MESSAGE FROM THE CHAIR

2009 was another difficult and yet highly successful year for the Department of Neurology at Wayne State University and the Department of Neurology of the Wayne State University Physicians Group (WSU-PG). In 2009 we have been operating under the last year of a term sheet that outlines the proposed contract between WSU and the Detroit Medical Center (DMC). The economy of the United States and that of Michigan in particular, which lead the way into the recession, limited state funds, and reduction in philanthropy including to voluntary health agencies that support research, have provided major challenges. Increases in unemployment with decreases in insurance for health care are other societal failures that impact academic departments such as ours. And hopes for health care reform are shaky despite the obvious need for changes. Nevertheless we have continued to carry out our research, clinical activities, and much of our medical student and all of our resident teaching on the central campus of the DMC and at the VA since a nationally and internationally prominent truly academic department of neurology can function best at a single major academic medical center. Whether that can continue for us remains to be seen and will depend on levels of DMC support for our programs, again in the face of a decrease in levels of financial support for the teaching component of graduate medical education (GME) from the DMC.

The very high level of productivity and quality of the research carried out in our department and with our collaborators in other departments and other institutions is evident in the list of publications, including abstracts that represent presentations at national and international meetings as well as invited talks by our faculty. The Department of Neurology was quite successful in obtaining additional funding from the National Institutes of Health through the two year stimulus package from the federal government. Our external funding continues to be in the range of $4 million dollars per year, a number that does not include all of the research performed by our faculty based at the Veterans Hospital or the Division of Pediatric Neurology, which flows through the Department of Pediatrics. There was a dramatic increase in funding for faculty salaries on grants and research contracts during the last half of 2009. Research in basic and clinical neurology as well as in translational research, something many members of the department have been doing for 10-40 years, covers a wide range of neurologic disorders. These areas include multiple sclerosis and related disorders, neuromuscular diseases including inherited neuropathies, autoimmunne/inflammatory neuropathies, myasthenia gravis and inherited myopathies/ dystrophies, epilepsy/seizures, stroke and cerebrovascular diseases, trauma/brain injury, pain, movement disorders, brain tumors, neurogenetics and dementing diseases including Alzheimer disease. The neuromuscular program has been enhanced by the establishment of the Hiller ALS Center, which also includes the ALS Clinic, with a major gift from Mr. Jim Hiller of Hiller’s Markets. We have received other significant gifts including continued major support from Mrs. Mary Parker. Members of the faculty continue to be leaders as noted by the important positions on national and international scholarly organizations in their fields as advisors for voluntary health agencies and editorial positions. Dr Ramesh Madhavan was appointed program director for the neurology residency and Dr Kumar Rajamani is now the program director for the vascular neurology/stroke fellowship. Dr James Garbern and Dr Alexandros Tselis were both elected as Fellows of the American Academy of Neurology. I was personally honored by being elected as an Honorary Member of the American Neurological Association, having been an active member since 1979. I was elected as an Honorary Member for “unique contributions to neurology and neuroscience”.

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Inpatient volumes were stable. More and more medical care in the United States is provided in outpatient settings. Our HUH/WSU-PG clinic volumes have shown continued growth. Patients come from all over Michigan as well as from other states and countries to be evaluated by members of our department. There was also an increase in procedures performed in the Holden Clinical Neurophysiology Laboratory. Our physicians in neurology and pediatric neurology continue to be cited in large numbers in the various Best Doctors and Top Doctors lists. Indeed we had more combined neurology and pediatric neurologists, 20 physicians, listed than any other health system in Michigan. Neurology and Neurosurgery at Harper University Hospital as well as at Sinai Grace Hospital and Children’s Hospital of Michigan were cited among the Best Hospitals published by US News and World Report. One of the programs singled out in Pediatrics was Pediatric Neurology. Neurology/Neurosurgery continues to climb in the rankings and was 31st in the USA and ranked highest in the state of Michigan. We think we are better than that! There is a special feature on the Best Doctors/Top Doctors in this publication.

Teaching remains a priority for our department including undergraduate medical education, graduate medical education (GME), and graduate education and continuing medical education (CME). There is a section in this publication detailing this including special emphasis on three very popular special annual CME courses organized and run by our department.

Our department served as a host institution for Dr Joshua Burns from Australia as a Fulbright Postdoctoral Scholar working with Dr Michael Shy. In 2009 three of our outstanding faculty members left for other universities. Drs Gregory Van Stavern (Neuroophthalmology) and Renee Bailey Van Stavern (Stroke and Program Director for Neurology and for Vascular Neurology/Stroke) went to Washington University in St Louis in March and Dr Jun Li (Neuromuscular diseases with emphasis on inherited neuropathies and molecular biology and genetics) went to Vanderbilt University in the summer of 2009. Dr Ximena Arcila-Londono, a specialist in neuromuscular diseases, and Dr Mary Shaya, who specializes in movement disorders, joined the department. Dr Sandra Narayanan, an interventional neurologist, joined the departments of Neurosurgery and Neurology and Dr Ajay Kumar who specializes in neuroimaging of children’s diseases joined Pediatric Neurology.

As I promised last year, we continue to press on despite the problems surrounding us and anticipate continued success with all parts of our missions.

Robert P Lisak, MD, FAAN, FRCP  
Parker Webber Chair in Neurology  
Professor and Chair of Neurology  
Professor of Immunology and Microbiology  
Neurologist-in-Chief, Detroit Medical Center  
Chief of Neurology, Harper University Hospital
JOURNAL OF THE NEUROLOGICAL SCIENCES

The Official Journal of the World Federation of Neurology, the *Journal of the Neurological Sciences* is dedicated to the publication of clinical neurology and basic science research. Its broad scope includes demyelination, neuromuscular diseases, dementia, infections, and disturbances of consciousness, stroke and cerebral circulation, growth and development, plasticity, metabolism and molecular neurobiology and genetics. Its mission is to inform readers of "progress in clinical medicine and research, history of medicine, and social interfaces of medicine."

Robert P Lisak completed his third 4-year term as Editor-in-Chief in December 2009. During those twelve years the journal showed enormous growth and improved impact throughout the medical world. The submission rate soared annually from 400 to 1137. The impact factor rose from 1.84 to 2.359. The journal now ranks in 68 of all 156 journals in the Thomson Reuters Clinical Neurology category. These indicators are a reflection of the journal’s growing importance as an international journal covering all aspects of neurology. Implementation of EES (online submission/review process) in 2006 was one catalyst for this growth. The evolution of the journal continues to be reflected in the changing dynamics of authors and *ad hoc* reviewers. The five leading countries in submissions remain Japan, China, USA, South Korea, and Italy. However, submissions from regions including Africa, Egypt, Iran, Jordan, Lebanon, Palestine, Qatar, the Russian Federation, and Saudi Arabia demonstrate the growing global impact on emerging nations. Special issues and supplements, regular features of the journal, focused on the newest developments in a specific field. Four issues in 2009 were dedicated to multiple sclerosis research and a fifth issue featured vascular dementia. These special issues and all other journal issues are readily accessed online through ScienceDirect, Elsevier’s premier electronic information system for interdisciplinary research.

The editorial staff of the *Journal of the Neurological Sciences* consists of the Editor-in-Chief, Robert P Lisak, two Deputy Editors, Richard A Lewis and Paula Dore-Duffy, Administrator and Supporting Editor, Susan E Hutton, Book Review Editor, Alexandros Tselis, six Tropical Neurology Associate Editors, and sixty-five Associate Editors from around the world, including James Garbern, Associate Professor of Neurology and Anders Sima, Professor of Pathology and Neurology. All members of the department serve as *ad hoc* reviewers for multiple manuscripts submitted throughout the year.
BEST DOCTORS IN AMERICA

Twenty-one physicians in the Department of Neurology WSU Physicians Group and Pediatrics were recognized as the best in their fields for outstanding clinical care. These faculty members were named to The Best Doctors in America for 2009-2010, a national listing of physicians who represent the top five percent of doctors in more than 400 sub-specialties of medicine. This list is compiled from an annual peer-review survey of physicians nationwide. Some were also listed in Top Doctors in America, another national list, and Detroit Hour Magazine.

Gyula Acsadi, MD, PhD
Associate Professor

Joshua Adler, MD, PhD
Associate Professor

Geoffrey Barger, MD
Associate Professor

Seemant Chaturvedi, MD
Professor

Harry Chugani, MD
Professor

William Coplin, MD
Associate Professor

James Garbern, MD, PhD
Associate Professor

John Kamholz, MD, PhD
Professor

Omar Khan, MD
Professor
DEPARTMENT HIGHLIGHTS

US News and World Report ranked the Department of Neurology the number one neurological department in Michigan in the magazine’s annual ranking of hospitals and hospital services. Harper University Hospital’s Neurology/Neurosurgery services were also ranked 29th nationally in the magazine’s “America’s Best Hospitals” feature.

MULTIPLE SCLEROSIS PROGRAM
2009 was a highly successful year for the Wayne State University Multiple Sclerosis Program that continued its national leadership and remains as one of the top MS Programs in North America.

The MS Clinic saw nearly 3000 patients during the year from all parts of Michigan as well as Ohio, Illinois, Indiana, and Florida. International patients from Mexico, the Middle East, South Asia, and Europe were also seen at the Clinic.

The MS Clinic remains the largest subspecialty clinic in the entire Wayne State University Physicians Group and the Detroit Medical Center. Not only is the MS Clinic the largest clinic of its type in Michigan, it is also one of the top five MS Clinics in North America. The MS Clinic is also host to the largest cohort of African-Americans with MS in the United States with almost 600 African-American patients.

Omar Khan, MD, Professor of Neurology, serves as the Director of the Comprehensive Multiple Sclerosis Clinical Care and Research Program at the Wayne State University School of Medicine and the Detroit Medical Center. Three MS specialists, Drs. Robert Lisak (Professor and Department Chair), Omar Khan, and Alexandros Tselis, and one nurse practitioner Christina Caon, are nationally known in the diagnosis and treatment of MS. Additionally, two expert neurogeneticists (Drs Garbern and Kamholz) also provide expert care to MS patients in the MS Clinic. The MS Clinic coordinates comprehensive multi-disciplinary care for thousands of patients. In this regards, Nurse Educator, Deena Lisak, RN, MA coordinates care with the services offered to MS patients by the National MS Society.

One of the attractions of the MS Clinic, a subspeciality clinic of Harper University Hospital Neurology Clinic, to the patient community is access to cutting edge research and new treatments. In 2008, the MS Clinic Research Program was involved in 14 clinical trials, making it one of the busiest clinical research programs in the country. Clinical research not only advances our knowledge about the disease but also helps develop new treatments that may ultimately lead towards a cure. Clinical trial research offers hope and treatment to patients who are desperate to seek better care for their illness. The Wayne State University MS Clinical Research Program began new drug treatments with orally administered agents that are likely to become leading MS therapies in the near future. Some therapies were also directed at controlling the symptoms of MS including fatigue and heat-related worsening with an oral agent. Patients with a rare form of MS called primary progressive MS also participated in a clinical trial using a new treatment approach in this group of patients for whom currently, there is no FDA-approved therapy. The MS Clinic also offers intravenous treatment infusions for patients with clinically aggressive disease who are rapidly deteriorating. The treatment of rapidly worsening MS remains one of the highlights of the MS Clinic that continues to attract patients from in and outside of Michigan.

Brain and spinal cord injury in MS has been galvanized by the use of imaging with the help of magnetic resonance imaging (MRI) in MS. The Wayne State University MS Clinical Research
Program accomplished yet another outstanding feat in establishing state of the art brain and spinal cord MRI for MS patients. The Wayne State University MS Clinical Research Program is one of only three MS Programs in the country that routinely employ advanced research imaging techniques for clinical MRI scans. This means that hundreds of MRI scans performed for the routine clinical management of MS patients at our Center every year undergo detailed analysis that is typically done in the setting of a research setting. This allows for a greater detection of injury and repair mechanisms as well as response to therapy. The Clinic has access to 4 MRI scanners including one at high field at 3.0T at its downtown facility and one MRI scanner at its suburban facility. All 5 scanners provide images using an identical protocol that are further analyzed in the MS Imaging Laboratory in the Department of Neurology. The analyses quantify the extent of lesions as well as the rate of brain atrophy (loss of brain tissue from continuous injury) using techniques that usually applied in research. This is likely to assist the neurologist in improving the management of MS and better utilize available treatments. Advanced MRI techniques performed at the Wayne State University MS MRI Program include MR spectroscopy (technique that evaluates the function of brain cells), MT imaging (a technique that is sensitive in detecting myelin injury and repair), and DTI (a technique that measures injury to nerve fibers).

At the 2009 World Congress of Multiple Sclerosis, The Wayne State University MS Program presented over 15 papers, which was the largest number of abstracts presented by any MS Center in North America. The World Congress is the largest MS dedicated meeting in the world attended by over 5000 participants. In 2009, the MS Program published 12 papers in peer-reviewed journals and presented over 30 abstracts at various national and international meetings. The MS Program continues to receive funding from the National MS Society, the National Institutes of Health, several Investigator-Initiated industry sponsored research projects besides conducting 14 clinical trials.

A new focus of research and treatment care was identified by the Wayne State University MS Center. This relates to the treatment of tissue damage that cannot be repaired by currently available or emerging therapies. **Embryonic stem cell therapy may provide the potential to repair and regenerate tissue to restore function.** This offers the hope to thousands of patients who have been affected by years of progressive injury and loss of function. The **Wayne State University MS Program is beginning a new partnership with Geron Corporation to explore the design and application of human embryonic stem cell therapy in multiple sclerosis.** This is the beginning of a new era that will bridge not only academia with industry but more importantly offer the hope to thousands who may have no other therapeutic option.

Our mission continues to focus on fighting the devastating effects of MS and to improve the plight of MS patients. Our priority is to find effective ways to repair injury and restore function. The Wayne State University MS Center remains indebted to our MS patients for their continued participation and support of the MS program.

The **BASIC SCIENCE RESEARCH PROGRAM for the MS group** focuses on the molecular and cellular biology of the oligodendrocyte, the myelin forming cell of the central nervous system (Drs Benjamins, Garbern, Gow, Kamholz, and Lisak), as well as other glial cells, including microglial cells and pericytes (Dr Dore-Duffy) and neurons (Drs Benjamins and Lisak). Other studies by Dr. Dore-Duffy are centered on the cells involved in the blood brain barrier, a normal physiologic system that controls and limits the access of blood constituents to the brain, but becomes abnormal in MS and seems to be critical in the pathogenesis of the disease. While the causes of MS are not known, it is clear that inflammatory/immune cells are involved in the pathogenesis of MS. Important studies are being conducted by Dr Dore-Duffy using an animal model of MS to understand the role of immune cells and factors produced by these cells in
disease pathogenesis. Dr. Dore-Duffy is investigating two promising avenues of investigation in MS. One is the use of mild chronic hypoxia. Exposure to low oxygen induces an adaptive physiological angiogenesis that ameliorates EAE. The other is the use of pericytes, a source of adult stem cells, in treatment of EAE as well as other disorders. Drs Ragheb and Lisak are studying BAFF, a cytokine that is involved in B cells which are increasingly being shown to be very important in multiple sclerosis.

