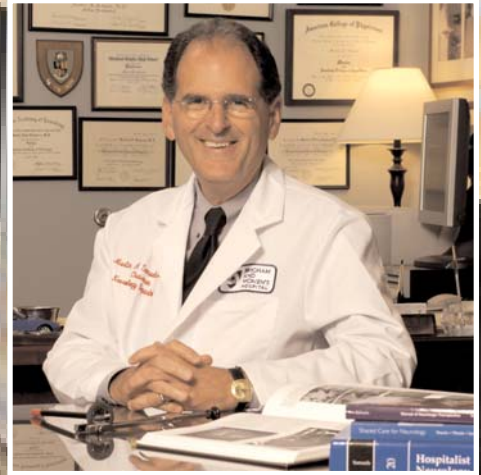


Brigham and Women's Hospital

NEUROLOGY



BRIGHAM AND
WOMEN'S HOSPITAL



HARVARD
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BRIGHAM AND WOMEN'S HOSPITAL

Brigham and Women's Hospital Neurology: Delivering Advanced Patient Care for Neurologic Diseases

The Brigham and Women's Hospital Department of Neurology, with 225 faculty, serves referring physicians around the world, offering integrated, patient-centered care for the full spectrum of neurologic diseases. We are a founding member of the Institute for the Neurosciences at Brigham and Women's Hospital, a unique collaboration of the Departments of Neurology, Neurosurgery, Psychiatry, and Radiology dedicated to pioneering treatment, research, and prevention of neurologic diseases.

In addition to providing world-class clinical care, our Department sponsors one of the largest and most productive neurological research enterprises in the world, totaling approximately \$30 million. A multidisciplinary group of physicians and scientists lead groundbreaking basic, translational, and clinical research efforts that continue to make significant contributions to our understanding of the mechanisms and most effective treatments for neurologic diseases.

Brigham and Women's Hospital is a teaching affiliate of Harvard Medical School, and all physicians are faculty members at Harvard Medical School. Brigham and Women's Hospital experts have trained many of the nation's leading neurologists, neurosurgeons, neuro-oncologists, psychiatrists, and other specialists.

The following information details the clinical and investigational resources we offer to develop tailored therapies for the most complex cases and to design new treatments for neurologic diseases that still elude effective treatment.

Connecting You to Brigham and Women's Hospital

To learn more about Neurology at Brigham and Women's Hospital, or to refer a patient, please contact our Referral Coordinator at **1-800-MD-TO-BWH** or esperandio@partners.org.

75 Francis Street • Boston, MA 02115
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For 13 years in a row, Brigham and Women's Hospital has been included on the *U.S. News & World Report*® Honor Roll of "America's Best Hospitals" and is consistently named one of the top hospitals in Neurology and Neurosurgery.



Martin A. Samuels, MD

*Neurologist-in-Chief;
Chairman, Department of Neurology,
Brigham and Women's Hospital;
Professor of Neurology,
Harvard Medical School*

An internationally-recognized expert in clinical neurology and its relationship to other medical specialties, Dr. Samuels leads a full-service clinical program encompassing 11 divisions and a robust multidisciplinary research program that seeks to clarify the mechanisms of neurologic disease and develop more effective therapies.



Anthony A. Amato, MD

*Chief, Division of Neuromuscular
Disease, Department of Neurology,
Brigham and Women's Hospital;
Associate Professor of Neurology,
Harvard Medical School*

A world-renowned expert in the treatment of neuromuscular diseases, Dr. Amato directs research focused on the genetic phenotypes and molecular mechanisms of inherited, inflammatory, and autoimmune neuropathies and myopathies and on finding more effective treatments for neuromuscular diseases.

INNOVATIVE TREATMENT

Multiple Sclerosis Center

An NIH-designated Autoimmunity Center of Excellence, the Partners Multiple Sclerosis Center at Brigham and Women's Hospital features:

- A state-of-the-art patient facility designed to accommodate the physical limitations that may accompany MS;
- A dedicated MR scanner with 3-D reconstruction to measure the volume of MS lesions and customize the most appropriate treatment strategy for each patient.

