effectiveness can vary from person to person. Identifying which therapy will work best in any individual with MS is important to improving control of the disease and future quality of life.

The Study: Dr. Bovis and collaborators are using advanced statistical methods to identify the characteristics of individuals with MS who are likely to benefit the most from a particular treatment. They are developing a "score" for each person based on their particular characteristics (for example, age, sex, disease duration, number of relapses in the previous years, and MRI findings) and will test whether the scoring method is useful by looking at records of the MSBase real-world patient registry.

What is the potential impact for people with MS? Results from this study may provide people with MS and their physicians with a simple way to choose between MS therapies based on their own unique biological profile.

Wesley Brandão, PhD

Brigham and Women's Hospital
Boston, Massachusetts

Award: Postdoctoral Fellowship

Term: 7/1/2022-6/30/2025

Funding: TBD

Title: The role of APOE-mediated neurodegenerative microglia subset on T cell response and functions in EAE

Summary: A team at Brigham and Women's Hospital is studying the role of immune brain cells called microglia in MS progression.

Background: There are immune cells called “microglia” that reside in the brain and spinal cord and likely play a role in both relapsing and progressive forms of MS. Microglia may interact with other immune cells called T cells. Whether this interaction is harmful or beneficial in MS is not well understood.

The Study: Dr. Brandão and team are investigating the role of microglia and their interactions with T cells in mice with an MS-like disease called EAE. They are looking at different types of microglia that are considered to be beneficial or harmful, and their interactions with T cells in these mice.

What is the potential impact for people with MS? Results from this study may suggest new treatments that target microglia to turn on beneficial features and turn off harmful features of these cells to control progression in MS.

Gregory Duncan, PhD

Oregon Health & Science University
Portland, Oregon

Award: Career Transition Fellowship

Term: 7/1/2022-6/30/2027

Funding: \$584,647

Title: Mechanisms of neurodegeneration following remyelination failure

Summary: Researchers at Oregon Health and Science University are investigating signals that cause nerve cells to die when myelin is lost in MS, and how to block those signals.

Background: The fatty substance that surrounds and protects nerve fibers, called myelin, is destroyed in MS, and while it can be repaired, those repair mechanisms do not keep up with the damage. Nerve cells that have lost their myelin for a long time do not function normally and can die, leading to longer-term disabilities in people with MS.

The Study: Dr. Duncan and team are seeking to understand what causes nerve cells to die when myelin repair is poor. They are exploring two ideas. The first is that nerve cells receive a “death signal” that causes them to self-destruct. The second idea is that nerve cells die due to starvation because they have lost their support from the cells in the brain (oligodendrocytes) that make myelin. They are testing these ideas in mice that are genetically engineered to be unable to repair myelin.

What is the potential impact for people with MS? This research will add important information on mechanisms that underlie

progressive disability in MS. If the self-destruct idea is correct, there are drugs that can block the “death signal” pathway molecules and could be tested in clinical trials to see if they hold promise for slowing progression in people with MS.

Sachin Gadani, MD, PhD

Johns Hopkins University
Baltimore, Maryland

Award: National MS Society-American Brain Foundation Clinician Scientist Development Award

Term: 7/1/2022-6/30/2025

Funding: \$297,114

Title: Defining the role of inflammatory oligodendrocyte precursor cells on chronic inflammation and impaired remyelination in CNS autoimmunity

Summary: A team at Johns Hopkins is investigating how myelin repair is blocked when myelin-making cells turn inflammatory, and how to reverse this process.

Background: In MS, the immune system attacks and destroys myelin, the fatty substance that surrounds and protects nerve fibers, and natural myelin repair is incomplete. Nerve fibers that have lost their myelin do not function properly, leading to symptoms in people with MS. The cells that make and repair myelin are called oligodendrocytes. Immature oligodendrocytes (also called OPCs) exposed to an immune system molecule called interferon-gamma may become inflammatory (“inflammatory OPCs”) and their myelin repair activities impaired.

The Study: Dr. Gadani and team are testing the idea that myelin repair in MS is impaired because inflammatory OPCs are less able to repair myelin than normal OPCs. Using mice with an MS-like disease, they are testing whether blocking interferon-gamma increases the ability of OPCs to repair myelin. They are also investigating whether the immune system destroys inflammatory OPCs.

What is the potential impact for people with MS? Results from this study may suggest a new type of therapy that blocks inflammatory effects on OPCs and allows myelin repair to restore function in people with MS.

Marjan Gharagozloo, PhD

Johns Hopkins University
Baltimore, Maryland

Award: Career Transition Fellowship

Term: 7/1/2022-6/30/2027

Funding: \$550,000

Paid by the Marilyn Hilton MS Research Fund

Title: Investigating the role of NLRX1 in glia-mediated inflammation and neurotoxicity using experimental models of multiple sclerosis

Summary: Researchers are investigating the role of a molecule in brain inflammation in mice with an MS-like disease.

Background: Current treatments for MS control relapses but do not stop disease progression. The cells that support nerve cells in the brain are called glia, and include astrocytes and microglia. In inflammatory conditions such as MS, glial cells can become

harmful. Understanding how glial cells become inflammatory and harmful may suggest new types of treatments for MS, especially progressive disease.

The Study: Dr. Gharagozloo and team are investigating a molecule called NLRX1 that may control glial cell inflammation. They are testing whether deleting the gene for NLRX1 increases inflammation and how this process works in mice with an MS-like disease. They are also testing whether activating NLRX1 in glial cells with a drug can prevent inflammation and nerve cell death in these mice.

What is the potential impact for people with MS? Results may suggest novel treatments that would decrease inflammation and slow progressive MS.

Shailendra Giri, PhD

Henry Ford Health System/Henry Ford Health Sciences Center
Detroit, Michigan

Award: Research Grant

Term: 5/1/2022-4/30/2025

Funding: \$598,699

Paid by the Marilyn Hilton MS Research Fund

Title: Specialized pro-resolving mediator, mersin 1, abrogates EAE progression

Summary: Researchers are testing a molecule in mice with an MS-like disease for its potential for decreasing MS-related brain inflammation.