A number of investigators are participating in the MS Collaborative Research Center for Translational Research with Dr Dore-Duffy as Director. The center was funded by the National Multiple Sclerosis Society for five years, and will foster interactions between investigators involved in clinical and basic research related to MS and promote new collaborations. Four projects are currently underway, investigating whether damage in the brains of MS patients result from local depletion of energy caused by low oxygen levels or loss of metabolic homeostasis. Brain imaging with MRI and PET is being used in patients with MS and in animal models to assess energy profiles in various areas of the brain. The findings will be correlated with results from cell culture and biochemical experiments with the goal of understanding the factors leading to disease development and progression in MS, and developing better treatment strategies. In addition to faculty from Neurology, the center includes faculty from Biochemistry/Molecular Biology, Radiology, Pediatrics and the Center for Molecular Medicine and Genetics. The MS Collaborative Center at WSU is one of only 15 funded by the national MS Society in the country, among them centers at Yale, Stanford, Harvard, UCLA, University of California-San Francisco, Cleveland Clinic and Mayo Clinic.

Ongoing research projects are examining the role of growth factors and neurotrophic factors, which are important in remyelination, neuroprotection and neuroregeneration (Drs Benjamins, Kamholz, Lisak, Loeb, and Song), as well as the mechanisms of action of various disease modifying agents (Drs Lisak and Ragheb). Drs Kamholz and Loeb have recently reported their findings on changes in levels of a key neurotrophic factor, neuregulin, in brain and spinal fluid of patients with neurologic disease. Drs Lisak and Benjamins are using gene arrays to identify changes in gene expression in neuronal and glial cells in culture in response to products made by immune cells, a model of some aspects of the brain inflammation found in MS. Dr Benjamins has identified a strategy for protecting oligodendrocytes with pharmacologic agents acting on an amino acid receptor in the cells, and is currently testing these agents for their protective effects in an animal model of MS. Three members of the group, Drs Kamholz, Gow and Garbern, have reported key findings regarding proteolipid protein, a major component of the insulating membrane damaged in MS. The protein plays a critical role in protecting nerve processes from excitotoxic damage as might occur in MS; analysis of the structure of the protein has provided new clues about how it is assembled into the insulating membrane. These researchers also investigate animal and cellular models of Pelizaeus Merzbacher disease (PMD), a neurogenetic human disease with mutations in the gene for proteolipid protein; the disease affects the same cells that are damaged in MS. Dr Garbern contributed to a study reporting successful treatment of a PMD patient with steroids. Dr Gow has reported new mechanisms regulating the maturation of oligodendrocytes and their responses to injury. Dr Kamholz and his graduate student have applied innovative molecular methods to identify unique properties in the structure of proteolipid protein that allow it to interact with itself and with other proteins.

Research is dependent on collaboration between scientists and physicians from different disciplines and fields of study. Our basic science studies involve members of the departments of Immunology and Microbiology, Anatomy and Cell Biology, Biochemistry/Molecular Biology, and the Center for Molecular Medicine and Genetics. Clinical research is carried out in collaboration with members of other departments including Diagnostic Radiology and Pathology.
and Laboratory Medicine. Many faculty from other departments hold co-appointments or associate appointments in Neurology. Translational research seeks to take fundamental findings from the laboratory, the bench, to the clinic/bedside/patients to provide new treatments for disease. Translational research then takes the findings from the patient back to the laboratory to try to learn more about the pathogenesis and cause of the disease. Our center has been a leader in translational MS research. The MS program is funded by the National Institutes of Health and the National Multiple Sclerosis Society. In addition many pharmaceutical firms fund MS research in the Department of Neurology and the other departments involved in the MS program (Immunology/Microbiology, Anatomy/Cell Biology), including patient-based clinical trials, "wet bench" research and innovative magnetic resonance imaging research.

Members of the MS program are nationally and internationally known for their research and clinical contributions. **Drs Garbern and Tselis** are members of the editorial board of the Journal of Neurological Sciences (JNS). **Dr Tselis** is also the book review editor for JNS and frequent contributor to World Neurology, the newspaper of the World Federation of Neurology. **Drs Dore-Duffy** and **Richard Lewis** serve as deputy editors and **Dr Lisak** as Editor-in-Chief. Dr Lisak served as elected Chair-Elect of the Multiple Sclerosis Section of the American Academy of Neurology and will begin a two year term as chair in April 2010. **Dr Dore-Duffy** also serves on the editorial board of Clinical and Experimental Immunology, Journal of Microvascular Research and Clinical Diagnostic Laboratory Immunology. **Dr Benjamins** serves on the editorial boards of the Journal of Neuroscience Research, Journal of Neurochemistry, Developmental Neuroscience and the International Journal of Developmental Neuroscience, and **Drs Gow and Garbern** are members of Grant Review Committees for the National Multiple Sclerosis Society (NMSS). In addition to membership on the Professional Advisory Committee of the Michigan chapter, **Dr Khan** serves as a member of the Clinical Advisory Committee (CAC) of the NMSS, and **Dr Lisak** serves on to the Executive Committee of the CAC. He also serves as chair of the oversight committee for the Pediatric Ms Centers of Excellence of the NMSS. **Dr Khan** serves as faculty for the European Charcot Foundation for Multiple Sclerosis. **Dr Lisak** is Chair of the Research Task Force of the Consortium of Multiple Sclerosis Centers. **Dr Garbern** is chairman of the Scientific Advisory Committee for the Pelizaeous Merzbacher Disease (PMD) Foundation. **Drs Dore-Duffy, Kamholz, Khan, Garbern, Lisak, and Loeb** are elected members of the American Neurological Association.

**Dr Paula Dore-Duffy's** commitment to the study of cell to cell interactions in the blood brain barrier (BBB) has lead to her appointment to study sections for the National Multiple Sclerosis Society, Veterans Affairs and the National Institutes of Health and American Heart Association. She has been invited to present keynote addresses at 4 international meetings and has been invited to 2 Gordon Conferences this year. She was invited to write two review articles. She co-chaired sessions at 3 conferences. She was invited by the National Multiple Sclerosis Society to be on a task force to review grant programs and sits on the committee that awards the collaborative research centers.

The BBB is a complex regulatory organ that maintains vascular and tissue homeostasis in the central nervous system. In response to stress such as hypoxia the BBB must undergo a number of adaptive processes that promote cell survival and repair. These adaptive measures involve a series of cross talk mechanisms between the cellular constituents of the BBB, the endothelial cell, and the pericyte as well as parenchymal cells comprising the neurovascular unit. The strategies used to adapt to acute stress (hypoxia, stroke, traumatic brain injury, infection) are likely to be fundamentally different than those used to adapt to chronic stress as seen in dementia, cancer and chronic inflammatory conditions such as multiple sclerosis (MS). Dr Dore-Duffy believes that dysregulation of these adaptive processes are deleterious and central to the development of
disease processes. She also believes that these adaptive processes can be restored by stem cell therapy. This summer with the help of a medical student, Mehsish Mehrani, she should that the use of pericytes as stem cells injected IV ameliorated EAE and age related vascular changes. Mavesh was awarded a summer study grant from the Consortium of Multiple Sclerosis Centers.

Dr Dore-Duffy has an on-going collaboration with Dr Alexander Gow. They have developed an immortalized line of pericytes and a HIF-1Cre inducible transgenic mouse. Using the pericytes response to mild hypoxia they have been able to fate map pericytes.

Dr Dore-Duffy has also teamed with Drs Jose Rafols and Christian Kriepke from the Department of Anatomy/Cell Biology to study the role of the pericyte in traumatic brain injury (TBI). They have reported that the pericyte migrates from the vessels in affected areas. Those pericytes that migrate survive while those that remain in the vessels undergo apoptosis. She feels that vascular adaptation in response to traumatic brain injury is compromised leading to downstream cascades of injury that include neurodegeneration and behavioral problems. They are studying the role of exercise conditioning and exposure to mild chronic normobaric hypoxia in the treatment of TBI. As a team they have been awarded three grants to study these areas.

**NEUROMUSCULAR PROGRAM**

The Neuromuscular Program in the Department of Neurology is internationally recognized for its expertise in diseases of the Peripheral Nervous system (PNS). The program is co-directed by Drs Richard Lewis and Michael Shy. Other members include neurologists Drs Agnes Acsadi, Sindhu Ramchandren, Ximena Arcila and Genetic Counselors Carly Siskin, Shawna Feely and Lindsey Miller. Drs James Garbern, John Kamholz, also participate in the program as researchers and neurogeneticists. Dr Gyula Acsadi of the Pediatric Neurology division works in close collaboration with the adult neuromuscular faculty. His research in gene therapy of motor neuron disorders is an integral part of the efforts of the group. Dr Lisak also participates in the neuromuscular program with his clinical care of patients with immunologically mediated neuropathies and myasthenia gravis as well as his laboratory research on Schwann cell biology with Dr Joyce Benjamins and myasthenia gravis with Drs Samia Ragheb, Agnes Acsadi, and Richard Lewis on immunology of myasthenia gravis. Drs James Selwa and Maher Fakhouri participate in the clinical electromyography laboratory.

Thanks to the generous support of Mr. Jim Hiller, the recently established Hiller ALS Clinic and Research Center at Wayne State University is developing a new way to understand and treat this devastating brain and spinal cord disorder that is fatal to thousands yearly in the prime of their lives. Under the direction of Richard A Lewis, MD with scientific direction by Jeffrey Loeb, MD, PhD the Hiller Center is developing an integrated, translational research program that is designed to advance our understanding of the processes that cause motor neurons to degenerate. At the heart of the Hiller ALS Center is our multidisciplinary clinic led by Drs Lewis, Agnes Jani-Acsadi and Ximena Arcila. The clinic also provides the opportunity for all of the patients to participate in clinical and translational research. These include participation in the latest therapeutic trials as well as involvement in unique research studies available only at our Center.

As director of the Hiller Center translational research program, Dr Loeb is bringing together top scientists and physician scientists to explore new research areas to identify new targets for drug development. Along with Dr. Loeb’s NIH funded projects are a number of other research efforts utilizing animal models of ALS. These efforts are being led by Drs Agnes Jani-Acsadi, Gyula Acsadi, and Fei Song will be expanded to other investigators both here and outside of Wayne State University. These projects focus on genes that are involved in some of the inherited forms of ALS and other motor neuron diseases. Dr Agnes Jani-Acsadi is investigating the genetic
differences between healthy and diseased motor neurons at different stages of progression. Dr Gyula Acsadi is developing novel gene delivery methods to drive new therapeutics. Dr Omar Khan has adopted unique multimodality MRI to study the disease course of ALS.

The Wayne State University Inherited Neuropathy (also known as Charcot-Marie-Tooth Disease) Clinic, under the direction of Michael Shy, MD, is now the largest clinic of its kind in the world. The CMT clinic in the Department of Neurology evaluated over 250 patients per year since 1997. Patients travel to the clinic from all over the United States and world. We now follow patients from 47 states, 21 countries and all continents except for Antarctica. The CMT clinic is the primary site in the first multi-center trial performed in North America for CMT. Richard Lewis, MD is the overall principal investigator of the trial of High Dose Ascorbic Acid Treatment of CMT1A, the most common inherited neuropathy. Michael Shy, MD is the site PI for Wayne State University. Dr. Shy has been awarded grants from the NIH, MDA and Charcot Marie Tooth Association to build both national and international consortiums to develop outcome measures, natural history studies and therapeutic approaches for inherited neuropathies. Wayne State is the principal site for all of these consortia. The largest of these grants establishes a Rare Disease Clinical Research Center (RDCRC), one of 19 RDCRCs supported by the NIH for all rare medical diseases as part of their Rare Disease Clinical Research Network (RDCRN). Sindhu Ramchandren, MD is spearheading a project to develop optimal quality of life and outcome measures for pediatric patients with CMT. Dr Shy's laboratory is investigating the use of mouse models of inherited neuropathies in NIH and MDA funded projects and the use of skin biopsies in MDA funded projects to investigate mechanisms and develop novel treatments for patients with CMT. Joshua Burns, MD, faculty member of the University of Sydney, Australia is spending three months here as a Fulbright Postdoctoral Scholar working with Dr Michael Shy and other researchers in Neurology and the Center for Molecular Medicine and Genetics on Charcot-Marie-Tooth disease.

The neuromuscular group also has very active Muscular Dystrophy Association Clinics. Gyula Acsadi, MD directs the Pediatric MDA clinic and Drs Shy, Lewis and Agnes Acsadi direct the adult clinics. Over 40 different disorders of muscle, motor neuron and peripheral nerve are seen in these clinics. New therapeutic options are available including enzyme replacement therapy for Pompe's Disease. We are also pleased that our MDA clinics have been selected as one of six MDA clinics nationwide chosen to develop Transitional Care Programs in which the MDA is working to facilitate the transition of care from pediatrics to adults in their patients who are now living longer than ever before.

Our group is also a leading center for the investigation and treatment of immune mediated neuropathies and is involved in a number of international projects in CIDP, Guillain Barre Syndrome and Multifocal Motor Neuropathy. Dr Lewis is leading an international project on developing a registry for these rare immune neuropathies. Drs Lewis, Agnes Acsadi and Sindhu Ramchandran are part of an international team looking at optimizing outcome measures for inflammatory neuropathies. Drs Khan, Lewis, Lisak, Shy and Loeb are elected members of the American Neurological Association.

**COMPREHENSIVE STROKE PROGRAM**

The Comprehensive Stroke Program within the Department of Neurology at Wayne State University is one of the leading stroke programs in the United States. It is currently staffed by four vascular neurologists, two faculty in the associated neurocritical care program, two interventional neurologists, one vascular neurology (stroke) fellow, and two nurse coordinators.
The Comprehensive Stroke Program continues to serve as a regional leader in clinical research seeking to identify the optimal treatment modalities for patients with acute stroke and treatment strategies for stroke prevention. Over 1000 patients with stroke are seen each year in the outpatient vascular neurology clinic and over 400 per year are seen as inpatients. The outpatient stroke clinic serves as a referral center for patients from all parts of Michigan. The acute stroke team evaluates patients at the downtown Detroit Medical Center hospitals for acute treatment with “clot-busters” or other modalities. The acute stroke team’s capabilities were essential in the designation of Detroit Receiving Hospital as a JCAHO-certified primary stroke center. Since 2007, Sinai-Grace Hospital and Huron Valley Hospital have been covered by the Acute Stroke Team via telemedicine (see below). All Detroit Medical Center adult acute bed hospitals have recently become certified Primary Stroke Centers.

In the research area, previous and current funding has included attempts to identify African Americans at increased risk for stroke as well as efforts to improve the quality of stroke care in Michigan and nationally. We have participated in several major clinical trials which have evaluated new strategies for stroke prevention and these studies have been published in reputed journals such as the *New England Journal of Medicine* and *Journal of the American Medical Association*. Current areas of research are investigating placement of stents in narrowed blood vessels inside the skull to prevent stroke and also investigation of new blood thinners for stroke prevention. A novel medication is also being tested to promote motor recovery from a recent stroke.