In addition, all services — clinical visits, laboratory services, infusion therapy, and patient education — are available in one location for patient convenience. Patients have access to all standard treatments as well as trials of new agents and new combinations of agents that may reduce the frequency and severity of flare-ups.

The Partners Multiple Sclerosis Center at Brigham and Women's Hospital also is home to a robust research program. Current studies include:

- A large natural history study to identify disease models that will aid in predicting individual progress and customizing treatment;
- A major international collaborative effort to discover the genes that predispose people to developing MS;
- A drug discovery program to target both the inflammatory and degenerative components of MS.



Howard L. Weiner, MD, co-director of the Partners Multiple Sclerosis Center at Brigham and Women's Hospital, is developing new treatment approaches designed to reduce the frequency and severity of flare-ups in patients with MS.

Center for Neurologic Diseases

Physician/scientists at the Center for Neurologic Diseases at Brigham and Women's Hospital conduct basic and translational research in MS and other neurologic diseases. Howard L. Weiner, MD, and Samia J. Khoury, MD, co-directors of the Partners Multiple Sclerosis Center at Brigham and Women's Hospital, along with David A. Hafler, MD, Vijay K. Kuchroo, PhD, and other internationally-recognized clinicians and researchers, are leading studies that will contribute to the understanding of MS and aid in the development of new treatments.



Edward B. Bromfield, MD

*Director, Epilepsy Program,
Department of Neurology,
Brigham and Women's Hospital;
Associate Professor of Neurology,
Harvard Medical School*

Dr. Bromfield leads a comprehensive epilepsy service offering advanced diagnosis and treatment. In addition, he oversees research efforts to identify risk factors for epilepsy and to uncover more effective treatments.



Kirk R. Daffner, MD

*Chief, Division of Cognitive and
Behavioral Neurology,
Department of Neurology,
Brigham and Women's Hospital;
Associate Professor of Neurology,
Harvard Medical School*

An expert in the diagnosis and treatment of disorders of executive function, attention, and cognition of Alzheimer disease and related conditions, Dr. Daffner heads a comprehensive clinical program for cognitive and behavioral problems.

Cancer Neurology

Led by Patrick Y. Wen, MD, cancer neurologists at Brigham and Women's Hospital provide care for patients with tumors of the nervous system and neurologic complications of cancer. Cancer neurologists at Brigham and Women's Hospital are an integral part of the multidisciplinary team of specialists at the Center for Neuro-Oncology at Dana-Farber/Brigham and Women's Cancer Center, providing coordinated treatment and cutting-edge research and therapy in adult neuro-oncology, including:

- Targeted molecular therapies that block molecular changes leading to tumor growth and development;
- Angiogenesis-inhibitors that hamper abnormal blood vessel formation, preventing tumor growth and improving tumor response to chemotherapy and radiotherapy;
- Novel chemotherapies and immunotherapies, including tumor vaccines;
- Diagnosis and treatment of neurologic complications of cancer and cancer therapies.

Epilepsy Program

The Epilepsy Program at Brigham and Women's Hospital, directed by Edward B. Bromfield, MD, offers state-of-the-art diagnostic techniques and the full range of medical and surgical treatments. In addition to standard therapies, the Center offers evaluation and treatment for patients with difficult-to-control epilepsy.

Advanced technologies, including intracranial EEG monitoring, synchronized video EEG monitoring, EEG with polysomnography, SPECT, and PET-CT, are used in diagnosis and surgical planning to identify areas of the brain in which seizures arise.