Background: Disease flare-ups in relapsing MS involve increased inflammation in the brain and spinal cord. This inflammation is naturally resolved by anti-inflammatory molecules called specialized pro-resolving lipid mediators. One such mediator called maresin 1 has been found to be decreased in people with MS.

The Study: Dr. Giri and team are investigating the therapeutic potential of maresin 1. They are testing whether giving maresin 1 to mice with MS-like disease decreases inflammation and advances repair of lesions. The team is also working to understand how maresin 1 works by looking at another immune molecule called interleukin-10, which appears to mediate the effects of maresin 1.

What is the potential impact for people with MS? Results from this study may provide evidence for testing maresin 1 or similar compounds in clinical trials aimed at stopping MS disease activity.

Oksana Goroshchuk, MD, PhD

Yale University
New Haven, Connecticut

Award: Postdoctoral Fellowship

Term: 7/1/2022-6/30/2025

Funding: \$201,903

Title: Sex differences in multiple sclerosis
Summary: A team is researching changes to immune cells related to male and female sex hormones and genetic differences to understand sex differences in MS.

Background: MS is an immune-system mediated disease that occurs significantly more often in women than in men, but men with MS typically have a more severe course of disease than women. Sex hormones appear to affect the function of immune cells, and this may explain some of the differences between men and women with MS.

The Study: Dr. Goroshchuk and team are investigating changes in immune cell responses and in genes active in immune T cells that are influenced by sex hormones. They are also investigating genetic differences between men and women and comparing people with and without MS to determine the influence of hormones on the risk of getting MS.

What is the potential impact for people with MS? Results from this study may suggest more personalized treatments for MS based on a person's sex and genetics, and also may suggest ways to prevent MS.

Daniel Harrison, MD

University of Maryland, Baltimore
Baltimore, Maryland

Award: Research Grant

Term: 5/1/2022-4/30/2025

Funding: \$589,070

Title: Development of a Convolutional Neural Network for MRI Prediction of Progression and Treatment Response in Progressive Forms of Multiple Sclerosis

Summary: Researchers are testing a novel technology to predict MS progression and the effects of treatment for progressive MS.

Background: There has been some progress in the development of treatments for progressive forms of MS, but more effective therapies are needed. The ability to predict who would benefit most from such treatments would be a significant step towards more specific, precision medicine. A type of artificial intelligence called "convolutional neural networks" can "look" at hundreds of MRI images of the brain and teach itself how to identify features that may predict if MS is likely to progress or whether a particular treatment will work.

The Study: Dr. Harrison and colleagues are using clinical and imaging data from two previous clinical trials that involved people with progressive MS to develop a set of calculations for predicting MS progression using the convolutional neural network. The computer can learn patterns on MRI scans that predict if participants had disability progression during the trial or not. The model will be modified and optimized to develop the most accurate predictions possible. They are testing this method among participants in these trials.

What is the potential impact for people with MS? This study is a first step in providing personalized treatment to stop MS progression.

Dan Hu, PhD

Brigham and Women's Hospital
Boston, Massachusetts

Award: Research Grant

Term: 5/1/2022-4/30/2025

Funding: \$599,999

Paid by the Marilyn Hilton MS Research Fund

Title: Heat shock protein-mediated regulation of T cell responses in Multiple Sclerosis

Summary: A team is investigating the role of a protein called Hsp70 in regulating the balance between aggressive and calming immune responses linked to MS.

Background: In MS, the immune system does not function normally and tissues in the brain, spinal cord and optic nerve come under immune attack. One type of immune cell that plays a role in MS is called a Th17 cell. Th17 cells can both ramp up inflammation (pro-inflammatory) and turn down inflammation (anti-inflammatory).

The Study: Dr. Hu and team are investigating whether a protein called Hsp70 plays a role in regulating the balance between pro-inflammatory and anti-inflammatory states of Th17 cells and if this balance is disrupted in people with MS. Using Th17 cells obtained from blood samples from people with MS and people without MS, they are investigating the molecules produced by Th17 cells, determining how Hsp70 controls the inflammatory state of Th17 cells, and testing whether the pro-inflammatory capacity of Th17 cells is related to treatment responses and disease progression in people with MS.

What is the potential impact for people with MS? Results from this study may uncover a blood biomarker that reflects MS treatment response and disease progression, and may help identify novel targets for development of new treatments.

Mahsa Khayatkhoei, MD

Brigham and Women's Hospital
Boston, Massachusetts

Award: Postdoctoral Fellowship

Term: 7/1/2022-6/30/2025

Funding: \$201,903

Title: The Role of Monocytes in Progressive Multiple Sclerosis

Summary: A team is testing the importance of immune cells called monocytes in progressive forms of MS.

Background: Most people with MS initially have a form of the disease called relapsing-remitting MS in which symptoms and brain lesions worsen and then improve. After a number of years, many people will transition to a phase of steady worsening, called secondary progressive MS. Progressive MS is not well understood, and there are few treatments for progressive forms of the disease. A type of immune cell called monocyte may play a harmful role in progressive MS.

The Study: Dr. Khayatkhoei and team are investigating the role of monocytes in progressive MS. Monocytes are present in blood, and the team is comparing blood samples from people with relapsing MS, progressive MS, and people without MS to determine if monocytes turn on genes that

are important in the transition from relapsing-remitting to secondary progressive MS. They are also testing whether monocytes have a harmful effect on human nerve cells grown from stem cells in a lab dish.

What is the potential impact for people with MS? Results may provide important information about the transition from relapsing-remitting to progressive MS and may suggest better treatment approaches.

Shane Liddelov, PhD

New York University Langone Medical Center
New York, New York

Award: Harry Weaver Scholar Award

Term: 7/1/2022-6/30/2027

Funding: \$404,917

Title: Neurotoxic lipids drive death of oligodendrocytes

Summary: New York University researchers are investigating a toxin secreted by cells in the brain that affects myelin making cells and their functions in MS-like disease.

Background: In MS, the immune system attacks and destroys myelin, the fatty substance that surrounds and protects nerve fibers. Nerve fibers that have lost their myelin do not function properly and are more vulnerable to damage, leading to symptoms in people with MS. The cells that make myelin are called oligodendrocytes. Astrocytes are another type of cell in the brain, and Dr. Liddelov's work previously showed that astrocytes can sometimes secrete a toxic fatty substance (lipid) that can kill oligodendrocytes, a possible driver of degeneration in MS.