**Seemant Chaturvedi, MD**, Director of the Comprehensive Stroke Program, was part of an international committee for the American Stroke Association that published a new definition of and guidelines for transient ischemic attack (TIA, or mini-stroke) in 2009. Dr. Chaturvedi is also on the executive committee of the SAMMPRIS study, a NIH-funded study to compare intracranial stenting vs. aggressive medical management for patients with symptomatic intracranial blockages. Dr Chaturvedi also serves on the executive committee of several studies pertaining to carotid revascularization. Dr Chaturvedi is an elected member of the American Neurological Association and was recently appointed to the Editorial Board of Neurology, the journal of the American Academy of Neurology.

**Kumar Rajamani, MD** is the WSU principal investigator for a Blue Cross Blue Shield of Michigan Foundation sponsored study looking at quality and delivery of acute stroke care in several hospitals in Michigan. The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) in collaboration with the American Heart Association (AHA)/American Stroke Association (ASA) has developed performance measures for Certification as Primary Stroke Centers. The study aims to compare stroke care delivered in JCAHO certified Primary Stroke Centers versus that in non-certified hospitals. Initial results will be presented at a scientific conference in 2010. Dr Rajamani is also leading a study investigating a new anti-clotting medication for stroke patients.

**Ramesh Madhavan, MD** is leading the effort for the incorporation of telemedicine, which has developed nationally and internationally as a reliable means of treating acute stroke patients. Wayne State University/DMC’s System wide stroke initiative is one of the few Stroke networks in the country that use the hub and spoke model for providing comprehensive stroke care in the Mid-West. The new paradigms in stroke care that went live in September 2007 include Tele-Stroke and the use of System wide EMR based order sets. The WSU/DMC Stroke team consisting of Vascular and Critical Care fellowship trained neurologists has been providing acute stroke coverage for DRH and Harper University Hospital since 1996. When the Stroke pager is activated, the patient is assessed on site by the Stroke team 24/7 and patient managed. The same
principle is applied at off-site Community hospitals- Sinai Grace and Huron Valley Hospital using telemedicine as a bridge. The patient is examined by one of the eight stroke team attending physician with the help of a remote Tele-presence robot and the onsite ED physician. Images and results are seen remotely by the Stroke Neurologist and treatment decisions made. More acute Stroke patients have received tPA, the only FDA approved clot busting treatment, in the DMC hospitals during the past year. Over the past two years, the project has been found to be effective and improved stroke care and outcomes in all the participating hospitals.

Sunitha Santhukumar, MD is leading the Stroke Program in the Small Subcortical Stroke prevention study and is leading outpatient efforts in the Neurology Department. She is also participating in studies examining new treatments for cognitive impairment.

Andrew Xavier, MD, jointly appointed in the Departments of Neurosurgery and Neurology, is an interventional neurologist and serves as a key resource for treatment of patients with ischemic or hemorrhagic stroke. Dr Xavier is leading the efforts to study mechanical devices for acute stroke treatment. Since the overall treatment for stroke is increasingly focusing on endovascular treatment, the addition of Dr Xavier has been very significant for the Stroke Program. Having an interventional neurologist is rare at Southeast Michigan hospitals and is a key distinguishing factor in our program. Dr Sandra Narayanan an interventional neurologist joined the program.

The NEUROCRITICAL CARE UNIT at Detroit Receiving Hospital is one of the leading Neurocritical Care programs in the country. Led by William Coplin, MD, the neuro-intensive care unit (NICU) serves as a regional resource for patients with traumatic brain injury, hemorrhagic stroke, large ischemic strokes, and other life-threatening neurologic illnesses. The NICU is currently engaged in studies focusing on several areas, including novel treatments for brain hemorrhage and traumatic brain injury. Dr Coplin is a board member of the NeuroCritical Care Society and an elected member of the American Neurological Association. Greg Norris, MD joined the neurocritical care program in 2007. He and Dr. Coplin are a tremendous resource for the region’s sickest neurological patients.

**COMPREHENSIVE EPILEPSY PROGRAM**
The Adult and Pediatric Epilepsy Program at Wayne State University/Detroit Medical Center provides state of the art medical and surgical treatment for adults and children with epilepsy and is a top research program in epilepsy research. The program provides comprehensive epilepsy care through a dedicated multidisciplinary team that includes adult and pediatric neurologists / epileptologists, adult and pediatric neurosurgeons, adult and pediatric neuropsychologists, adult and pediatric epilepsy nurse coordinators, neuroradiologists, and EEG technologists. Control of seizures is one treatment goal; optimizing quality of life is a second. The program has been designated as a Level Four Epilepsy Center by the National Association of Epilepsy Centers.

The adult epilepsy program is lead by Director Craig Watson, MD, PhD and supported by three other epileptologists, Aashit Shah, MD, Jeffery Loeb, MD, PhD, and Marie Atkinson, MD. Sandeep Mittal, MD an epilepsy and neuro-oncology fellowship-trained neurosurgeon has joined the adult epilepsy program. The adult epilepsy program is well integrated with the pediatric epilepsy program in the Division of Pediatric Neurology, which receives referrals for surgery from national and international sources and extramural research support from multiple NIH grants. Lead by Director Harry Chugani, MD it includes Eishi Asano, MD, PhD, Director EEG laboratory at Children’s Hospital of Michigan and Sandeep Sood, MD, the pediatric epilepsy neurosurgeon. The faculty members of the Comprehensive Epilepsy Program come from a diverse background and are leaders in their respective fields. They are recognized as the best in
their fields by their peers, and Drs Watson, Chugani, Shah, Loeb, Sood and Mittal were named to The Best Doctors in America for 2009-2010, a national listing of physicians who represent the top five percent of doctors in more than 400 sub-specialties of medicine.

A full complement of advanced diagnostic tests, including video EEG monitoring, high-resolution volumetric MRI scanning, positron emission tomography (PET) scanning with multiple probes, functional MRI (fMRI) imaging, MR spectroscopy and other cutting-edge MRI imaging modalities utilizing the 3-Tesla unit at WSU, intraoperative EEG monitoring, and neuropsychological and intracarotid amytal (Wada) testing, is available to establish seizure classification, to assess response to medical therapy, and to evaluate patients for epilepsy surgery.

Craig Watson, MD, PhD has several clinical and basic science research interests, including neuroimaging analysis in epilepsy, alternative treatment modalities in epilepsy, and genetic aspects of hippocampal sclerosis. Hippocampal sclerosis is the most common lesion associated with temporal lobe epilepsy in adults and can be detected by volumetric MRI. Dietary treatment using a modified ketogenic diet and vagus nerve stimulation (VNS) therapy of medically refractory epilepsy are other treatment options under study in the epilepsy program. In addition, Dr Watson has research, clinical, and educational interests in neuroanatomical correlates of neurological disorders. Dr Watson is a member of the professional advisory committee of the Epilepsy Foundation of Michigan.

Research and clinical interests of Aashit Shah, MD include epilepsy surgery, the quantitative analysis of EEG in the management of patients with intractable epilepsy and of patients in nonconvulsive status epilepticus including long-term EEG monitoring in ICU. Optimal management of women with epilepsy during pregnancy is another major interest of Dr Shah. He is conducting several clinical trials of antiepileptic drugs and is actively involved in basic and clinical research in epilepsy, funded by NIH and other external as well as internal agencies. Dr Shah is the Director of the Clinical Neurophysiology Fellowship Program and the Director of the EEG/Evoked Potentials Laboratory.

Marie Atkinson, MD is the newest member of the epilepsy faculty. Research and clinical interests of Dr Atkinson include the surgical management of patients with medically intractable epilepsy, posttraumatic epilepsy after traumatic brain injury, and the management and outcomes of status epilepticus.

Darren Fuerst, PhD is the Neuropsychologist for the adult epilepsy program and also is involved with several other of our programs. His clinical and research interests include various neuropsychological aspects of medically refractory epilepsy, epilepsy surgery, Wada testing, and the statistical analysis of research activities in the program.

Along with providing advanced management options with multidisciplinary approach, the epilepsy teams at our comprehensive program can provide other treatment options not readily available in the community. Participation in investigational, multicenter trials of new antiepileptic medications is available for patients with difficult to control epilepsy. Our program is currently involved in ten such Phase III and IV investigational trials of antiepileptic medications. The adult and pediatric epilepsy programs are involved in many clinical, imaging and basic science studies funded by various governmental and non-governmental agencies.

Under the direction of Jeffrey A Loeb, MD, PhD, the Loeb laboratory has taken on several ambitious to develop new ways to understand and treat neurological disorders. Diseases of
interest include epilepsy, ALS, and multiple sclerosis. In addition to his primary position in the Department of Neurology, Dr Loeb recently has become the Associate Director for the Center for Molecular Medicine and Genetics and the Director of Basic and Translational Research Programs in the newly established Hiller ALS Clinic and Research Center.

Dr Loeb currently has 2 NIH R01 grants to fund his novel epilepsy research programs. One of the unique projects in the Loeb laboratory uses human brain tissues to determine what makes focal regions of human brain epileptic and produces seizures. Taking advantage of our highly acclaimed epilepsy surgery program together with information gained from the human genome project, a small group of genes have been discovered that could be important targets for new forms of therapy for this relatively common neurological disorder. This has lead to the identification of the first Human Epileptic Transcriptome that will allow us to understand what leads to the excessive neuronal activity in the human brain that leads to seizures. In this project Dr Loeb’s team has identified the relative gene expression changes across human brain tissues that were electrically mapped during epilepsy surgery in order to determine what makes focal regions of human brain epileptic. Using sophisticated microarray and bioinformatic technologies, they have identified a core of epileptic genes and pathways that are induced in all patients with focal epilepsy, regardless of their genetic makeup or the underlying structural ‘cause.’ They determined the most salient signaling pathways, documented that these pathways are induced, and localized them within the 3-dimensional anatomic structure of the brain to create a new view of what human epilepsy really ‘looks like.’ This is an entirely novel approach to understand a complex human brain disorder that is opening up a fascinating view into the human brain, both normal and epileptic, and one that they are working to apply to other human neurological disorders such as ALS. Thus far the relatively small group of genes we identified serves as exquisite molecular markers of epileptic activity and targets for therapeutic development.

Dan Barkmeier, an MD/PhD student who works in the laboratory of Jeffrey Loeb received a Pre-doctoral Research Training Fellowship from the Epilepsy Foundation of America. Barkmeier explained that “The goal of this project is to better understand the molecular aspects of epilepsy and to use that knowledge to develop new therapeutics for the disease.” This award will help Barkmeier develop a new animal model of epilepsy focusing on the epileptic spikes that occur between seizures.

This project has expanded to create the most comprehensive database of human epilepsy in the world that will be useful for the development of diagnostics, therapeutics, pharmacogenomics, and the basic biology of the human brain. This project that Dr Loeb heads is called the Systems Biology of Epilepsy Project or SBEP (see http://www.sbep.wayne.edu/joomla/). This database relates each patient’s clinical aspects to gene expression, gene location by situ hybridizations with the Allen Institute for Brain Sciences, metabolomics using MR spectroscopy, and quantitative EEG recordings, and places them in the 3-dimensional context of the patients own brain derived from MRI images. Finally, based on the transcriptome, Loeb’s team has developed a novel animal model of epilepsy that focuses on interictal spiking that they are currently using for drug development.

**Drs Craig Watson and Jeffrey Loeb** are elected members of the American Neurological Association. **Dr Loeb** is a member of the professional advisory committee of the Epilepsy Foundation of Michigan and was recently elected to the national Professional Advisory Board for the Epilepsy Foundation of America.
Randall Benson, MD was the first to use the fMRI technique in presurgical patients, with the very first case reported in 1994. Presurgical mapping of eloquent cortex, until recently, required invasive testing including the intracarotid sodium amytal test and electrocortical stimulation. Dr Benson established and published reliable protocols for determining hemisphere dominance for language and localizing language cortex in presurgical patients. Dr Benson routinely performs fMRI studies for presurgical assessment of motor, language and memory functions in patients with brain tumors and epilepsy. He works closely with epileptologists Drs Watson, Shah, Loeb and Atkinson, neurosurgeons Drs Zamorano, Guthikonda, and Mittal, neurooncologist Dr Barger, and neuropsychologist Dr Fuerst. Patient outcomes are improved by providing a surgeon with a 3-D map of a patient’s eloquent brain areas by using fMRI preoperative mapping. Darren Fuerst, PhD and other neurology faculty are also training to perform fMRI assessment and to analyze and present the fully processed data to the OR for use with the neuronavigational system. Given the number of brain tumor and epilepsy surgeries performed in Michigan hospitals, the reliability and usefulness of the data has lead to an increased number of requests for fMRI assessments.

NEUROGENETICS PROGRAM

The Neurogenetics Clinic in the Department of Neurology is directed by James Garbern, MD. Three full-time genetic counselors Carley Siskind, Shawna Feely and Lindsey Miller provide services such as genetic testing, education, and counseling for a wide variety of genetic disorders that affect the nervous system. The Neurogenetics Clinic specializes in treating patients and their families who have inherited disorders that have a neurologic component. In addition to evaluation, genetic testing and interpretation of results, we also provide genetic counseling for patients and their families so that they better understand their disease and the implications for everyone in the family. Some of the disorders for which we specialize include Huntington disease, the spinocerebellar ataxias, neurofibromatosis 1, Pelizaeus-Merzbacher disease (PMD), Tuberous Sclerosis, leukodystrophies (hereditary white matter disorders of the central nervous system), lysosomal storage diseases, adrenoleukodystrophy, Freidreich ataxia, and myotonic dystrophy. Comprehensive, dedicated outpatient clinics for patients with Charcot-Marie-Tooth disease and with Muscular Dystrophy have been established, integrating the neurogenetics program with the neuromuscular program. In addition, an international consortium, with WSU as the U.S. coordinating center, has been developed to study patients with Pelizaeus-Merzbacher disease (PMD) and also for Charcot-Marie-Tooth disease. (See earlier under Neuromuscular Diseases).

The Neurogenetics clinic also oversees the comprehensive care of adult patients with hereditary metabolic disorders, such as Fabry disease, mucopolysaccharidosis I, and phenylketonuria. In addition to regular comprehensive care for patients with these complex disorders, we also provide an enzyme replacement therapy center for Fabry disease, Pompe disease and other disorders for which enzyme replacement therapy is available.

Counseling and testing for asymptomatic individuals at-risk for adult onset inherited disorders such as Huntington disease or the spinocerebellar ataxias is available. This includes extensive counseling to make sure that a patient has made a careful decision and is prepared to cope with the results and all of their implications. We work closely with the Reproductive Genetics program at Hutzel Women's hospital and can facilitate referrals for those interested in reproductive testing options.