Promising investigative therapies and research include:

- Randomized trials investigating the role of omega-3 fatty acids in controlling epilepsy, and in determining whether intermittent use of a progesterone lozenge helps control seizures in women;
- Analysis of data from the Nurses' Health Study to determine the role of diet, lifestyle, and hormones as risk factors for adult-onset epilepsy;
- Investigation of intracranial EEG markers to predict seizures before they begin, and the investigation of the effects of epilepsy and antiepileptic drugs on pregnancy.

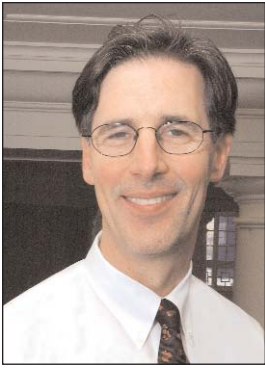
Movement Disorders

The Partners Parkinson and Movement Disorders Treatment Center at Brigham and Women's Hospital, overseen by Lewis R. Sudarsky, MD, offers evaluation, management, and treatment for a range of movement disorders, including:

- Parkinsonian disorders, including those presenting particular therapeutic challenge;
- Dystonia, and assessment of patients who may benefit from botulinum toxin injection;
- Hereditary ataxia.

The Center provides diagnostic services, advanced therapies, and access to trials of new medications, as well as participation in key research, including:

- Clinical trials of neuroprotective interventions to slow or halt Parkinson disease progression;
- Search for a biomarker to track the effectiveness of early treatment for Parkinson disease;
- Efforts to identify genetic and environmental risk factors that may be implicated in Parkinson disease;
- A study of gene mutations associated with Parkinson disease.



Steven K. Feske, MD

*Chief, Stroke Division,
Medical Director, Stroke and Cerebrovascular
Center, Department of Neurology,
Brigham and Women's Hospital;
Assistant Professor of Neurology,
Harvard Medical School*

Dr. Feske is an expert in stroke neurology and medical therapies for stroke. He currently is collaborating in the comparison of endarterectomy and endovascular stenting for carotid stenosis and in the investigation of a mechanism of cell signaling thought to mediate inflammatory responses during stroke evolution.



Galen V. Henderson, MD

*Director, Division of Critical Care
and Emergency Neurology;
Medical Director,
Neuroscience Intensive Care Unit,
Brigham and Women's Hospital;
Assistant Professor of Neurology,
Harvard Medical School*

Dr. Henderson is an expert in the evaluation and management of patients with acute neurologic disease and neuromuscular diseases. He is an internationally-known medical educator in the treatment of acute brain injuries and a member of the Academy at Harvard Medical School.

Neuromuscular Disease

The Division of Neuromuscular Disease at Brigham and Women's Hospital, directed by Anthony A. Amato, MD, provides advanced treatment for disorders of the peripheral nervous system, including neuropathies, myopathies, ALS, muscular dystrophy, and myasthenia gravis.

Neurophysiological testing, muscle biopsies, and nerve biopsies are performed and interpreted. Medical treatment, including corticosteroids and immunosuppressive/immunomodulating medications are provided in select cases to relieve symptoms in patients with neuromuscular disease.

Current investigative therapies include:

- An NIH-sponsored study of the safety and effectiveness of the TNF alpha blocker, etanercept, in the treatment of dermatomyositis;
- An NIH study of channelopathies (non-dystrophic myotonias, Anderson-Tawil syndrome, and episodic ataxia), including natural history and treatment trials with specific medications that alter ion channel function;
- An NIH study of hypo- and hyper-kalemic periodic paralysis, including natural history and randomized drug trials to determine which agents improve strength and reduce attack rate;
- A multi-center, Phase I/II trial of a myostatin inhibitor in adults with muscular dystrophy;

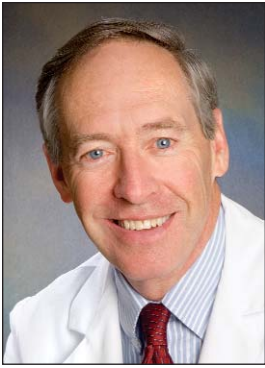
- An NIH- and Muscular Dystrophy Association-sponsored study of the pathogenesis of the inflammatory myopathies, including inclusion-body myositis, dermatomyositis, and polymyositis. Employing innovative genomic and proteomic techniques on muscle tissue and in peripheral blood, specialists are striving to better understand these disorders and look for markers of prognosis and treatment responsiveness.