The Study: Dr. Liddelov and team are investigating the effects of this astrocyte-derived toxin on oligodendrocytes in the context of MS. The team is using mice with an MS-like disease that have been genetically engineered to not produce the toxin at all. In other mice, the team can turn production of the toxin off at a particular time. They are testing whether motor skills improve when production of the toxin is turned off and how blocking the toxin affects the health of oligodendrocytes. They are also comparing the molecular changes in mice with samples from people with MS.

What is the potential impact for people with MS? Results from this study may suggest a new first-in-class type of treatment for MS that blocks damage to the brain and spinal cord.

Qin Ma, PhD

University of California, San Francisco
San Francisco, California

Award: Postdoctoral Fellowship

Term: 7/1/2022-6/30/2025

Funding: \$215,095

Title: Integrated B cells epigenetic and transcriptome analysis in multiple sclerosis

Summary: UCSF researchers are investigating genetic changes in immune B cells from people with MS compared to people without MS for clues to stopping MS.

Background: B cells are an important type of immune cell involved in the immune attacks on the brain and spinal cord in MS. Genes can be turned on or off by the addition or removal of a chemical group (called a

methyl group) to the DNA, a process known as “methylation.” B cells in MS appear to have different “methylation” patterns than B cells from people without the disease.

The Study: Dr. Ma and team are investigating these differences in methylation of B cells to identify genetic “signatures” of MS to lend understanding to how B cells contribute to MS. They are isolating B cells from blood samples and samples of spinal fluid (liquid obtained from a lumbar puncture) from untreated people with MS and people without MS. The team is looking for differences in methylation and genes that are turned on or off in B cells between people with and without MS.

What is the potential impact for people with MS? Results from this study may suggest new ways to understand and track immune activity in MS and may provide new targets for treating MS.

Carson Moseley, MD, PhD

University of California, San Francisco
San Francisco, California

Award: Clinician Scientist Development Award

Term: 7/1/2022-6/30/2025

Funding: \$222,114

Title: Mechanistic studies of MOG-specific CD4+ T cell differentiation in MOGAD

Summary: A team is investigating the interaction of immune T cells and B cells in attacks on nerve-insulating myelin.

Background: B cells and T cells are two types of immune cells that play a harmful role in MS. These cell types likely interact with each other to make MS worse, but how this happens is largely unknown.

The Study: Dr. Moseley and team are investigating the idea that T cells that are specifically directed at destroying myelin (the fatty substance that surrounds and protects nerve fibers) are present in people with MS and that B cells promote development of these harmful T cells. They are focused on a protein found in myelin called MOG. MOG is attacked by the immune system both in MS and a related disease called MOGAD. First, they are characterizing the targeting of MOG by T cells by studying T cells from people with MOGAD. Then, they will characterize how B cells promote development of these harmful T cells.

What is the potential impact for people with MS? Results from this study will identify new and more precise types of therapy for people with MS.

Pascal Sati, PhD

Cedars-Sinai Medical Center
Los Angeles, California

Award: Research Grant

Term: 5/1/2022-4/30/2025

Funding: \$590,331

Title: Evaluation of Paramagnetic Rim Lesions for Early and Precise Detection of Multiple Sclerosis

Summary: A team is evaluating novel MRI biomarkers to more accurately diagnose MS.

Background: MS can be complex to diagnose, and no single lab or other type of test for the disease exists. For these reasons, sometimes people are falsely diagnosed as having MS, and in others, the correct diagnosis of MS may be delayed. Better diagnostic tools for MS are needed to quicker diagnoses and earlier treatment.

The Study: MRI is commonly used to identify areas of damage or disease activity (lesions) to assist with the diagnosis of MS. Dr. Sati and his team are evaluating novel MRI biomarkers of MS called Paramagnetic Rim Lesions (PRL) and Central Vein Sign (CVS). They are using advanced MRI with artificial intelligence to evaluate PRL and CVS in the brains of 400 people and determine if these biomarkers alone, or in combination, can provide an earlier and more accurate diagnoses of MS.

What is the potential impact for people with MS? Results may prevent misdiagnosis in people without MS, and help those with MS get diagnosed faster so that they can benefit from earlier treatment.

Seema Tiwari-Woodruff, PhD

University of California, Riverside
Riverside, California

Award: Research Grant

Term: 5/1/2022-4/30/2025

Funding: \$462,594

Title: Purkinje Neuron Mitochondrial Dynamics in the Demyelinating Cerebellum

Summary: Researchers are studying how inflammation affects energy sources of nerve cells and testing possible solutions.

Background: People with MS sometimes experience problems with walking and fine motor control. Brain cells called Purkinje cells help control balance and fine motor control. Inflammation and loss of nerve-insulating myelin in MS appear to affect Purkinje cells, in particular cell mitochondria, tiny power plants that produce energy for cell survival and function.

The Study: Dr. Tiwari-Woodruff and team are investigating how Purkinje cells are lost in MS and how degeneration of mitochondria may contribute to their loss. They are taking advantage of a model system that lights up mitochondria so that they can be seen in real time, in mice with an MS-like disease. They are also examining brain tissue samples obtained from people with MS via autopsy to determine whether inflammation-induced mitochondrial degeneration leads to Purkinje cell death and the features of these changes in mitochondria. In the mice, the team is testing whether drugs that improve mitochondrial function are helpful.

What is the potential impact for people with MS? Results from this study may suggest therapies that may improve and protect mitochondrial function to prevent the loss of critical brain cells, especially Purkinje cells, to protect balance and fine motor functions in people living with MS.

Charidimos Tsagkas, MD, PhD

National Institute of Neurological Disorders and Stroke

Bethesda, Maryland

Award: Postdoctoral Fellowship

Term: 7/1/2022-6/30/2025

Funding: \$TBD

Title: Molecular Imaging of CNS-Immune System Interactions in Multiple Sclerosis

Summary: NIH researchers are developing an imaging method that may allow better visualization of inflammation in the brain and spinal cord in MS.