In addition to patient care, the Neurogenetics clinic also serves to try to identify the causes of genetic disorders for which the underlying cause is not known or recently identified. We network
with other neurogenetics researchers around the world to assist in research studies that we hope will identify the causes of disorders that are not currently well understood. In the past year we have been successful in helping to identify the causes of several newly recognized hereditary neurological syndromes.

**PAIN PROGRAM**

While great advances have been made in providing relief from acute traumatic and post-operative pain, treatment of chronic, unremitting pain from nerve injury has largely been a dismal failure. In spite of expanding knowledge about neurotransmitters and neuro-modulators that convey nociceptive (painful) information and the existence of several animal models which mimic the characteristics of human chronic pain syndromes, the pathophysiology underlying development of chronic pain has yet to be elucidated. Moreover, there have been no novel approaches to therapy in over a decade.

**Dr. Joshua Adler**'s laboratory has long been devoted to the study of neuropathic pain, its etiology and pathophysiology and potential ways of relieving it. We are currently comparing biologic characteristics of two related nerve injuries, only one of which reduces withdrawal threshold to light touch (allodynia). While neurotransmitter expression in sensory ganglia and dorsal spinal cord are identical after both injuries, there are marked increases in expression of specific growth factors in spinal cords from allodynic rats. These factors have never before been associated with pain or pain behaviors. We are investigating potential mechanisms by which the factors can induce allodynia and why only one of two seemingly identical injuries increases expression of the factor. At the same time, we are investigating novel methods for preventing pain after nerve injury. By binding specific trophic factors, which have analgesic properties, to synthetic reservoirs that can slowly release them to the area of injury, we can prevent the development of neuropathic pain. Moreover, it can reverse the pain after it has developed. This work has major implications with regard to treatment and may help prevent the late occurrence of pain after injury.

**Kenneth Maiiese, MD** is Professor in Neurology, Anatomy & Cell Biology, Associate at the Barbara Ann Karmanos Cancer Institute, and the National Institute of Environmental Health Sciences at Wayne State University and Director of the Laboratory of Cellular and Molecular Cerebral Ischemia, the Maiiese Laboratory Stroke Program, and the Maiiese Laboratory Neuroscience Program. Dr. Maiiese has been fortunate to receive recognition with outstanding teaching awards. His investigations are designed to translate basic science into successful therapeutic treatments for conditions such as cancer, metabolic disorders, cardiovascular disease, diabetes, stroke, and Alzheimer's disease. He is a top cited author and his work has received the distinction of "High Impact Research and Potential Public Health Benefit" by the National Institutes of Health with continuous funding from sources that include the American Diabetes Association, the American Heart Association, the Bugher Foundation, a Johnson and Johnson Focused Giving Award, and the National Institutes of Health. Dr. Maiiese holds several patents, has over 250 publications that include research papers, chapters, editorials and invited reviews, and has authored and edited multiple books. He chairs national grant committees and is a chartered panel member for the National Institutes of Health and for several national and international foundations as well as multiple study sections and special emphasis panels for the National Institutes of Health. Dr. Maiiese serves as the Editor-in-Chief and founding Editor for two international journals and is an Associate Editor or a member of the editorial board for dozens of other journals, executive committees, technology transfer panels, and scientific advisory councils. Given the broad applications of his work, Dr. Maiiese is frequently honored as the chairperson and/or the plenary speaker for a number of international symposiums in a range of disciplines that include cell biology, neuroscience, vascular biology, cardiac disease, molecular oncology, and renal physiology. Dr Maiiese is an elected member of the American Neurological Association.
HONORS / AWARDS

Home to some of the nation’s leading authorities, the department of neurology is proud that its faculty continues to be recognized and honored by their colleagues and peers. Some of those notable achievements for 2009 are listed here.

**Gyula Acsadi** was listed in *Best Doctors in America* and *Top Docs* in Michigan.

**Joshua Adler** was listed in *Best Doctors in America*. He was appointed section chief of the Comprehensive Pain Service at the John Dingell VA Hospital in Detroit. He also served on the board of the *Journal of Neuropathic Pain and Symptom Palliation*.

**Eishi Asano** is an editorial board member for both *Clinical Neurophysiology* and *Brain and Development*.

**Geoffrey Barger** was listed in *Best Doctors in America* and in *Best Doctors for Cancer in America*. He serves as Chief, Neurology Service, Karmanos Cancer Center.

**Joyce Benjamins**, Associate Chair of Neurology continued to serve on the editorial boards of the *Journal of Neuroscience Research* and the *International Journal of Developmental Neuroscience*.

**Seemant Chaturvedi** was listed in *Best Doctors in America*. He was appointed to the editorial board of *Neurology* and was elected president of the Michigan Neurological Association. He was also appointed to the American Stroke Association committee on Primary Prevention of Stroke Guidelines. He served on the American Academy of Neurology’s Vascular Neurology section and on several steering committees including the CAPTURE 2 study, the PROTECT study, and the ACT 1 study.

**Harry Chugani** was listed in *Best Doctors in America* and *Top Docs* in Michigan. He was also invited to lecture on “Brain Development” to the Children’s Caucus, Michigan State Senate. He continued to serve on the editorial boards of *Journal of Child Neurology, Brain and Development, Pediatric Neurology, and Journal of Pediatric Neurology*.

**William Coplin** was listed in *Best Doctors in America*. Dr Coplin is a member of the Board of Directors and a founding member of the Neurocritical Care Society and a fellow of the American College of Critical Care Medicine. He served on the editorial board of the journal of *Neurocritical Care*.

**Paula Dore-Duffy** completed a third four year term as Deputy Editor for the *Journal of the Neurological Science* and continued to serve on the editorial boards of *Journal of Microvascular Research, Clinical Neuropharmacology*, and the *Open Circulation and Vascular Journal*.

**M. Maher Fakhouri** was listed in *Best Doctors in America*. He received a Wayne State University College Teaching Award, 2009.

**Darren Fuerst** continued to serve on the editorial board for *Child Neuropsychology*.

**James Garbern** was listed in *Best Doctors in America* and *America’s Top Physicians*. He was elected a Fellow of the American Academy of Neurology and continued to serve as an Associate
Editor for the *Journal of the Neurological Sciences*. He also joined the Scientific Advisory Board, European Leukodystrophy Association and became Section editor, Pediatric Neurodegenerative Diseases, *Medlink*, 2009.

**Alexander Gow** serves as a member of editorial board for *Journal of Neuroscience Research*.

**Agnes Jani-Acsadi** was listed in *Best Doctors in America*.

**John Kamholz** was listed in *Best Doctors in America*. He is a member of the Medical Advisory Committee, National Muscular Dystrophy Association and the Scientific Advisory Committee, PMD Foundation. He is an associate editor of *MS International*.

**Omar Khan** was listed in *Best Doctors in America*. He is a member of the Medical Advisory Board, National Multiple Sclerosis Society and a member of the MRI Task Force, Consortium of Multiple Sclerosis Centers, USA. He is also a member, Scientific Review Committee, Canadian Health Institute of Research.

**Sheldon Kapen** served as Editor for the Newsletter of the Sleep Section of the American Academy of Neurology.

**William Kupsky** was elected a Fellow of College of American Pathologists. He was listed in *Best Doctors in Michigan, Detroit Hour Magazine*.

**Richard Lewis**, Associate Chair of Neurology was listed in *Best Doctors in America* and *Best Docs in Metro Detroit, Hour Magazine*. He completed a third four year term as the Deputy Editor of the *Journal of the Neurological Sciences*. He also served on the editorial boards of the *Journal of Clinical Neuromuscular Disorders* and the *Journal of Neuropathic Pain*. He served as course chair for Dysimmune Neuropathies at the AANEM meeting in San Diego, California. Dr. Lewis serves on the board of directors of the Peripheral Nerve Society and is on the GBS/CIDP Foundation International Medical Advisory Board, and the Myasthenia Gravis Foundation of America Medical Advisory Board. In Michigan, he is on the ALS of Michigan Board of Directors, and the Myasthenia Gravis Association of Michigan-Medical Advisory Board.

**Leonard Lipovich** served on the NIH Peer Review Committee for NIAAA CIFASD Developmental Grants.

**Robert Lisak**, Parker Webber Chair in Neurology and Chair of Neurology, was listed in *Best Doctors in America, Top Doctors in America and Detroit Hour Magazine*. He was elected an honorary member of the American Neurological Association for his contributions to neurology and neuroscience. He was also appointed to the editorial board of *Clinical and Experimental Neuroimmunology*, a new journal based in Japan. Dr. Lisak completed a third four year term as the Editor-in-Chief of the *Journal of the Neurological Sciences*. He serves on the editorial boards of both *Clinical Neuropharmacology* and *Immunological Research*. He was senior editor of the newly published textbook *International Neurology: A Clinical Approach* published by Blackwell Publishers, Oxford. He also serves on the Executive Committee of the Board of Governors and Professional Advisory Committee of the Michigan Chapter of the National MS Society. He serves on and chairs committees for the National MS Society, the Myasthenia Gravis Foundation of America Medical/Scientific Advisory Committee, the Guillain-Barre Syndrome/CIDP Foundation International Medical Advisory Committee and the Myasthenia Gravis Association of Michigan. He was named in several Who’s Who publications.
Jeffrey Loeb was listed in Best Doctors in America. He was elected to the Epilepsy Foundation’s Professional Advisory Board for a four year term by the Epilepsy Foundation of Michigan. He continued to serve as the director of the CMMG Commercialization Center and Deputy Director of the CMMG.

Ramesh Madhavan was appointed Neurology Residency Program Director. He continued to serve as an invited member of the Professional Education Committee, Stroke Council, and American Heart Association.

Kenneth Maiese continued to serve as director of the Laboratory of Cellular and Molecular Cerebral Ischemia, the Maiese Laboratory Stroke Program, and the Maiese Laboratory Neuroscience Program at WSU. He is a chartered panel member for the National Institutes of Health and serves on several national and international advisory boards and councils. Dr. Maiese continued as Editor-in-Chief (Founding Editor) of Oxidative Medicine and Cellular Longevity.

Kumar Rajamani was listed in Best Doctors in America.

Sunitha Santhakumar was listed in Best Doctors in America.

James Selwa was appointed the American Academy of Neurology’s liaison to the Physicians Electronic Health Record Coalition. As such he will attend regular meetings hosted by the American College of Physicians annually.


Michael Shy was listed in Best Doctors in America and Top Docs in America. He continues to serve on the Scientific Advisory Board, MRC Centre for Neuromuscular Disease, University College, London and Chair the Medical Advisory Board, Charcot Marie Tooth Association. He is a member of the Medical Advisory Council, Muscular Dystrophy Association. He served as co-organizer for the International CMT Consortium bi-annual meeting in Antwerp, Belgium and chief scientific organizer for the Peripheral Nerve Society bi-annual meeting in Wurzburg, Germany. He also serves on the editorial board of the Journal of Peripheral Nervous System.

Anders A F Sima continued to serve as an Associate Editor for the Journal of the Neurological Sciences and as Editor-in-Chief (Founding Editor) for Experimental Diabetes Research. He is listed in Who’s Who in Sciences in the Mid-West, Who’s Who in the World. He continues as a board member for the International Society of Diabetic Neuropathy, Dusseldorf, Germany and Pfizer Advisory Board, New Drug Developments, New York.

Alexandros Tselis was listed in Best Doctors in America. He was elected a Fellow of the American Academy of Neurology and continued to serve as the Book Review Editor for the Journal of the Neurological Sciences and as a Contributing Editor for the Bulletin of the World Federation of Neurology. Dr Tselis served as a member of the Special Emphasis Panel, National Institute of Allergy and Infectious Diseases (NIAID/NIH), Washington, DC.

Craig Watson was listed in Best Doctors in America and Guide to America’s Top Physicians.
The Parker Webber Chair of Neurology, the only endowed chair in the department of neurology, is held by Robert P. Lisak, MD. There are two endowed chairs in the Division of Child Neurology. The Rosen Family Chair is held by Harry Chugani, the chief of Child Neurology, and the Frankel Endowed Chair in Pediatric Neuroscience is held by Thomas Babb.

A new fundraiser Walk ‘n Roll for ALS took place at Kensington Metro Park on September 13. Sponsored by the Hiller ALS Center at WSU this event raised money to advance research and treatment of amyotrophic lateral sclerosis (ALS) more commonly known as Lou Gehrig’s disease.

The department sponsored its annual Wayne State University Charcot-Marie-Tooth Charity Golf Tournament on June 15 to benefit the CMT Clinic in Neurology. The Charcot-Marie-Tooth (CMT) clinic combines comprehensive patient care and state-of-the-art clinical research in its treatment of patients from across the United States and other countries.

The department would like to recognize the generosity of each of its donors. Once again the department has been the recipient of generous gifts from Mrs. Mary Parker and Mr. James Hiller and many other individuals. Although there has been an increase in NIH funding for the next two years as part of the economic recovery acts, the proposed increases for 2011 are barely sufficient to keep up with inflation. Voluntary health foundation and societies’ fund raising is lagging because of the economy. Thus gifts from our donors are more important than ever.

Corporate, foundation and private contributions continue to promote the department’s commitment to a recognized standard of excellence in patient care, research, and education. The gifts noted below reflect only those contributions received in 2009, not cumulative contributions from prior years.

**Corporate Donors**

Advanced Health Media  
Baxter Healthcare Corporation  
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Critical Care Systems, Inc.  
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Teva Neuroscience, Inc.  
Total Health Rewards, LLC  
The Vangelos Corporation  
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**Foundations**

Hiller Charitable Foundation  
Tuesdays with Mitch Charitable Foundation  
United Jewish Foundation of Metropolitan Detroit

**Individual Donors**

**(contributions exceeding $100,000)**

Mary Parker

**(contributions of $5000 - $10,000)**

John R Stelter
(contributions of $1000 - $4999)
Paula Dore-Duffy
Teri L Fenner
Mr and Mrs Thomas H Finnerty
Mr and Mrs Harvey R Heller
Jim Lagerstrom
Florine Mark
Frank D Sottile
John R Stelter
Joan M Taube

Howard Van Dam
Delores M Vandenberg
Stefano Vanelli
Dennis E Walkowicz
Creighton Weber

(other contributions)
Alyssa Cohen
Michael Colletta
Michael J Crowe
Randy Dickerman
Kathryn Erickson
Mike Ferrell
Matthew P Galloway
Karen M Krajewski
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Robert P Lisak
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Bryan Judy
Gregory C Lewis
Richard A Lewis
Dennis Moen
John Randall
Total research funding for the Neurology department was more than $4.0 million for the year, not including research funds for Pediatric Neurology, which are administered through the Department of Pediatrics or Neuropathology, a division of Pathology.

New external funding beginning in 2009 includes the following grants and contracts for both clinical and basic research.

“Cell Culture Model for SMA.” Sponsor: Wayne State University Bridge Funding. Gyula Acsadi, PI.


**Dan Barkmeier**, an MD/PhD student working in the laboratory of Jeffrey Loeb won a Research Training Fellowship from the Epilepsy Foundation of America to continue his research on the molecular aspects of epilepsy and to develop new therapeutics for the disease.