Brigham and Women's Hospital physicians are also conducting research into the pathogenesis of muscle disorders in order to develop more effective treatments.

Discovering New Treatments for Neurodegenerative Diseases

Brigham and Women's Hospital neurological investigator Peter T. Lansbury, PhD, uses robotic technology to search for new agents that may alter the course of neurodegenerative diseases. Dr. Lansbury is working with researchers in the laboratory to test more than 70,000 compounds, as well as existing FDA-approved drugs.

Mel B. Feany, MD, PhD, a neuropathologist at Brigham and Women's Hospital, has created a fruit fly model of neurodegeneration that is used to test new therapeutic agents for possible treatment for Parkinson disease.



Dennis J. Selkoe, MD

Chief, Division of Basic Neuroscience Research; Co-Director, Center for Neurologic Diseases, Department of Neurology, Brigham and Women's Hospital; Vincent and Stella Coates Professor of Neurologic Diseases, Harvard Medical School

An internationally-known physician and scientist who helped formulate the amyloid hypothesis for Alzheimer disease causation, Dr. Selkoe has devoted more than 25 years to research that has advanced the understanding, treatment, and prevention of Alzheimer disease.



Lewis R. Sudarsky, MD

Director, Movement Disorders, Department of Neurology, Brigham and Women's Hospital; Associate Professor of Neurology, Harvard Medical School

Dr. Sudarsky is an expert in the evaluation and treatment of Parkinson disease, ataxia, dystonia, and other movement disorders. He participates in a range of clinical research projects on the causes and best therapies for Parkinson disease, dystonia, and hereditary ataxia.

Stroke and Cerebrovascular Disease

Under the leadership of Medical Director Steven K. Feske, MD, and Surgical Director Arthur L. Day, MD, the Stroke and Cerebrovascular Center at Brigham and Women's Hospital is comprised of a multidisciplinary team of specialists – including neurologists, neurosurgeons, neuro-interventionalists, vascular surgeons, and emergency medicine physicians – who delivers rapid, accurate, and advanced assessment and innovative treatment for patients.

Specialists at the Center use state-of-the-art diagnostic imaging techniques and multimodality treatment, including medical, endovascular, neurosurgical, and neuro-interventional therapies, designed to improve patient outcomes. Stroke neurologists at Brigham and Women's Hospital also offer their expertise to emergency room physicians and other specialists in community and remote hospitals through the new Partners Neurology Telestroke Center at Brigham and Women's Hospital. Using videoconferencing technology and computed tomography images, stroke specialists at the Center examine patients and confer with physicians to assist in diagnosis and treatment planning.

Physicians at the Center conduct research focused on understanding the mechanisms of stroke and improving diagnosis and treatment, including the investigation of the role of cell signaling pathways in the pathophysiology of stroke. Brigham and Women's Hospital specialists are also participating in the CREST trial – an NIH-sponsored, multi-centered trial comparing endarterectomy to angioplasty and carotid stenting in patients with carotid artery stenosis.

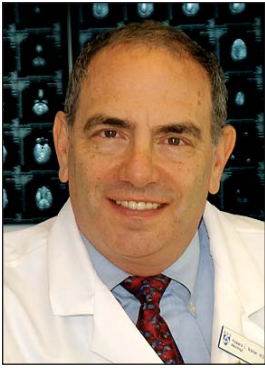


Medical Director Steven K. Feske, MD, and Surgical Director Arthur L. Day, MD, collaborate in the evaluation and care of patients with stroke and cerebrovascular disease.