Background: A common imaging method, magnetic resonance imaging (MRI), can detect some but not all of the inflammation and damaged areas in the brain and spinal cord of people with MS. Often a substance called gadolinium is infused before an MRI as contrast agent to provide better visibility of some features in the scan, such as acute inflammation.

The Study: Dr. Tsagkas and team are exploring the use of a contrast medium called micron-sized particles of iron oxide (MPIO) combined with specific antibodies to see if it better detects other types of MS inflammation, such as chronic lesions that are linked to MS progression. In an animal

New Funding for the Network of Pediatric MS Centers

The Network of Pediatric MS Centers was launched with Society funding in 2006 to set the standard for pediatric MS care, educate the medical community about this underserved population, and create the framework to conduct critical research — both to understand childhood MS and to unlock the mysteries of MS in adults. The Society's renewed investment supports research activities of 11 member clinics and the University of Utah Data Coordinating and Analysis Center. The team's current priorities are to expand research relating to the Society's Pathways to a Cure roadmap; focus on wellness, rehabilitation and psychosocial interventions; increase diversity and inclusion; and focus on the transition to adult care. This strategic investment provides the infrastructure and research support needed to keep this unique network — with the largest group of well-characterized pediatric MS cases in the world — moving forward.

Term/amount: 7/1/22-6/30/25/\$3,499,411

Lead Investigator: Theron Casper, PhD
University of Utah

model, the team is testing the ability of MPIO to visualize immune cells and inflammation in blood vessels at different stages of MS-like disease, and they will compare and confirm findings in samples obtained from people with MS via autopsy.

What is the potential impact for people with MS? Better detection of the full range of inflammation and damage to the nervous system in people with MS should provide insights into the processes that underlie MS, and monitoring of response to treatments.

Wei-Le Wang, PhD

Washington University in St. Louis
St. Louis, Missouri

Award: Postdoctoral Fellowship

Term: 7/1/2022-1/11/2022

Funding: \$208,455

Title: B cell tolerance at the CNS borders: a role for meningeal B cell in multiple sclerosis?

Summary: Researchers are exploring the role of immune B cells in the blood and in the casing surrounding the brain in MS-like disease.

Background: B cells are an important type of immune cell involved in disease activity in MS. These cells are found in the blood, and they can also develop in the layers of tissue that surround the brain, called the meninges. Normally B cells do not consider the body's own cells and tissues to be harmful, and so they leave them alone. This is called immune

“tolerance.” B cells in MS may be less tolerant and therefore more harmful, participating in the immune attacks against brain tissues.

The Study: Dr. Wang and team are investigating whether the B cells derived from the meninges and/or the blood are tolerant to cells and proteins in the brain and how these B cells participate in harmful MS immune activity. They are using a genetic approach to generate mice that are missing B cells in the blood or in the meninges to tease out distinct roles for the cells, depending on their location. They are assessing the contribution of B cells from the blood and meninges to inflammation in the brain in these mice after they develop an MS-like disease.

What is the potential impact for people with MS? Although there are effective MS therapies that target B cells (such as ocrelizumab and ofatumumab), these can leave individuals vulnerable to infection. Results from this study may suggest more precise treatments that only eliminate harmful B cells and leave B cells needed to fight infection untouched.

Training Trial Specialists: The Sylvia Lawry Fellowship

Without clinical trials, there would be no disease-modifying therapies for MS – these are how new treatments are tested. Without clinicians trained in conducting these studies, they cannot proceed. Seeing this need, the Society established the Sylvia Lawry Physician Fellowship, named in honor of its founder. This program provides formal clinical trial training with established investigators. Four new trainees have been awarded this fellowship in 2022:

Samantha Roman, MD, Johns Hopkins University, Baltimore, Maryland

The Johns Hopkins MS Clinical Trials Fellowship is a comprehensive 3-year program that has trained many clinician scientists to care for people with MS and to design and conduct MS clinical trials to move the field forward. The Johns Hopkins MS Center is participating in many ongoing clinical trials using a wide variety of treatment strategies and lifestyle modifications. Dr. Roman will learn from mentors who are leaders in the field. This program also involves formal coursework in clinical trial design, biostatistics, data analysis, and ethical and regulatory issues.

Kanika Sharma, MD, National Institute of Neurological Disorders and Stroke, Bethesda, Maryland

As a Clinical Fellow at the NIH, most of Dr. Sharma's time will be dedicated to learning how to conduct clinical trials of new interventions for treating MS, with a focus on brain MRI (neuroimaging) outcome measures, which is one way to monitor whether a treatment is working. Additional time will be spent seeing patients at the Neuroimmunology Clinic and Neurology Consult Service, and mentoring visiting students in the lab. Dr. Sharma will also earn a Masters of Health Sciences in Clinical Research. The coursework will include advanced topics (statistical analysis, machine learning, research management, etc.) relevant for clinical trials.

Elizabeth Verter, MD, Icahn School of Medicine at Mount Sinai, New York, New York

Dr. Verter will complete the Masters of Clinical Research Program at Icahn to further strengthen her knowledge of all aspects of running trials. She will apply this knowledge as she works on her own research projects with her mentors, and will have opportunities to design, implement, and analyze the data collected in these projects. Recently, Mount Sinai established a wellness program that gives individuals access to psychological evaluations, nutrition consultations, social work consultations, and physical therapy. Dr. Verter will monitor and analyze outcomes from these interventions, and also plans to work on a project looking at lifestyle factors.

Anastasia Vishnevetsky, MD, Massachusetts General Hospital, Boston, Massachusetts

This fellowship involves helping to plan and design a clinical trial testing an antiviral medicine in people with MS and fatigue, as well as designing an additional trial focused on using nabiximols to relieve spasticity-related symptoms in myelin-damaging diseases such as MS. Dr. Vishnevetsky also will be conducting data analysis for a clinical trial that is using nerve stimulation for the treatment of pain in demyelinating diseases. Dr. Vishnevetsky will complete a Masters in Public Health at the Harvard T. Chan School of Public Health.

Pathways to Cures: RESTORE/How do we reverse symptoms and recover function?