“Pericytes, a Nonel New Adult Stem Cell, Ameliorate Autoimmune Encephalomyelitis (EAE)” Sponsor: FCMSC/Bayer. Paula Dore-Duffy, PI.

**Ernest Retland**, a student working with Drs Benjamins and Lisak, won a scholarship from the Consortium of MS Centers.

“Multi-center, Open-label extension Study to Examine the Safety and Tolerability of ACP-103 in the Treatment of Psychosis in Parkinson’s Disease.” Sponsor: Acadia Pharmaceuticals, Inc. Edwin George, PI.

“Molecular Mechanisms of Neurodegeneratiom.” Sponsor: National Institute of Neurological Disorders and Stroke. Alexander Gow, PI.

“Non-immune Models of Neurodegeneration.” Sponsor: Multiple Sclerosis Society. Alexander Gow, PI.

“Diffusion Tensor Imaging Biomarker in Developmental Delay.” Sponsor: NICHD. Senthil Sundaram, PI and AHM Huq, co-PI.


“Optimized Infrared Light Therapy Applied to Neurodegenerative Disease.” Sponsor: Somanetics Corporation. Mark Huttemann, PI and John Kamholz, co PI.
“An Exploratory Study to Investigate the Reparative and Regenerative Potential of Alemtuzumab In Relapsing-Remitting Multiple Sclerosis: A Multiparametric non-conventional MRI Sub-Study in Patients Participating in the CARE MS I and CARE MS II Studies.” Sponsor: Genzyme Corp. Omar Khan, PI.

“Insight into Tissue Repair and Injury Following Treatment with Natalizumab in Relapsing-Remitting Multiple Multiple Sclerosis.” Sponsor: Biogen Idec. Omar Khan, PI.

“Multiparametric Non-Conversational MRI Approach to Quanify Dopaminergic Tissue Loss and Response to Intervention in Parkinson’s Disease.” Sponsor: Teva Neuroscience. Omar Khan, PI.

“A Phase III, Multi-center, Randomized Trial to Evaluate the Efficacy and Safety of Two Doses of Fingolimod in Patients with Primary Progressive Multiple Sclerosis.” Sponsor: Novartis Pharmaceuticals. Omar Khan, PI.

“A Combination Therapy in Multiple Sclerosis-Combrix Phase III.” Sponsor: Mount Sinai Medical Center. Omar Khan, PI.

“A Double-Blind, Randomized, Multi-center, Placebo-Controlled, Parallel-Group Study Comparing the Efficacy and Safety of 1.25mg FTY270 Administered Orally Once Daily Versus Placebo in Patients.” Sponsor: Novartis Pharmaceuticals Corp. Omar Khan, PI.


“Database for Multifocal Motor Neuropathy and Other Inflammatory Neuropathies.” Sponsor: Baxter Bioscience Corp. Richard Lewis, PI.


“Activity-Dependent Gene Expression in Human Epilepsy.” Sponsor: National Institute of Neurological Disorders and Stroke. Jeffrey Loeb, PI.

“Impacting Oxidative Stress and Cell Injury Through Novel Pathways of the Wnt Gene.”
Sponsor: National Institute of Neurological Disorders and Stroke. Kenneth Maiese, PI.

Jason Puckett, a student working with Dr Dore-Duffy, won an award for best student research project at WSU/SOM and a scholarship from the Consortium of MS Centers.


“A 24 Week Prospective Randomized Parallel Group Double Blind Multi Center study comparing the Effects of Rivastigmine Patch 15 cm2 vs Rivastigmine Patch 5 cm2 on Activities of Daily Living and Cognition.” Sponsor: Novartis Pharmaceuticals Corp. Sunitha Santhakumar, PI.

“A Randomized, Double-Blind, Placebo-Controlled, Parallel Group, Multi Center Study to Evaluate the Efficacy, Safety and Tolerability of Carabismate.” Sponsor: Johnson & Johnson Pharmaceutical Research and Development, LLC. Aashit Shah, PI and Craig Watson and Marie Atkinson, co-PIs.

“Inherited Neuropathies Consortium RDCRC.” Sponsor: National Institute of Neurological Disease and Stroke. Michael Shy, PI and Gyula Acsadi, co-PI.


“Sedation for Brain MRI in Children with Disabilities.” Sponsor: Blue Cross Blue Shield of Michigan. Lalitha Sivaswamy, PI.

In addition there are many ongoing grants and clinical trials underway. The funding for these began prior to 2009.
EUROLOGY and NEUROSCIENCE VISITING LECTURE SERIES

As part of its on-going educational and research programs the department sponsored the following series of lectures from recognized leaders in their fields.

"Synapse Formation and Plasticity from Muscular Dystrophy to Schizophrenia” Li Mei, MD, Professor and Chief, Institute of Molecular Medicine and Genetics, Medical College of Georgia, Augusta, GA. January 9, 2009.

“Diagnosis and Treatment of Neonatal Seizures” Renee Shellhaas, MD, Clinical Assistant Professor of Pediatrics, Division of Pediatric Neurology, University of Michigan, Ann Arbor, MI. January 16, 2009.

“Frontal Temporal Dementia and ALS.” Michael Strong, MD, Professor and Co-Chair, Clinical Neurological Sciences, University of Western Ontario, Canada. March 7, 2009.


“Behavioral Aspects of Parkinson’s Disease” Joseph Friedman, MD, Director, Director, NeuroHealth Parkinson’s Disease and Movement Disorders Center and Professor, Department of Clinical Neurosciences, Brown Medical School, Warwick, RI. June 26, 2009.

“Neurocysticercosis (NCC) – Current Perspectives” Man Mohan Mehndiratta, MD, Professor of Neurology, G B Pant Hospital, New Delhi, India. June 26, 2009.

“Update on Hereditary Ataxias” Henry Paulson, MD, PhD, Lucile Groff Professor of Neurology, University of Michigan Medical Center, Ann Arbor, MI. August 21, 2009.

“Snoring, Behavior, and Cognition in Children” Ronald Chervin, MD, MS, Professor of Neurology and Director, Sleep Disorder Center, University of Michigan, Ann Arbor, MI. September 18, 2009.

“Neural Substrates of Language Disorders in Children” Maria Mody, MD, Assistant Professor of Radiology, Harvard University, Boston, MA. October 23, 2009.

“New Approaches to Ischemic Penumbra Salvage and Neuroprotection” Marc Fisher, MD, Professor of Neurology, University of Massachusetts School of Medicine, Worcester, MA. November 6, 2009.

“Update on Diagnosis and Management of Dystrophinopathies” Kevin Flanigan, MD, Professor of Neurology, Ohio State University, Center for Gene Therapy, Nationwide Children’s Hospital, Columbus, OH. November 13, 2009.
“Remyelination of the CNS: Its Clinical Relevance and How It Can Be Promoted” Ian Duncan, PhD, FRCVS, FRCPath, Professor of Neurology, School of Veterinary Medicine, University of Wisconsin-Madison, Madison, WI. November 20, 2009.

“Stem Cell Therapy in Multiple Sclerosis: Exogenous versus Endogenous Approaches.” Ian Duncan, PhD, Professor of Neurology, School of Veterinary Medicine, University of Wisconsin-Madison, Madison, WI. November 21, 2009.

“Oligodendrocyte Precursors and Myelination.” James Goldman, MD, PhD, Professor of Pathology and Director of Neuropathology, Columbia University College of Physicians & Surgeons, New York, NY. November 21, 2009.

“Immunology of Multiple Sclerosis.” Lloyd Kasper, MD, Professor of Neurology, Microbiology and Immunology, Dartmouth Medical School, Hanover, New Hampshire. November 21, 2009.


INVITED LECTURES / PRESENTATIONS

WSU neurology faculty delivered a series of invited lectures regionally, nationally and internationally as part of the department’s on-going educational and research programs.


“Seizures Secondary to Nonneurologic Medical Conditions.” Marie Atkinson, Neurology for the Non-Neurologist Conference, Department of Neurology, Wayne State University School of Medicine, Troy, MI. October 17, 2009.

“Modeling Glial Responses in Multiple Sclerosis Lesions.” Joyce Benjamins, Department of Neuroscience, University of Connecticut Health Center, Farmington, CT. May 12, 2009.


“Natural History of Intracranial Stenosis.” **Seemant Chaturvedi**, AHA meeting, Orlando, FL. November 16, 2009.


“Applications of PET Scanning in Pediatric Neurological Disorders.” **Harry Chugani**, the Preston Robb Lecture. Montreal Children’s Hospital, McGill University, Montreal, Canada. December 9, 2009.


“The Capillary Pericyte is a Source of Adult Pluripotent Stem Cells.” **Paula Dore-Duffy**, Brain and Behavior Discovery Institute-Regenerative Medicine, Medical College of Georgia. Augusta, GA. November 4, 2009.


“Diagnosis and Management of Fabry Disease.” **James Garbern**, Department of Neurology Grand Rounds, University of Miami, Miami FL. May 22, 2009.


“Imaging Concepts in Multiple Sclerosis.” Omar Khan, Visiting Professor, University of South Florida College of Medicine CME Program, Tampa, Fl. April 2, 2009.

“Impact of MRI on Multiple Sclerosis Management and Monitoring.” Omar Khan, Grand Rounds, Neurology, University of South Florida College of Medicine, Tampa, Fl. April 3, 2009.

“Role of MRI in Predicting Outcomes and Understanding Pathology in Multiple Sclerosis.” Omar Khan, Visiting Professor, Neuroscience Conference Lecture, Scripps Institute, La Jolla, CA. April 6, 2009.


“Imaging Concepts in Multiple Sclerosis”. Omar Khan, University of South Florida College of Medicine CME Program. Omaha, NE. July 16, 2009.


“Imaging Concepts in Multiple Sclerosis.” Omar Khan, University of South Florida College of Medicine CME Program. Minneapolis, MN. November 5, 2009.

“Embryonic Stem Therapy and CNS Repair: Implications for Multiple Sclerosis.” Omar Khan, Chairman & Course Director, Wayne State University Annual Multiple Sclerosis Symposium. Wayne State University CME Sponsored Symposium, Detroit, MI. November 21, 2009.

“Research Update on Multiple Sclerosis: 2009 and Beyond.” Omar Khan, Multiple Sclerosis Association of America Patient Program, Dearborn, MI. December 9, 2009.


“Multifocal Neuropathies.” Richard Lewis, Montreal Neurologic Institute, McGill University, Montreal, Canada. April 16, 2009.


“Glimpsing the Mammalian Transcriptome’s ‘other half:’ Evolution, Expression, and Function of IncRNA.” Leonard Lipovich, Department of Genetics, Rutgers University, New Brunswick, NJ. February 2, 2009.


“Future Research in Multiple Sclerosis.” Robert Lisak, Multiple Sclerosis: The Disease and Its Treatment (6th Annual Course), University of South Florida, Atlantic City, NJ. March 28, 2009.


"When Learning too Much Goes Wrong: Lessons Learned and Novel Therapeutic Strategies from the human epileptic transcriptome." **Jeffrey Loeb**, Department of Pathology, Yale University, New Haven, CT. May 5, 2009.

"When Learning too Much Goes Wrong: Lessons Learned and Novel Therapeutic Strategies from the Human Epileptic Transcriptome." **Jeffrey Loeb**, Grand Rounds, Departments of Neurology and Neurosurgery, Stony Brook University, Stony Brook, NY. June 2, 2009.


“What’s New in Stroke Treatment and Prevention?” **Kumar Rajamani**, Neurology for the Non-Neurologist Conference, Department of Neurology, Wayne State University School of Medicine, Troy, MI. October 17, 2009.


“Headache and Facial Pain.” **Kumar Rajamani**, Bharati Vidyapeeth University- Dental College and Hospital, Pune, India. April 9, 2009.

“Acute Stroke Treatment.” **Kumar Rajamani**, Grand Rounds, Department of Medicine, Deenanath Mangeshkar Hospital, Pune, India. November 23, 2009.

“Evaluation and Management of Chronic Neuropathies.” **Sindhu Ramchandren**, Neurology for the Non-Neurologist Conference, Department of Neurology, Wayne State University School of Medicine, Troy, MI. October 17, 2009.


“Approach to Dementia: What Every Clinician Should Know.” **Sunitha Santhakumar**, Neurology for the Non-Neurologist Conference, Department of Neurology, Wayne State University School of Medicine, Troy, MI. October 17, 2009.


“A Focused and Biological Approach to the Inherited Neuropathies.” **Michael Shy**, Neurology Grand Rounds, Harvard Medical School, Massachusetts General Hospital, Boston, MA. February 12, 2009.


“Biological Approaches to CMT.” Michael Shy, Dept Neurology Grand Rounds, Case Western University, Cleveland, OH. April 2, 2009.

“C-peptide and Diabetic Neuropathies in Type 1 Diabetes.” Anders Sima, Neurology, University of Michigan, Ann Arbor, MI. July 17, 2009.


“Treatment Options in Medically Refractory Epilepsy.” Craig Watson, Oakwood Hospital Neurology Section Meeting, Dearborn, MI. February 5, 2009.
EDUCATION / RESIDENCY / FELLOWSHIP PROGRAM

Undergraduate Medical Education

The department is responsible for the Year III neurology clerkship, a required course (M Maher Fakhouri, course director), and shares responsibility for the Nervous System portion of the Year II Pathophysiology Course (Edwin George, Neurology and William Kupsky, Pathology/Neuropathology, Neurology and Neurosurgery, course directors). In addition neurology faculty participate in Year I and other basic science courses as well as clinical and research electives for Year IV students.

WSU has a very active Student Interest Group in Neurology (SIGN; James Garbern, advisor), part of the national effort in neurological education sponsored by the American Academy of Neurology (AAN), the American Neurological Association (ANA) and the Association of University Professors of Neurology (AUPN). Several students spent time during the summer doing research while others took research electives during the school year. Jason Puckett, a student working with Dr Paula Dore-Duffy, won an award for best student research project at WSU/SOM.

Graduate Medical Education (GME)

The three main components of residency training comprise inpatient rotations in a variety of hospital settings, outpatient work in our general neurology, specialty, and interdisciplinary clinics, and the study of neuroscience. Junior residents divide their time between Harper University Hospital, Detroit Receiving Hospital (DRH), and the Veteran’s Administration Hospital (VAH). Senior residents spend six to eight months supervising junior residents and internal medicine, neurosurgery, and psychiatry rotators at Harper, DRH, and VAH. Senior residents also have a rotation in the University Health Center’s specialty clinics, which include the multiple sclerosis (MS), stroke, epilepsy, dementia, neuromuscular, neuro-ophthalmology, neuroinfection diseases, pain, and movement disorder clinics.

The rotations and electives offered to senior residents include: neuropathology, neuroradiology, child neurology (Children’s Hospital of Michigan), electroencephalography and evoked potentials, sleep, electromyography, physical medicine and rehabilitation, neurosurgery, psychiatry, neuro-ophthalmology, neuro-oncology, neuromuscular disease, and stroke. If residents wish, they may also use elective time to work on research projects.