Neuroscience Intensive Care Unit

The Neuroscience Intensive Care Unit at Brigham and Women's Hospital provides multi-specialty care for patients with ischemic stroke, subarachnoid or intracerebral hemorrhage, Guillain-Barre syndrome, myasthenia gravis, status epilepticus, encephalitis, brain tumor, brain or spinal cord injury, meningitis, and other serious neurologic conditions. The 20-bed unit, led by Medical Director Galen V. Henderson, MD, and Surgical Director Dong H. Kim, MD, is the largest dedicated neuroscience ICU in New England. All rooms are equipped for continuous EEG monitoring and additional technology includes:

- CT scanner with CT angiography and cerebral perfusion studies capabilities;
- Transcranial Doppler ultrasound;
- Hypothermia for brain protection;
- Intracranial tissue oxygenation monitors;
- Microdialysis catheters for real-time measures of cerebral biochemistry.



Howard L. Weiner, MD

*Chief, Division of Multiple Sclerosis and Neuro-Immunology;
Co-Director, Center for Neurologic Diseases, Department of Neurology, Brigham and Women's Hospital;
Robert L. Kroc Professor of Neurology, Harvard Medical School*

Dr. Weiner is a world-renowned leader in advancing the understanding of the biology and immunology of multiple sclerosis. His findings have contributed significantly to the knowledge of MS and new treatment approaches that reduce the frequency and severity of flare-ups.



Patrick Y. Wen, MD

*Director, Division of Neuro-Oncology, Department of Neurology, Brigham and Women's Hospital;
Clinical Director, Center for Neuro-Oncology, Dana-Farber/Brigham and Women's Cancer Center;
Associate Professor of Neurology, Harvard Medical School*

Dr. Wen provides innovative treatments for patients with neurologic complications of cancer and brain tumors. He leads research evaluating new therapies, including trials of targeted molecular drugs, angiogenesis inhibitors, novel chemotherapies, and drug delivery strategies.

Alzheimer Disease

Dennis J. Selkoe, MD, was among the first to study the amyloid beta-protein and its role in the cascade leading to Alzheimer disease, and he helped formulate the amyloid hypothesis, currently the major accepted theory of Alzheimer disease causation.

He and his collaborators developed a method for isolating the abnormal neurofibrillary tangles that are a hallmark of Alzheimer disease and discovered their unusual chemical properties. They also discovered that the amyloid beta-protein is a normal product of cellular metabolism and described the key role of small soluble aggregates of amyloid

beta in disrupting memory function. Their work led to the first assay systems for discovering enzyme inhibitors for the amyloid beta-protein.

Dr. Selkoe's continuing research efforts are directed toward uncovering the mechanisms of amyloid beta-protein aggregation, degradation, and clearance in order to use this understanding to develop new treatments — and ultimately prevention — for Alzheimer disease.

Dr. Selkoe and Dr. Weiner have collaborated on the development of a nasal vaccine that uses small amounts of the amyloid beta-protein and has been found to reduce plaques by 50 percent in mice. Early human trials of this or a closely related approach are expected to begin soon.



Dennis J. Selkoe, MD, co-director of the Center for Neurologic Diseases in the Department of Neurology at Brigham and Women's Hospital, is a pioneer in the study of the molecular basis of Alzheimer disease. He has helped develop methods to identify inhibitors of key steps in the disease that could lead to treatments – and ultimately prevention – of this common and devastating disorder.

Cognitive and Behavioral Neurology

Under the direction of Kirk R. Daffner, MD, the Brigham and Women's Hospital Division of Cognitive and Behavioral Neurology offers a comprehensive multi-disciplinary approach to the evaluation, treatment, and management of patients with complex neurological and behavioral disorders. Clinicians in the Division care for patients with problems of memory, attention, executive functions, language, perception, emotion, or behavior as a result of injury, disease, or developmental disorders of the central nervous system.



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