Multiple sclerosis can result in many different symptoms, including vision loss, pain, fatigue, sensory loss, impaired coordination, mobility, and cognitive changes. Translation of knowledge from basic mechanisms to functional impact is needed to optimize treatment, manage symptoms, and ultimately restore function for people living with both relapsing and progressive forms of MS. Two key objectives have been targeted for the next three years to advance the RESTORE pathway: remyelination and restoration of function.

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Benjamin Clayton, PhD

Case Western Reserve University
Cleveland, Ohio

Award: Career Transition Fellowship

Term: 7/1/2022-6/30/2027

Funding: \$553,557

Title: Functional Genetic Screen Identifies a Novel Remyelination Target in MS

Summary: Case Western Reserve researchers are identifying new targets for treatments that could repair the damage that occurs to the nervous system in people with MS.

Background: In MS, a fatty substance called myelin that surrounds and protects nerve fibers, is attacked and destroyed. This causes death of myelin producing cells called oligodendrocytes, progressive damage to nerves, and worsening disability. Current treatments for MS control relapses but do not stop disease progression and do not promote brain repair. Therapies to enhance myelin repair and protect the brain by promoting the formation of myelin producing oligodendrocytes are needed.

The Study: The Study: Dr. Clayton and team are identifying new therapeutic targets for treatments that could enhance myelin repair by promoting oligodendrocyte formation. They are now performing studies to understand one of the targets they identified, as well as related genes, for clues to pathways that lead to myelin repair.

What is the potential impact for people with MS? Results from this study may suggest novel targets for therapies that could increase myelin repair in people with MS.

Gustavo Della Flora Nunes, PhD

University of Colorado Denver
Denver, Colorado

Award: Postdoctoral Fellowship

Term: 7/1/2022-6/30/2025

Funding: \$194,116

Title: The role of remyelination in restoration of neural function and motor behavior

Summary: University of Colorado researchers are investigating whether the repair of nerve-insulating myelin leads to recovery of physical functions.

Background: Movement problems are common in people with MS. For normal movement, nerve fibers need to be properly insulated by myelin, a fatty substance that protects nerve fibers and that is attacked and destroyed in MS.

The Study: Dr. Della Flora Nunes and team are testing whether myelin repair restores brain circuitry and improves movement ability. They are testing this idea by treating mice that have damaged myelin with experimental myelin repair therapies that are in early human trials. They are able to observe changes in myelin and in the nerve fibers, as well as changes in nerve cell function, over time in the mice.

What is the potential impact for people with MS? Results from this study will help confirm the concept that restoring myelin will also restore functional abilities in people with MS.

John DeLuca, PhD

Kessler Foundation Research Center
West Orange, New Jersey

Award: Mentor-Based Postdoctoral Fellowship

Term: 7/1/2022-6/30/2027

Funding: \$468,019

Paid by the Marilyn Hilton MS Research Fund

Title: MS Fellowship in Neuropsychological Rehabilitation

Summary: Experienced mentors/researchers are training promising rehabilitation professionals to conduct MS rehabilitation research.

Background: While much progress has been made in medicines designed to lessen MS disease activity, research on the cognitive impacts of MS and its appropriate treatment has received less attention. A major limiting factor in advancing this work is the availability of appropriately trained clinicians and researchers. The postdoctoral fellowship in MS at Kessler Foundation is designed to provide advanced training in rehabilitation research that fills this void and directly benefits persons with MS.

The Study: This program supports the training of postdoctoral fellows in neuropsychology, cognitive rehabilitation and cognitive/translational neuroscience. The program is based on an individualized Research Training Plan designed by the trainees in close collaboration with their mentors. The program provides guidance, mentoring, and in-depth understanding of research integrity issues, and enables the

fellows to acquire skills to become independent researchers.

What is the potential impact for people with MS? This program will train rehab professionals how to conduct carefully controlled research studies with relevance to reversing symptoms and improving quality of life for people living with MS.

Richard Dortch, PhD

Barrow Neurological Institute
Phoenix, Arizona

Award: Research Grant

Term: 5/1/2022-4/30/2025

Funding: \$633,835

Title: Turnkey MRI Biomarkers of Myelin Repair

Summary: Barrow Neurological Institute researchers are developing a more sensitive and specific method of measuring nerve-insulating myelin and its repair using MRI.

Background: Brain and sometimes spinal cord MRI is used to measure how well people with MS respond to treatment. However, current MRI methods do not always show damage and repair with as much precision and sensitivity as needed. A specific unmet need is the ability to measure how much myelin (the fatty substance that protects nerve fibers and that is lost and damaged in MS) is present in an MS lesion and how the amount of myelin changes in response to treatment or due to disease progression.

The Study: The Study: Dr. Dortch and team are using a novel type of MRI called selective inversion recovery (SIR) to measure myelin.

Unlike other advanced MRI methods, SIR can be performed on any MRI scanner, and the analysis of the images is straightforward. They are standardizing SIR so that myelin can be consistently measured on different scanners across any hospital. The team is also working on how to measure natural myelin repair after a relapse in people with relapsing MS.

What is the potential impact for people with MS?

Results from this study may identify imaging biomarkers of myelin repair that will allow researchers and clinicians to measure the effectiveness of new therapies for MS, including in clinical trials, over a shorter time, with fewer participants, and at a lower cost.

Douglas Feinstein, PhD

University of Illinois at Chicago
Chicago, Illinois

Award: Research Grant

Term: 5/1/2022-4/30/2025

Funding: \$599,524

Funded with support from the Illinois Lottery

Title: Accelerating remyelination with lanthionine ketimine

Summary: A team at the University of Illinois at Chicago is testing a compound in mice for its potential for increasing repair of nerve-insulating myelin in people with MS.

Background: In MS, the immune system attacks and destroys myelin, the fatty substance that surrounds and protects nerve fibers. Nerve fibers that have lost their myelin do not function properly, and they are

also more vulnerable to damage and loss. Current therapies for MS work by modulating the immune system, but do not directly promote myelin repair.

The Study: Dr. Feinstein and team are investigating the potential of a compound called lanthionine ketimine ethyl ester (LKE). Their previous studies showed that LKE protects the nervous system, increases the maturation of the cells that make myelin, and improves an MS-like disease in mice. The team is now further testing LKE in mice with myelin loss to determine the best dose and timing of LKE to increase myelin repair and functional recovery. They are also testing newer LKE derivatives that may work even better, and are determining how LKE works.