The department has an ACGME approved 3 year neurology residency program in adult neurology with 7 residents per year, leading to eligibility for certification in Neurology. In collaboration with the Division of Child Neurology, Departments of Pediatrics and Neurology, we also offer an approved 3 year training program with 2 trainees per year leading to eligibility in Neurology with Special Competence in Child Neurology. Both of these programs lead to certification by the American Board of Psychiatry and Neurology (ABPN). The Pediatric Program has just been approved to add a third resident each year. Dr Ramesh Madhavan serves as Program Director for the Adult Neurology program. Dr Lalitha Sivaswamy serves as program director for Pediatric Neurology. The Programs received full re-approval for four years from the Neurology RRC/ACGME. Dr Aashit Shah is Program Director for the Fellowship in Clinical Neurophysiology and Dr Kumar Rajamani as Program Director for Vascular Neurology/Stroke Program. There is a combined Pulmonary Medicine and Neurology Sleep Disorders training program at the VA. Additional non-ACGME, non-ABMS fellowships are offered in some years.
in Multiple Sclerosis (Dr Omar Khan), Movement Disorders (Dr Edwin George), and Neurocritical Care (Dr William Coplin).

An outstanding effort was made this year by residents at the American Academy of Neurology (AAN) annual meeting in Seattle. More than 12 posters were presented by residents and fellows. The topics covered ranged from endovascular techniques such as stenting to the imaging techniques in Alzheimer disease. Presenters included Drs Ambooj Tiwari, Amit Kansara, Mahmoud Rayes, Patrik Bhattacharya, Temenuzhka G. Mihaylova, Yvan Tran, Antao Du, and Jai Perumal.

**Continuing Medical Education (CME)**

The department is very active in CME offering CME credit. Dr Alexandros Tselis serves as course director for its once weekly Grand Rounds. Faculty have also participated in CME activities of the Michigan State Medical Society and the Michigan Neurological Association. Dr Seemant Chaturvedi served as Program Director of the MNA. Members of the department also participated in CME courses at the annual meeting of the American Academy of Neurology in Chicago and at CME courses offered by other universities in the U.S.

The faculty organized three additional WSU sponsored CME courses of particular note. For the past nine years Seemant Chaturvedi has served as director for the very popular annual course called “Neurology for the Non-Neurologist”. This past year Dr Marie Atkinson became the course director. The course featured talks by Drs Maher Fakhouri, Kumar Rajamani, Sindu Ramchandren, and Sunitha Santhakumar.

Also in 2009 Dr Omar Khan held the fifth annual Multiple Sclerosis Symposium sponsored by the Multiple Sclerosis Center and the Department of Neurology. Entitled “Stem Cells, Remyelination, and Repair in the Central Nervous System: Prospects for Multiple Sclerosis” this symposium is designed for neurologists, neurology residents and nurses. Invited speakers included Lloyd Kasper (Dartmouth Medical School); Trent Watkins (Genentech, Inc., California); James Goldman (Columbia University College of Physicians & Surgeons); Ian Duncan (University of Wisconsin-Madison); Jane Lebkowski (Geron Corporation, California); and the host Omar Khan.

Drs Richard Lewis and Agnes Jani-Acsadi hosted their third annual CME course on Neuromuscular Disease. “ALS and Other Motor Neuron Disorders” featured guest speaker Michael J. Strong, MD, Professor and the Arthur J Hudson Chair in ALS Research at the University of Western Ontario, Canada. Other speakers included Drs Richard A. Lewis, Agnes Jani-Acsadi, Jeffery A. Loeb, and Omar A. Khan from Neurology and Dr Gyula Acsadi from Pediatric Neurology at WSU. Dr Richard Lewis, Director of the Hiller ALS Clinic and Research Center at WSU said this educational conference which focused on research and treatment for amyotrophic lateral sclerosis (ALS) was designed for physicians, family and family members.

**Graduate Education**

Many members of the faculty are involved in graduate education (masters and doctoral) in the Center for Molecular Medicine as well as in several basic science departments and in the graduate program in neuroscience.
Post-doctoral Education

A large number of PhDs and physicians who want additional training in basic science obtain their training in the Department of Neurology. These individuals come from the US as well as many other countries, some of whom stay in the US with others returning to their home countries. The latter has lead to an increasing number of research projects and studies with schools in other countries.

Fellowships

In addition to the approved 3 year neurology residency program, the department provided an additional year of specialized training for nine fellows. **Omar Khan**, Program Director of the Multiple Sclerosis Clinic, oversaw the training of fellow Jay Perumal, MD in Neuroimmunology/Multiple Sclerosis. **Edwin George**, Pathophysiology Course Director, oversaw the training of fellow Mary Shaya, MD in Movement Disorders. **Aashit Shah**, Program Director of Clinical Neurophysiology (EMG/EEG), oversaw the training of fellows Bhagya Boggaram, MD, Chabdana Chauhan, MD, Suresh Chitturi, MD, Kanwardeep S. Grewal, MD, Mhd, Kher Heder, MD, and Ashutosh Raina, MD in Clinical Neurophysiology. **Renee Van Stavern**, Program Director of stroke, oversaw the training of fellow Abraham Kuruvilla, MD, in Stroke/Cerebrovascular diseases.
Gyula Acsadi, MD, PhD, Associate Professor of Pediatrics and Neurology
Medical: Medical University of Pecs (Hungary) MD, 1981
Graduate: Hungarian Academy of Sciences, Budapest, PhD (Molecular Genetics), 1999
Residency: Medical University of Pecs (Hungary), 1987, Pediatrics
Children’s Hospital of Michigan, Detroit MI (Pediatric Neurology), 1999
Fellowships: Postdoctoral fellow Medical University of Pecs, Hungry (Neuropsychology), 1983
Prior appointments: Assistant Professor, Medical University of Pecs, Hungary, 1991-1992
Interests: Neuromuscular Disease

Joshua E. Adler, MD, PhD, Associate Professor of Neurology and Anatomy/Cell Biology; Director, Pain Service John Dingell VA Medical Center
Undergraduate: Yeshiva University, BA, 1969
Medical: University of Pennsylvania School of Medicine, MD, PhD (Anatomy) 1975
Internship: Presbyterian-University of Pennsylvania Medical Center, Philadelphia, PA 1975-1976
Residency: New York Hospital, New York, NY, 1976-1979
Fellowships: Cornell University Medical College, 1979-1982
Prior appointments: Cornell University Medical College, 1983-1990
Interests: Neuropathic pain syndromes, headache, neurodegenerative diseases

Ximena Arcila-Londono, MD, Assistant Professor of Neurology
Medical: Instituto de Ciencias de la Salud, CES, Medellin, Colombia, MD, 1999
Internship: Henry Ford Hospital, Detroit, MI (Internal Medicine), 2002-2003
Residency: Henry Ford Hospital, Detroit, MI (Neurology), 2003-2006
Fellowships: Henry Ford Hospital, Detroit, MI (Neurophysiology/EMG), 2006-2007
Henry Ford Hospital, Detroit, MI (Neuromuscular) 2007-2008
Interests: Clinical Neurophysiology, Amyotrophic Lateral Sclerosis

Eishi Asano, MD, PhD, Assistant Professor of Pediatrics and Neurology
Medical: Tohoku University, Japan, MD 1996
Graduate: Tohoku University, Japan, PhD, 2002
Residency: Miyagi National Hospital, Japan, Neurosurgery, 1996-1997
Tohoku University, Japan, Neurosurgery, 1998
Fellowship: Children’s Hospital of Michigan (Pediatric Neuroimaging Research), 1998-2002
Children’s Hospital of Michigan (Pediatric Neurophysiology Research), 2000-2002
Children’s Hospital of Michigan (Pediatric Neurology/Clinical Neurophysiology), 2002-2005
Interests: Epilepsy, clinical neurophysiology

Marie D. Atkinson, MD, Assistant Professor of Neurology
Undergraduate: Wayne State University, BS, 1998
Medical: Wayne State University School of Medicine, MD, 2002
Internship: Detroit Medical Center Sinai-Grace Hospital (Internal Medicine), 2002-2003
Residency: Wayne State University School of Medicine, Detroit Medical Center (Neurology), 2003-2006
Fellowship: Wayne State University School of Medicine, Detroit Medical Center (Clinical Neurophysiology & Epilepsy), 2006-2007
Interests: Epilepsy, Epilepsy surgery, clinical neurophysiology
Thomas Babb, PhD, Professor of Pediatrics and Neurology
Graduate: McManus University, Neurophysiology and Neuroanatomy, Hamilton, Ontario, Canada, PhD, 1969
Fellowships: University of California, Irvine, 1970-1971
Prior appointments: Instructor of Psychobiology, University of California, Irvine, 1970
Assistant Research Neurophysiologist, University of California, LA, 1971-1976
Associate Research Neurophysiologist, University of California, LA, 1976-1979
Professor of Neurology, University of California, Los Angeles, 1983-1995
Interests: Brain development, neuroanatomy, neurophysiology, focal epilepsies, and proteomics

Geoffrey R. Barger, MD, Associate Professor of Neurology; Member, Karmanos Cancer Institute
Undergraduate: Villanova University, BS, 1971
Medical: Jefferson Medical College, MD, 1975
Internship: Thomas Jefferson University Hospital, 1975-1976
Residency: Pennsylvania Hospital, 1976-1979
Fellowship: Moffitt Hospital and the Brain Tumor Research Center, University of California San Francisco, 1979-1982
Prior appointments: University of California, San Francisco, 1979-1982
Interests: Neuro-Oncology, Primary Brain Tumors, Metastatic Brain Tumors

Michael E. Behen, PhD, Assistant Professor of Pediatrics and Neurology
Undergraduate: University of Michigan, Dearborn, BA, 1990
Graduate: Wayne State University, PhD, Psychology, 2004
Internship: Children’s Center of Wayne County, 1993-1996
Fellowships: Children’s Hospital of Michigan-PET Center (Pediatrics), 2004-2006
Interests: Functional and structural correlates of early severe social deprivation, etiological factors and psychological and neurologic correlates of developmental disabilities.

David Benjamins, MD, Assistant Professor of Pediatrics and Neurology
Undergraduate: Albion College, BS, 1962
Medical: Wayne State University, MD, 1965
Internship: Children’s Hospital of Michigan
Residency: Children’s Hospital of Michigan, 1965-1967
Stanford University Medical Center (Pediatrics), 1967-1968
Johns Hopkins Hospital, 1970-1973
Fellowships: Duke University, 1973-1974
University of Toronto, 1974-1975
Prior appointments: Medical Director, Detroit Institute for Children, 1985-1990
Interests: Learning disabilities, attention deficit hyperactive disorder, cerebral palsy, autism

Joyce Benjamins, PhD, Professor and Associate Chair of Neurology, Associate in Biochemistry and Molecular Biology; Immunology/Microbiology
Undergraduate: Albion College, Michigan, 1963
Graduate: University of Michigan, PhD, 1967
Fellowship: Stanford University School of Medicine (Pediatrics and Genetics), 1968
Prior appointments: Assistant Professor, Neurology, Johns Hopkins School of Medicine, 1971-1973
Assistant Professor, Biochemistry, Biological Sciences Research Center, University of North Carolina School of Medicine, 1973-1975.
Assistant Professor, Neurology; Associate, Biochemistry, Wayne State University, 1975-1978
Associate Professor, Neurology; Associate, Biochemistry, Wayne State University, 1978-1985
Interests: Glial biology, myelin formation and maintenance, protection mechanisms in oligodendroglia, calcium regulation in glia, cytokines and glia, myelin galactolipids
Randall R. Benson, MD, Assistant Professor of Neurology
Undergraduate: Washington University in St. Louis, BA, 1982
Medical: Hahnemann University, MD, 1987
Internship: Crozer-Chester Medical Center, Upland, PA, 1987-1988
Residency: Boston University School of Medicine, Boston, MA, 1988-1991
Fellowship: Massachusetts General Hospital (Behavioral Neurology, fMRI), 1991-1996
University of Connecticut School of Medicine, 1996-2001
Interests: Behavioral Neurology including degenerative dementias, aphasia, neuropsychiatric disorders, stroke, functional neuroimaging, CNS disorders affecting gait, balance, and motor function, traumatic brain injury

Andrei B. Borisov, PhD, Assistant Professor of Neurology and Tissue Research Core Manager, Barbara Ann Karmanos Cancer Center Research Institute
Undergraduate: USSR Academy of Sciences, St. Petersburg, USSR, MS, 1979
Graduate: USSR Academy of Sciences, St. Petersburg, USSR, PhD, 1983
Fellowship: Institute of Cell Biology, Academy of Sciences, St. Petersburg, USSR, 1983-1986
Research Assistant Professor, University of Michigan Medical School, Ann Arbor, MI, 2004-2008
Interests: Histology, stem cell research

Seemant Chaturvedi, MD, FAAN, Professor of Neurology; Director, Stroke Program
Undergraduate: Princeton University, AB, 1985
Medical: University of Connecticut School of Medicine, MD, 1989
Internship: St. Francis Hospital; Hartford, CT 1990
Residency: University of Massachusetts Medical Center, 1993
Fellowships: University of Western Ontario (Stroke), 1994
Interests: Carotid artery stenosis, intracranial atherosclerosis, stroke in young adults, stroke and hypercoagulable states

Zhao Zhong Chong, MD, Assistant Professor of Neurology
Graduate: Chongqing University of Medical Sciences, Pharmacology, MS, 1991
Institute of Materia Medica, Peking Union Medical College & Chinese Academy of Medical Sciences, Beijing, China, PhD, 1998
Medical: Bin Zhou Medical College, Bin Zhou, China, MD, 1988
Prior appointments: Associate Professor, Pharmacology, Beijing University of Chinese Medicine, Beijing, China, 2000
Instructor, Pharmacology, Pharmacology, Shandong Medical University, Jinan, China, 1991-1995
Interests: Cerebral ischemia and neurodegeneration

Harry T. Chugani, MD, Rosen Family Chair in Tourette’s Syndrome, Professor of Pediatrics, Neurology and Radiology
Undergraduate: La Salle College, Philadelphia, PA, BA, 1968
Medical: Georgetown University School of Medicine, MD, 1976
Internship: Children’s Memorial Hospital, Chicago, IL, 1976-1977
Residency: Georgetown University Hospital (Neurology), 1978-1980
Georgetown University Hospital (Pediatrics), 1977-1978
Fellowships: UCLA Medical Center (Nuclear Medicine), 1990-1992
Georgetown University Hospital (Neurology), 1980-1981
Prior appointments: UCLA School of Medicine, 1981-1993
Interests: Epilepsy, epilepsy surgery, autism, Tourette syndrome
William M. Coplin, MD, Associate Professor of Neurology and Neurologic Surgery
Undergraduate: University of Chicago, AB, 1985
Medical: Baylor College of Medicine, MD, 1989
Internship: University of Washington, 1989-1990
Residency: University of Washington (Neurology), 1990-1993
Fellowships: University of Washington (Neurological Surgery-Critical Care), 1995-1996
University of Washington (Division of Pulmonary & Critical Care Medicine), 1994-1996
Interests: Stroke, neurotrauma, emergency and critical care, subarachnoid hemorrhage, intracerebral and intraventricular hemorrhage

Paula Dore-Duffy, PhD, Professor of Neurology; Chief, Neuroimmunology; Associate in Immunology/Microbiology
Undergraduate: Simmons College, Boston, BS, 1970
Graduate: Louisiana State University School of Medicine, PhD, 1976
Fellowship: University of Connecticut School of Medicine, 1976-1978
Prior appointments: Assistant Professor of Neurology & Medicine, University of Connecticut, 1978-1982
Associate Professor of Neurology & Medicine, University of Connecticut, 1982-1988

M. Maher Fakhouri, MD, Assistant Professor of Neurology
Medical: Damascus University Medical School, MD, 1982
Internship: Transitional, Centre Hospitalier de Vouziers, France, 1983-1984
Internal Medicine, Good Samaritan Hospital, Cincinnati, Ohio, 1986–1987
Residency: Neurology, University of Cincinnati, 1987-1990
Fellowships: University of Minnesota, VAMC (EMG/Neuromuscular) 1990-1991
University of Cincinnati, College of Medicine (Pain Management) 1991-1992
Prior appointment: Assistant Professor of Clinical Neurology, Department of Neurology, University of Cincinnati, College of Medicine, 1992-1994
Interests: Headache, Pain medicine and EMG

Shawna Feely, MS, Assistant Professor of Neurology; Genetics Counselor, Center for Molecular Medicine and Genetics
Undergraduate: University of Portland, Oregon, 2001
Graduate: California State University Northridge, MS, 2006
Internship: Pediatric Diagnostic Center Counseling Intern, Children’s Hospital, Los Angeles, CA, 2006
Genetics Laboratory Counseling Intern, Kaiser Permanente, Los Angeles, CA, 2005
Prenatal Diagnostic Center Counseling Intern, Children’s Hospital, Los Angeles, CA, 2005
Interests: Neurodegenerative disorders, including Alzheimer disease, Huntington disease, Lewy Body disease, and mild cognitive impairment

Darren R. Fuerst, PhD, Assistant Professor of Neurology
Undergraduate: York University, Toronto, BA (Psychology), 1983
Graduate: University of Windsor, MA (Clinical Neuropsychology), 1985
University of Windsor, PhD (Clinical Neuropsychology), 1991
Internship: Henry Ford Hospital (Clinical Psychology/Neuropsychology), 1988
Prior appointments: Assistant Professor, Psychology, University of Windsor, 1990-1991
Assistant Professor, Psychiatry and Behavioral Neurosciences, WSU, 1995-2002
Interests: Epilepsy, Dementia, Head Injury, Learning Disabilities

James Garbern, MD, PhD, FAAN, Associate Professor of Neurology; Member, Center for Molecular Medicine and Genetics
Undergraduate: Rice University, BS, 1974
Medical: Baylor College of Medicine, MD, 1981
Graduate: Baylor College of Medicine, PhD (Cell Biology and Neuroscience), 1979
Internship: University of Washington Affiliated Hospitals (Internal Medicine), 1981-1982
Residency: University of Washington Affiliated Hospitals (Neurology), 1982-1985
National Institute of Neurologic Diseases and Stroke, 1987-1989
Interests: Hereditary disorders of the nervous system and muscles; hereditary disorders of myelin; Mitochondrial diseases; Huntington disease, Spinocerebellar ataxias; Muscular dystrophy; Multiple sclerosis and related diseases

Edwin E. George, MD, PhD, Assistant Professor of Neurology
Undergraduate: Amherst College, BA, 1980
Graduate: Case Western Reserve University, PhD (Pharmacology), 1985
Medical: Case Western Reserve University, MD, 1987
Internship: Sinai Hospital of Baltimore, 1987-1988
Residency: The Johns Hopkins Hospital, 1988-1991
Fellowships: Grass Fellowship in Neurophysiology, Marine Biological Laboratory, Woods Hole, Massachusetts, 1986
Prior appointments: Instructor of Neurology, Johns Hopkins University, Baltimore, MD, 1991-1993
Assistant Professor of Neurology, Johns Hopkins University, Baltimore, MD, 1993-1996
Interests: Parkinson’s disease and other movement disorders, botulinum toxin therapy, neuropathies and peripheral nerve diseases, spinal cord injury and disease, neurotoxicology

Alexander Gow, PhD, Associate Professor, Center for Molecular Medicine and Genetics, Pediatrics and Neurology
Undergraduate: New South Wales I. T., Sydney, Australia, B.S., 1979
Graduate: New South Wales I. T., Sydney Australia, M.S., 1983
Graduate: Queensland University, Brisbane, Australia, PhD, 1990
Fellowship: Mount Sinai Medical Center, New York, 1990-1994
Prior appointments: Research Assistant New South Wales I. T., Sydney, Australia, 1980-1983
Research Assistant, Queensland University, Brisbane, Australia, 1983-1990
Assistant Professor, Mount Sinai School of Medicine, NY, 1995-2000
Interests: Molecular mechanisms of neurodegenerative diseases, function of intercellular junctions in CNS myelin, testis and cochlea, and regulation of axoglial junctions in CNS myelin

A H M Mabbubul Huq, MD, PhD, FRCPC, Associate Professor of Pediatrics and Neurology
Medical: Dhaka Medical College, MD, 1984
Graduate: Tokushima University School of Medicine, PhD (Pediatrics), 1991
Internship: Dhaka Medical College Hospital, 1985
Fellowships: Wayne State University (Child Neurology) 1998-2000
Baylor College of Medicine (Genetics) 1993-1995 and 1995-1996
Interests: Neurogenetic disorders, metabolic diseases, autism, neurocutaneous syndromes

Agnes Jani-Acsadi MD, Assistant Professor of Neurology
Medical: University Medical School of Pecs (Hungary) M.D. 1981
Internship: Transitional Medicine Sinai Grace Hospital, Wayne State University, 1999
Residency: University Medical School Pecs (Clinical Chemistry and Microbiology), 1986
Department of Neurology, Wayne State University, Detroit Medical Center, 2003
Fellowship: Neurophysiology Fellow/Neuromuscular track 2004
Research Fellow of the Charcot Marie Tooth Association, 1998-1999
Interests: Inherited peripheral neuropathies, motor neuron and neuromuscular diseases
Huiyuan Jiang, MD, Assistant Professor of Pediatrics and Neurology
Medical: Suzhou Medical College, Suzhou, China, MD, 1982
Graduate: Suzhou Medical College, Suzhou, China, PhD, 1993
Residency: Suzhou Medical College, Suzhou, China (Pediatrics) 1982-1987
Children’s Hospital of Michigan, Detroit, MI (Pediatric Neurology), 2002-2006
Prior appointments: Wayne State University, Neurology, Post-Doctoral Research, Detroit, MI, 1994-2001
Fellowship: Children’s Hospital of Michigan, Clinical Neurophysiology, Detroit, MI, 2001-2002
Interests: Inherited leukodystrophies of the central nervous system

Casaba Juhasz, MD, PhD, Associate Professor of Pediatrics and Neurology, PET Center, Children’s Hospital of Michigan
Graduate: Semmelweis University, Medical School, Budapest, Hungary, PhD, 2002
Medical: University School Pecs, Hungary, MD, 1989
Certification: Board certification in Neurology, Hungarian Board of Neurology, 1993
Residency: University Medical School, Pecs, Hungary (Neurology), 1989-1993
Fellowships: PET Imaging, Children’s Hospital of Michigan, 1998-2001
University of California, Los Angeles (Clinical Neurophysiology), 1994-1995
Prior appointments: Associate Professor of Neurology, Semmelweis Medical University. Budapest, Hungary, 1997-2000
Assistant Professor of Neurology, Semmelweis Medical University, Budapest, Hungary, 1994-1997
Interests: Functional neuroimaging, PET scanning, clinical applications of advanced multimodality imaging techniques, epilepsy pre-surgical evaluation, Sturge-Weber syndrome, brain tumor imaging

John Kamholz, MD, PhD, Professor of Neurology; Member, Center for Molecular Medicine and Genetics
Undergraduate: University of Pennsylvania, BA, 1970
Medical: University of Pennsylvania School of Medicine, MD, 1980
Graduate: University of Pennsylvania, PhD (Genetics), 1984
Internship: Hospital of the University of Pennsylvania, 1980
Residency: Hospital of the University of Pennsylvania (Neurology), 1981-1984
Fellowship: National Institute of Health (Laboratory of Molecular Genetics)
Interests: Multiple sclerosis and related diseases, Leukodystrophies, Neurogenetics

Sheldon Kapen, MD, Associate Professor of Neurology; Chief, Neurology Service, John Dingell VA Medical Center
Undergraduate: University of Wisconsin, Madison, BS, 1955
Medical: State University of New York, Upstate Medical Center, Syracuse, NY, MD, 1959
Residency: Kings County Hospital, New York, 1963-1964
Fellowships: Albert Einstein College of Medicine, New York, 1964-1966
Montefiore Hospital, New York, 1969-1970
Prior appointments: Director of Neurology Service, North Central Bronx Hospital, NY, 1976-1977
Director of Neurodiagnostic Center, University of Massachusetts Medical Center, 1977-1981
Director, Sleep-Wake Disorder Unit, Department of Neurology, Ohio Valley Medical Center, Wheeling Campus of West Virginia University, 1981-1982
Interests: Sleep disorders

Omar A. Khan, MD, Professor of Neurology; Medical Director, Multiple Sclerosis Clinic
Undergraduate: University of The Punjab, Pakistan, BSc 1983
Medical: Allama Iqbal Medical College, Pakistan, MD, 1987
Internship: Jewish Hospital of Cincinnati (Internal Medicine), 1990-1991
Residency: Medical College of Virginia (Neurology), 1991-1994
Fellowships: University of Maryland Hospitals (Neuroimmunology), 1994-1996
Veterans Affairs Medical Center, Baltimore ((Neurosciences), 1995-1998
Prior appointments: Medical Officer, Services Hospital, Pakistan, 1987-1990 University of Maryland, 1994-1998

Ajay Kumar, MD, PhD, Assistant Professor of Pediatrics and Neurology, Children’s Hospital of Michigan
Graduate: All India Institute of Medical Sciences, New Delhi, India, PhD (Nuclear Medicine), 2006.
Medical: Second Tashkent State Medical Institute, Tashkent, MD (General Medicine), 1994. All India Institute of Medical Science, New Delhi, India, MD (Biophysics), 2001. All India Institute of Medical Sciences, New Delhi, India, MD (Nuclear Medicine), 2004
Internship: Safdarjung Hospital, New Delhi, India, 1994-1995
Residency: Safdarjung Hospital, New Delhi, India, 1996-1997 All India Institute of Medical Sciences, New Delhi, India, 1998-2001
Fellowship: Wayne State University, Detroit, MI (Pediatrics and Neurology), 2006-2008
Interests: Neuroimaging with Positron emission tomography and MRI, and DTI in children with developmental delays, autism, and epilepsy.

William J. Kupsky, MD, Professor of Pathology, Neurology and Neurosurgery, Chief of Neuropathology
Undergraduate: Massachusetts Institute of Technology, BS, 1974
Medical: Harvard Medical School, MD, 1978
Prior Appointments: Columbia University and Presbyterian Hospital, 1984-1986 The Children’s Hospital, Boston, 1986-1991 Beth Israel Hospital, Boston, 1986-1987
Interests: Pathology of Epilepsy, brain tumors, neurodevelopment, and neuromuscular diseases

Richard A. Lewis, MD, FAAN, Professor and Associate Chairman of Neurology; Director of Clinical Neurophysiology (Holden Lab)
Undergraduate: Union College, New York BS 1970
Medical: Medical College of Virginia, VCU 1974
Internship: Hartford Hospital, Hartford, CT 1974-1975
Residency: Hospital of University of Pennsylvania (Neurology) 1975-1978
Interests: Neuromuscular Diseases, Electromyography, Peripheral Neuropathy, Myasthenia Gravis, Amyotrophic Lateral Sclerosis, Neurosarcoaidosis

Leonard Lipovich, PhD, Center for Molecular Medicine and Genetics and Assistant Professor of Neurology
Undergraduate: Cornell University, New York, BA, 1998
Graduate: University of Washington, Seattle, PhD (Molecular Biotechnology), 2003
Prior appointments: Research Scientist, Genome Institute of Singapore, 2003-2006 Adjunct Assistant Professor, Nanyang Technological University, Singapore, 2006-2007.
Interests: Human genomics, long non-coding RNA, and primate evolution.
Robert P. Lisak, MD, FAAN, FRCP, Parker Webber Chair in Neurology, Professor and Chairman of Neurology; Professor of Immunology and Microbiology

Undergraduate: University College of Arts and Sciences, New York University, BA, 1961
Medical: College of Physicians & Surgeons, Columbia University, MD, 1965
Internship: Montefiore Hospital and Medical Center, Bronx, NY, 1965-1966
Residency: Hospital of the University of Pennsylvania (Neurology), 1969-1972
Bronx Municipal Hospital Center (Internal Medicine), 1968-1969
Fellowships: University College London and National Institute for Neurologic Diseases, London, UK, 1978-1979 (Fulbright Senior Scholar)
Hospital of the University of Pennsylvania (Allergy and Immunology), Philadelphia, PA, 1971-1972
National Institute of Mental Health (Neurochemistry/Neuroimmunology), 1966-1968
Prior appointments: University of Pennsylvania, 1972-1987
Interests: Multiple Sclerosis and related diseases, Myasthenia Gravis, inflammatory demyelinating neuropathies, inflammatory myopathies, neurologic complications of collagen-vascular diseases, vasculitis

Jeffrey A. Loeb, MD, PhD, Associate Professor of Neurology; Associate Director, Center for Molecular Medicine and Genetics

Undergraduate: University of Chicago, AB, SM, 1982
Medical: University of Chicago, MD, 1989
Graduate: University of Chicago, PhD (Biochemistry and Molecular Biology), 1987
Internship: Massachusetts General Hospital (Internal Medicine), 1989-1990
Residency: Massachusetts General Hospital (Neurology), 1990-1993
Fellowships: Harvard Medical School (Neurobiology), 1993-1998
Beth Israel Deaconess Hospital (Epilepsy & Clinical Neurophysiology), 1993-1998
Prior appointments: Harvard Medical School, Boston, 1989-1998
Interests: Epilepsy, Clinical Neurophysiology (EEG) and Epilepsy Surgery neurodegenerative diseases

Ramesh Madhavan, MD, Assistant Professor of Neurology; Program Director, Neurology Residency

Graduate: Madras Medical College, Madras, MBBS, 1984
Medical: Kasturba Medical College, Madras, MD (Internal Medicine), 1988-1990
Institute of Neurology, Madras, Doctor of Medicine
Fellowship: Wayne State University (Neurology-Stroke), 2001-2002
Residency: Wayne State University (Neurology), 2003-2005
Prior appointments: Assistant Professor, Neurology, SRMC Deemed University, India, 1994-1997
Staff Neurologist, Kuwait University Mubarak al Kabir Hospital, 1997-2001
Interests: Vascular neurology