What is the potential impact for people with MS? This study should advance understanding of the potential of LKE or LKE-like compounds to promote myelin repair, and provide a rationale for further development and testing in clinical trials involving people with MS.

Nora Fritz, PT, PhD

Wayne State University
Detroit, Michigan

Award: Mentor-Based Postdoctoral Fellowship

Term: 7/1/2022-6/30/2027

Funding: \$467,505

Paid by the Marilyn Hilton MS Research Fund

Title: Advancing Rehabilitation Research for Persons with Multiple Sclerosis

Summary: Rehabilitation researchers at Wayne State University are training

postdoctoral scientists in how to conduct MS research aimed at reversing symptoms and restoring function.

Background: Continuous monitoring with wearable devices allows for greater insights about the lives of those with MS and may be used to provide interventions as people go about their daily lives. It is important that MS researchers are positioned at the leading edge of the capabilities and developments of these technologies. Through this mentorship program, Dr. Fritz and colleagues aim to train the next generation about how to best develop and use new research methods, technologies and strategies to help people with MS.

The Study: The main goal of this program is to train research fellows specifically in MS rehabilitation research and equip them to establish independent research careers. Postdoctoral fellows will gain skills including development and validation of standardized study outcome measures, use of emerging technologies such as wearables and smartphones, skills in trial design, development and testing of interventions that target functional recovery, and access to rehabilitation through telehealth or remote designs.

What is the potential impact for people with MS? This program will train rehab professionals how to conduct carefully controlled research studies with relevance to reversing symptoms and improving quality of life for people living with MS.

Nora Fritz, PT, PhD

Wayne State University
Detroit, Michigan

Award: Research Grant

Term: 7/1/2022-6/30/2025

Funding: \$599,679

Title: TRAIN-BW: Feasibility, Acceptability and Impact of Backward Walking Training in Persons with MS

Summary: Researchers are testing whether a backward walking program improves walking and reduces falls in people with MS.

Background: Falling is common in persons living with MS. Not only can falls be harmful, they also erode a person's confidence and quality of life. Finding ways to reduce falls is critical. Recent research from other neurologic disorders suggests that specifically training backward walking is feasible and improvements in walking and balance, which may reduce falls.

The Study: This team is recruiting 90 people with relapsing or progressive MS who have difficulty walking to assess the feasibility, acceptability (Is it user-friendly? Relevant to their lives? Beneficial?) and impacts of a backward walking training program. They will be looking at improvements in balance, balance confidence, and number of falls after a backward walking training program compared to a forward walking program. The team will also examine if performance on cognitive tests and other measures at the beginning of the study can predict who improves most.

What is the potential impact for people

with MS? If backward walking improves balance, balance confidence, and the risk of falls, this study can fundamentally shift how exercise therapy targeting fall reduction is delivered in persons with MS.

Victoria Leavitt, PhD

Columbia University
New York, New York

Award: Mentor-Based Postdoctoral Fellowship

Term: 7/1/2022-6/30/2027

Funding: \$489,489

Paid by the Marilyn Hilton MS Research Fund

Title: Cognitive Rehabilitation in MS: Translating Neuroscience from Laboratory to Life

Summary: Experienced mentors/researchers are training promising rehabilitation professionals to conduct MS rehabilitation research.

Background: Cognitive impairment is prevalent in MS, even at early stages of the disease. While we now recognize its presence and impact, treatment options and rehabilitation approaches remain limited. One reason is an incomplete understanding of what causes cognitive impairment in MS. An essential step to overcoming challenges is attracting and training bright scientists to the field of cognitive rehabilitation in MS.

The Study: The training program is designed to give trainees a solid research background that will position them to make meaningful advances to the field of cognitive rehabilitation in MS. The focus of the

program is providing a strong foundation of knowledge for developing science-based treatments that address the real problems people with MS face. The ultimate goal of the program is to prepare trainees for independent research careers. Trainees are exposed to and participate in studies utilizing a broad range of inter-related research approaches including classic neuropsychological evaluation, experimental cognitive techniques, and neuroimaging. Complementing and enhancing research approaches is a strong emphasis on multicultural populations.

What is the potential impact for people with MS? This program will train rehabilitation professionals to conduct rigorous, well-controlled research studies with the potential to reverse cognitive symptoms and improve quality of life for people living with MS.

Richard Qing Lu, PhD

Children's Hospital Medical Center -
Cincinnati
Cincinnati, Ohio

Award: Research Grant

Term: 5/1/2022-4/30/2025

Funding: \$599,999

Title: Small molecule modulators of chromatin remodeling for myelin repair

Summary: Researchers at Children's Hospital Medical Center in Cincinnati are exploring the role of the molecule HDAC3 in inhibiting myelin repair and testing ways to stop it to enhance repair in MS.

Background: In MS, the immune system attacks and destroys myelin, the fatty

substance that surrounds and protects nerve fibers. Nerve fibers that have lost their myelin do not function normally, and are more vulnerable to destruction. Treatments for MS are needed that increase myelin repair to restore function.

The Study: Dr. Lu and team are investigating factors that increase the maturation of immature oligodendrocytes, the cells that make myelin. They are investigating whether a molecule called HDAC3 prevents oligodendrocyte maturation by blocking gene activity (expression) needed for maturation. They are working to understand the role of HDAC3 in myelin repair by generating mice that do not express HDAC3. They are also identifying and testing inhibitors of HDAC3 in mice to see if that improves myelin repair.

What is the potential impact for people with MS? Results from this study may suggest the development of medicines that could increase myelin repair in people with MS.

Wendy Macklin, PhD

University of Colorado Denver
Denver, Colorado

Award: Research Grant

Term: 5/1/2022-4/30/2025

Funding: \$599,999

Title: Impact of recombinant MS antibodies on remyelination

Summary: University of Colorado scientists are investigating the role of antibodies that may block myelin repair in people with MS.

Background: In MS, the immune system attacks and destroys myelin, the fatty substance that surrounds and protects nerve fibers. Natural myelin repair in people with MS eventually diminishes and is incomplete. Nerve fibers that have lost their myelin do not function normally and are more vulnerable to destruction.