Kenneth Maiese, MD, Professor of Neurology and Anatomy and Cell Biology

Undergraduate: University of Pennsylvania, BA, 1981
Medical: Cornell University Medical College, MD, 1985
Internship: New York Hospital-Cornell University Medical College (Internal Medicine), 1985-1986
Residency: New York Hospital-Cornell University Medical College (Neurology) 1986-1989
Fellowships: New York Hospital-Cornell University Medical College (Neuroscience and Clinical Stroke), 1989-1992
National Institute of Aging, Laboratory of Neurosciences, National Institutes of Health, 1989-1990
Prior appointment: New York Hospital-Cornell University Medical College, 1992-1994
Interests: Cerebrovasculature ischemia and related diseases, central nervous system degenerative diseases
Marianne Majkowski, DO, Assistant Professor of Pediatrics and Neurology
Medical: Michigan State University College of Osteopathic Medicine, East Lansing, Michigan, D O, 1992
Internship: Oakland General Hospital, Madison Heights, MI, 1992-1993
Residency: Children’s Hospital of Michigan (Child Neurology), 1996-1998
Oakland General Hospital, Madison Heights, MI (Neurology), 1993-1996
Interests: Child Development

Lindsey Miller, MS, Assistant Professor of Neurology; Genetics Counselor, Center for Molecular Medicine and Genetics
Graduate: Wayne State University, MS, 2008
Interests: Genetics

Otto Muzik, PhD, Professor of Pediatrics, Radiology, and Neurology
Graduate: Technical University of Vienna, PhD, 1988
Fellowship: University of Michigan (Cardiac PET Group), 1990-1993
Prior appointments: Juelich Institute of Medicine, Nuclear Research Center, Germany, 1988-1990
Interests: PET scanning, epilepsy

Sandra Narayann, MD, Assistant Professor of Neurology & Neurosurgery
Undergraduate: University of Miami, BS, 1997
Medical: University of Miami School of Medicine, Miami, FL, MD, 2001
Internship: University of Miami-Jackson Memorial Hospital, 2001-2002
Residency: University of Miami-Jackson Memorial Hospital, Miami, FL, 2002-2005
Fellowship: Massachusetts General Hospital, Boston, MA (Vascular Neurology), 2005-2006
Emory University Hospital, Atlanta, GA (Vascular Neurology), 2006-2007
Emory University Hospital, Atlanta, GA (Interventional Neuroradiology), 2007-2008
Interests: Vascular neurology and interventional neuroradiology

Michael Nigro, DO, Professor Emeritus of Pediatrics and Neurology
Undergraduate: Fairleigh Dickinson University, BS, 1962
Medical: Philadelphia College of Osteopathic Medicine, 1966
Internship: Detroit Osteopathic Hospital 1966-1967
Residency: Detroit Osteopathic Hospital (Neurology), 1967-1970
Fellowships: Children’s Hospital of Philadelphia, University of Pennsylvania (Research Pediatric Neurology), 1971-1972
Children’s Hospital of Philadelphia, University of Pennsylvania (Pediatric Neurology)
Detroit General Hospital, Wayne State University College of Medicine, 1969-1970
Prior appointments: Director, Division of Pediatric Neurology, Children’s Hospital, Detroit, MI
Interests: Neuromuscular diseases, complex epilepsy and degenerative diseases

Gregory M. Norris, MD, Assistant Professor of Neurology
Undergraduate: Wayne State University, BA, 1998
Medical: Wayne State University, School of Medicine, MD, 2002
Residency: Wayne State University (Neurology), 2003-2006
Fellowship: Wayne State University, Detroit Medical Center (Neurotrauma and Critical Care), 2006-2007
Interests: Critical care and neurotrauma

Samia Ragheb, PhD, Assistant Professor of Neurology and Associate, Immunology & Microbiology
Undergraduate: University of Pennsylvania, BA, 1980
Graduate: Wayne State University, PhD, 1988
Fellowship: Neuroimmunology, Wayne State University, 1988-1992
Interests: Multiple sclerosis, myasthenia gravis, neuroimmunology, cellular and molecular immune mechanisms
Kumar Rajamani, MD, DM, Assistant Professor of Neurology: Program Director, Vascular/Stroke Fellowship
Medical: BJ Medical College, Pune, India, MD, 1985
Residency: Wayne State University, Detroit Medical Center, Detroit, MI, 2002-2005
Sir JJ Hospital, Bombay, India, 1988-1990
Fellowship: University of Southern California, School of Medicine, Los Angeles, CA, 1995-1997
Prior appointments: Consultant Neurologist, King Edward Memorial Hospital, Pune, India, 1997-2000
Interests: Cerebrovascular diseases, neurosonology, and general neurology

Sindhu Ramchandren, MD, MS, Assistant Professor of Neurology
Undergraduate: University of Pittsburg, PhD, 1996
Graduate: University of Michigan, MS in Clinical Research Design and Statistical Analysis 2007
Medical: University of Texas Medical School, Houston, MD, 2000
Internship: Hospital of the University of Pennsylvania (Neurology), 2000-2001
Residency: Hospital of the University of Pennsylvania (Neurology), 2001-2004
Fellowships: Johns Hopkins University, Clinical Neurophysiology/Neuromuscular Disease, 2004-2005
Prior appointments: University of Michigan, Clinical Lecturer, 2005-2008
Interests: Neuromuscular diseases, peripheral neuropathy, measurement of patient’s quality of life in neuropathy trials, nerve and muscle biopsy pathology interpretation, skin biopsy for evaluation of small fiber neuropathy

Sunitha Santhakumar, MD, Assistant Professor of Neurology
Medical: Indira Gandhi Medical College, Shumla, India, M.B.B.S, 1986-1992
Internship: Henry Ford Hospital, Detroit, MI (Neurology-Transitional Medicine), 2001-2002
Residency: University of Kansas Medical Center, Kansas City, KS, 2002-2005
Fellowship: Wayne State University, Detroit Medical Center (Vascular/Stroke), 2005-2006
Interests: Cerebrovascular diseases and general neurology

James F. Selwa, MD, MBA, Assistant Professor of Neurology
Medical: School of Medicine, University of Michigan, MD, 1985
Graduate: Graduate School of Business Administration, University of Michigan, MBA, 1980
Internship: Henry Ford Hospital (Internal Medicine), 1985-1986
Residency: Henry Ford Hospital (Neurology), 1986-1989
Fellowship: University of Michigan Hospitals (Neuromuscular), 1989-1990
Prior appointments: Henry Ford Hospital, 1990-1991
Interests: Neuromuscular disorders, inflammatory demyelinating neuropathies, Myasthenia Gravis, Carpal Tunnel Syndrome, radiculopathies, plexopathies and other disorders of the peripheral nervous system

Aashit K. Shah, MD, Associate Professor of Neurology; Program Director, Clinical Neurophysiology Fellowship
Medical: Smt. N.H. L. Municipal Medical College, Gujarat University, India, M.B.B.S., 1987
Internship: Interfaith Medical Center, Brooklyn, NY, 1988-1989
Residency: Wayne State University/ Detroit Medical Center, Detroit, 1989-1992
Fellowships: Clinical Neurophysiology, Wayne State University, Detroit Medical Center, 1992-1993
Interests: Epilepsy, Surgical treatment of Epilepsy, Clinical Neurophysiology, Neurological complications of Pregnancy

Mary Shaya, MD, Assistant Professor of Neurology
Medical: Ross University School of Medicine, Edison, NJ, MD, 1999-2003
Residency: Wayne State University, Detroit, MI (Neurology), 2005-2008
St. Johns Hospital, Detroit, MI (Internal Medicine), 2003-2004
Fellowship: Wayne State University, Detroit, MI (Movement Disorders), 2008-2009
Interests: Movement disorders
Michael E. Shy, MD, Professor of Neurology, Member; Center for Molecular Medicine and Genetics
Undergraduate: University of Pennsylvania, BA, 1970
Medical: Albany Medical College MD, 1979
Internship: Albany Medical College, 1980
Residency: Columbia Presbyterian Medical Center (Neurology), 1981-1983
Fellowships: Columbia Presbyterian Medical Center NY, 1983-1986
Interests: Inherited Peripheral Neuropathies, other neuromuscular disorders

Anders A. F. Sima, MD, PhD, Professor of Pathology, Neurology, and Neurosurgery
Medical: University of Goteborg, Sweden, MD, 1973
Internship: Sahlgren University Hospital, Sweden, 1972-1973
Residency: Royal College of Physicians, Sweden, 1975
Fellowship: Queen’s University, Canada, 1976-1978
Royal College of Physicians and Surgeons of Canada, 1978
Prior Appointments: University of Goteborg, 1974-1978
Royal College of Physicians, 1975
Royal College of Physicians and Surgeons of Canada, 1978
University of Michigan, 1990-1996
Interests: Neurodegenerative disorders, neurological complications of Diabetes

Carly Siskin, MS, Assistant Professor of Neurology; Genetics Counselor, Center for Molecular Medicine and Genetics
Graduate: Northwestern University, MS, 2007
Prior appointment: Genetic Counselor, Children’s Memorial Hospital, Chicago, IL
Interests: Neurogenetics

Lalitha Sivaswamy, MD, Assistant Professor of Pediatrics and Neurology; Program Director, Pediatric Neurology
Medical: Madras Medical College, India, MD, 1989
Internship: Madras Medical College, India, 1989
Residency: Henry Ford Hospital (Pediatrics), 1994-1996
Children’s Hospital of Michigan (Neurology), 2002-2004

Fei Song, MD, PhD, Assistant Professor of Neurology, Center for Molecular Medicine and Genetics
Graduate: Medical Institute of Bioregulation, Kyushu University, Japan, PhD, 1995
Medical: Norman Bethune University of Medical Sciences, Peoples Republic of China, MD, 1985
Fellowships: University of Texas Medical Branch (Pediatrics) 1995-1997
Ohio State University (Molecular Virology, Immunology, and Medical Genetics), 1997-2000
Prior appointments: Researcher and Teaching Associate, Departments of Microbiology and Immunology,
College of Basic Medical Sciences, Norman Bethune University of Medical Sciences, Peoples Republic of China, 1985-1987
Adjunct Assistant Professor and Research Scientist, Molecular Virology, Immunology, and Medical Genetics, Ohio State University, 2000-2008
Interests: Genetics, immunology, virology

Senthil Kumar Sundaram, MD, Assistant Professor of Pediatrics and Neurology, PET Center Children’s Hospital of Michigan
Graduate: Thanjavur Medical College, India, MBBS, 1996
Medical: All India Institute of Medical Sciences, New Delhi, India, MD, 2000
Fellowship: Visiting Fellow, University of Wisconsin (Nuclear Medicine), 2003-2004
Interests: Nuclear medicine
Alexandros C. Tselis, MD, PhD, FAAN, Associate Professor of Neurology
Undergraduate: McGill University, BSc, 1978
Graduate: Brown University, PhD (Physics), 1983
Medical: University of Miami, MD, 1987
Internship: Northwestern University, 1987-1988
Residency: Northwestern University (Neurology), 1988-1989
Fellowship: Purdue University, 1983-1985
Interests: Multiple sclerosis and related diseases, viral encephalitis, infectious diseases of the nervous system, HIV and its neurological complications.

Craig Watson, MD, PhD, Professor of Neurology; Associate, Department of Anatomy and Cell Biology; Director, WSU/Detroit Medical Center Comprehensive Epilepsy Program
Undergraduate: University of Illinois, Urbana, 1967
Medical: University of California, Davis, MD, 1977
Graduate: University of Michigan, MS, 1971
University of Michigan, PhD (Anatomy), 1971
Internship: University of California, Davis, School of Medicine (Neurology) 1977-1978
Residency: University of California, Davis, School of Medicine (Neurology) 1978-1981
Fellowship: Epilepsy Program, Department of Neurology, Montreal Neurological Institute, McGill University, School of Medicine, 1990-1991
Prior appointments: Department of Anatomy, University of Michigan Medical School, 1971-1972
Department of Human Anatomy, 1972-1975 and Department of Neurology, University of California, Davis, School of Medicine, 1982-1994
Department of Human Anatomy, University of California, Davis, School of Medicine, 1988-1994
Interests: Epilepsy, hippocampal sclerosis, lesional epilepsy, Neuroimaging in epilepsy, especially quantitative volumetric MRI of medial temporal structures

Andrew R. Xavier, MD, Assistant Professor of Neurological Surgery, Neurology, and Radiology
Medical: Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER) Dhanvantri Nagar, Pondicherry India, University of Madras, M.B.B.S, 1991
Internship: JIPMER Hospital, General Medicine, Pondicherry, India, 1991-1992
Residency: Mount Sinai Medical Center, Neurology, New York, NY, 1993-1996
Fellowships: University of Medicine & Dentistry New Jersey, UMSNJ (Endovascular Surgical Neuroradiology), 2003-2005
State University of New York (SUNY) and University at Buffalo, NY, Cerebrovascular Diseases - Stroke and Neuro ICU), 2001-2002
Prior Appointments: Assistant Professor, Neurology & Radiology, Univ Florida College of Medicine, 2005-2006
Clinical Instructor, Neurology and Neurosciences, UMDNJ, New Jersey Medical School, Newark, NJ, 2003-2005
Clinical Instructor, Neurology, SUNY, University at Buffalo, NY, 2001-2002
NINDS-NIH, Clinical Associate, 1996-1997
Interests: Interventional neurology, endovascular neurosurgery, interventional neuroradiology, vascular neurology
Original Observations Published


Original Observations in Press


Hattab EM, Martin SE, Al-Khatib SM, Kupsky WJ, Vance GH, Stohler RA, Czader M, Al-Abbadi MA. Most primary central nervous system diffuse large B-cell lymphomas occurring in immunocompetent individuals belong to the nongerminat center subtype: a retrospective analysis of 31 cases. Mod Pathol (in press).


Hou J, Chong ZZ, Shang YC, Maiese, K. FoxO3a governs early and late apoptotic endothelial programs during elevated glucose through mitochondrial and caspase signaling. Mol Cell Endocrinol (in press).


Li L, Welser J, Dore-Duffy P, del Zoppo GJ, LaManna JC, Milner R. In the hypoxic central nervous system, endothelial cell proliferation is followed by astrocyte activation, proliferation, and increased expression of the astrocyte adhesion molecules α6β1 integrin and dystroglycan. Mol Cell Neurosci (in press).


Published Books, Chapters, Review Articles, Editorials


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**Published Books, Chapters, Review Articles, Editorials in Press**

Asano E, Akiyama T. What is the point of specifying Panayiotopoulos syndrome from a practical point of view? Brain Dev (in press).


Chugani HT, Asano E, Sood S. Infantile spasms: who are the ideal surgical candidates? Epilepsia (in press).


Luat AF, Chugani HT. Congenital perisylvian dysfunction - is it a spectrum? Dev Med Child Neurol (in press).


Published Abstracts


Abstracts in Press