The Study: Dr. Macklin and team are investigating immune proteins called anti-myelin antibodies that appear to prevent complete myelin repair. These antibodies have been found in the spinal fluid of people with MS. The team is investigating myelin repair in the presence and absence of these antibodies both in lab mice and in cells grown in lab dishes. They are also examining changes that occur in gene activity (expression) in cells that make myelin when exposed to these antibodies.

What is the potential impact for people with MS? Results from this study may suggest treatments that could improve myelin repair and restore function in people with MS.

Bardia Nourbakhsh, MD

Johns Hopkins University
Baltimore, Maryland

Award: Harry Weaver Scholar Award

Term: 7/1/2022-6/30/2027

Funding: \$763,720

Paid by the Marilyn Hilton MS Research Fund

Title: New measurement tools for assessing a novel targeted treatment of multiple sclerosis fatigue

Summary: Johns Hopkins researchers are testing a potential treatment for fatigue in people with MS and evaluating new ways of measuring MS fatigue.

Background: Fatigue is the most common and disabling symptom of MS. Excessive daytime sleepiness is different but overlaps with fatigue (a subjective sense of lack of energy). No FDA-approved treatments for MS-related fatigue are available.

The Study: Dr. Nourbakhsh and team are testing a medication called solriamfetol, which is currently FDA approved for other sleep-related disorders, for improving excessive daytime sleepiness and fatigue in a clinical trial involving people with MS experiencing these issues. The team is also working to improve the assessment of fatigue by testing a smartphone application that will ask participants about their fatigue severity several times during the day and also evaluate their smartphone keyboard use for clues to their energy levels.

What is the potential impact for people with MS? This study will provide evidence for whether solriamfetol is useful and safe

for treating fatigue in a subgroup of people with MS.

Alyssa Nylander, MD, PhD

University of California, San Francisco
San Francisco, California

Award: Clinician Scientist Development Award

Term: 7/1/2022-6/30/2024

Funding: \$150,445

Title: Cognition as a meaningful, quantitative outcome for myelin repair: establishing a translational approach for advancing from preclinical assessments to clinical trials

Summary: UCSF researchers are exploring the relationship between myelin repair and cognitive ability in people with MS and mouse models of the disease.

Background: In MS, the immune system attacks and destroys myelin, the fatty substance that surrounds and protects nerve fibers. Nerve fibers that have lost their myelin do not function normally and also are more vulnerable to damage. This can cause symptoms such as vision problems, movement problems, memory and cognition

issues, and others, depending on where in the brain or spinal cord myelin and nerves have been lost.

The Study: Dr. Nylander and team are seeking to understand how myelin repair may improve cognition. They are leveraging an ongoing clinical trial of a medication called bazedoxifene, which is being tested for its ability to promote myelin repair, to see if it improves cognitive ability. They also need to know if improvements in cognition are the result of myelin repair or some other factors. To find better ways to detect cognitive changes that may answer this question, the team is studying myelin repair in lab mice and determining which types of cognitive results are associated with myelin loss and repair.

What is the potential impact for people with MS? Results from this study will help determine if bazedoxifene impacts cognitive ability and will expand the understanding and tools needed to detect myelin repair and cognition.

Pathways to Cures: END/How do we prevent MS?

Ending MS is defined as no new cases of MS. Two key objectives have been targeted for the next three years to advance the END pathway: primary prevention and secondary prevention. Primary prevention involves limiting exposures to MS risk factors in the general population. Secondary prevention focuses on individuals at high risk for MS and developing and deploying interventions in the period prior to preclinical/clinical stages of disease to reduce or eliminate the risk for developing MS.

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Manuel Comabella, MD, PhD

Hospital Vall Hebron
Barcelona, Spain

Award: Research Grant

Term: 5/1/2022-4/30/2024

Funding: \$315,090

Paid by the Marilyn Hilton MS Research Fund

Title: Search of prognostic factors of conversion to multiple sclerosis in patients with radiologically isolated syndrome

Summary: Researchers are seeking to identify biomarkers in people who have signs of MS on imaging scans – but no symptoms – in order to select who is at high risk of developing MS.

Background: There are individuals with imaging findings similar to those observed in people with MS, but who do not have neurological symptoms suggestive of MS. These individuals have radiologically isolated syndrome (RIS), a rare condition. This team is seeking to identify reliable prognostic biomarkers at the time of an RIS diagnosis that will allow them to select those individuals at high risk for developing MS, who might benefit from early treatment to delay symptom onset.

The Study: Dr. Comabella and colleagues will measure known biomarkers (for instance, a neurofilament light chain, an indicator of nerve damage) in spinal fluid samples from individuals with RIS, as well as blood biomarkers related to environmental and genetic factors known to play a role in MS, such as vitamin D or viruses. They will also compare the gene activity in blood cells from individuals with RIS who develop MS over time, and individuals who do not. This biological information will be put together with clinical and MRI information to identify the main predictors that determine the risk of developing future neurological symptoms and a future diagnosis of MS.

What is the potential impact for people with MS? The results from the study will allow neurologists to identify individuals with RIS who are at high risk for developing MS, enabling earlier treatment.

Brian Edelson, MD, PhD

Washington University School of Medicine
St. Louis, Missouri

Award: Research Grant

Term: 5/1/2022-4/30/2025

Funding: \$596,550

Title: T cell-intrinsic roles for the ZFP36 family proteins in MS and EAE

Summary: A team at Washington University in St. Louis is investigating how specific MS risk genes influence the activity of immune cells in MS.

Background: The risk of developing MS, which involves immune attacks on the nervous system, is increased by common variants in multiple genes. Each individually inherited variant increases risk in a small way. Many of the genes that confer an increased risk for MS are active (expressed) in a type of immune cell called a T cell, which plays a harmful role in MS. Variants in ZFP36L1 and ZFP36L2, two members of a three-gene family expressed in T cells, appear to increase MS risk.

The Study: Dr. Edelson and team are investigating how the proteins made by these genes function in T cells. They have generated mice that lack one, two, or all three proteins in this gene family in T cells. Mice that lack both ZFP36L1 and ZFP36L2 are resistant to developing an MS-like disease, and the team is investigating why T cells that lack these genes cannot induce disease. In addition, studying T cells from people with and without MS, the team is determining if the MS-related risk variants lead to altered expression of the genes in T

cells and if the risk or non-risk forms of these genes are linked to the production of inflammatory proteins.

What is the potential impact for people with MS? Knowledge of how risk genes influence immune activity may help predict who will develop MS and who will respond to a given treatment.

Naila Makhani, MD, MPH

Yale University

New Haven, Connecticut

Award: Harry Weaver Scholar Award

Term: 7/1/2023-6/30/2028

Funding: \$604,695

Title: Biomarkers Associated with Multiple Sclerosis in Children with Radiologically Isolated Syndrome

Summary: A team at Yale University is investigating children with unexpected abnormalities on brain scans to better predict who are most likely to develop MS.

Background: Children sometimes undergo MRI for a reason other than suspected MS (for example, head trauma). Sometimes unexpected abnormalities found on MRI that are consistent with MS are found in both children and adults, without typical MS symptoms, and this phenomenon is called “radiologically isolated syndrome” or RIS. Around 42% of children with RIS develop MS within 2 years. Children with MS have frequent relapses and develop disability at a young age.

The Study: Dr. Makhani and team are looking for other MRI markers and other factors that would predict which children with RIS are most likely to go on to develop MS. Possible factors they are looking at include the number and location of brain lesions seen on MRI, age, sex, and spinal fluid findings from a lumbar puncture. The team is building statistical models with these factors to more precisely predict which children with RIS are most likely to develop MS.

What is the potential impact for people with MS? This study could help refine the ability to predict which children at highest risk for developing MS, which could open the door to earlier treatment or enrollment in clinical trials aimed at preventing the disease.

Michelle Pleet, PhD

National Institutes of Health/National Institute of Neurological Disorders and Stroke

Bethesda, Maryland

Award: Postdoctoral Fellowship

Term: 7/1/2022-6/30/2024

Funding: \$136,786

Title: Origin and Cargo of CSF EVs from MS patients as Signatures of Disease

Summary: A team at NIH is investigating the importance of extracellular vesicles, which are packets of information released from cells into the blood and other bodily fluids, in MS.

Background: Extracellular vesicles (EVs) are small packets released from cells into the blood and other bodily fluids. They contain

information about the cells from which they were made, and they play an important role in helping cells communicate with each other. EVs obtained from these fluids can provide information about cells that are involved in diseases including MS.

The Study: Dr. Pleet and team are investigating whether EVs obtained from blood and spinal fluid from people with MS will provide information about the cell types involved in causing MS. They are obtaining samples from people with MS at different disease states (active or stable) and from people without MS and are looking for differences in the components of the EVs that are unique to MS.

What is the potential impact for people with MS? Results from this study may suggest new biomarkers of MS and additional information about the cause(s) of MS, which may lead to more targeted treatments and possible prevention strategies.

Joseph Sabatino, MD, PhD

University of California, San Francisco
San Francisco, California

Award: Research Grant

Term: 5/1/2022-4/30/2025

Funding: \$584,536

Title: Antigen specificity and cross-reactivity of clonally expanded CD8+ T cells in multiple sclerosis

Summary: A team at the University of California, San Francisco is determining the targets recognized by immune cells in the spinal fluid of people with MS for clues to what triggers MS.

Background: In MS, the immune system attacks tissues in the brain and spinal cord. Immune cells called T cells are an important actor in the immune attacks in MS, and they attack a specific, unknown target substance.

The Study: Dr. Sabatino and team are working to identify the target attacked by T cells in MS. They are isolating and studying the T cells present in spinal fluid of people with MS. The team is testing the idea that these T cells recognize pieces of viruses, and that the composition of those target pieces are so similar to components of the nervous system that they may trigger an autoimmune attack by T cells against those nervous system components – a concept called cross-reactivity.

What is the potential impact for people with MS? Results from this study may improve understanding of how MS is triggered and suggest more specific treatments that target only the harmful T cells in MS and that leave other T cells untouched.

Society Funds Clinical Care Fellowships

2022 Clinical Care Fellowships

These awards provide one year of post-residency training with experienced mentors to optimize access to quality care and solutions for people with MS.

Fellow	Mentor	Institution
Ahmed Abbas, MD	Rock Heyman, MD	University of Pittsburgh
Allison Block, DO	Anthony Reder, MD	University of Chicago
Sarah Germaine, DO	John Rose, MD	University of Utah
Natalia Gonzalez Caldito, MD	Roumen Balabanov, MD	Northwestern University
Mellad Khoshnood, MD	Jonathan Santoro, MD	Children's Hospital of Los Angeles
Evan Luxenberg, MD	Annette Wundes, MD	UW Medical Center, Northwest
Hossein Mousavi, MD	William Lindsey, MD	University of Texas Health Science Center
Kimberly O'Neill, MD	Ilya Kister, MD	New York University School of Medicine
Jessica Piche, MD	Tiffany Braley, MD	Regents of University of Michigan
Kelsey Poisson, MD	Shruti Agnihotri, MD	University of Alabama at Birmingham
Mohona Reza, MD	Syed Rizvi, MD	Rhode Island Hospital
Amy Safadi, MD	Benjamin Osborne, MD	Medstar Georgetown University Hospital
Jiyeon Son, MD	Claire Riley, MD	Columbia University Medical Center
Lisa Stropp, MD	Jeffrey Cohen, MD	Cleveland Clinic Foundation
Elizabeth Wilson, MD	Tanuja Chitnis, MD	Brigham and Women's Hospital
Ghaida Zaid, MD	Shruti Agnihotri, MD	University of Alabama at Birmingham

2022 Institutional Clinician Training Awards

Institutional Clinician Training Awards are five-year awards to mentors and institutions to provide training for board-certified/eligible neurologists and psychiatrists in MS care.

Mentors	Institution
Salim Chahin MD, MSCE Anne Cross, MD	Washington University in St. Louis
Tanuja Chitnis, MD Kristin Galetta, MD Eric Klawiter, MD	Brigham and Women's Hospital

NOTE: This document is not an official record and any errors do not reflect official changes to research award agreements. Some grants listed do not have final signed agreements.

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