MESSAGE FROM THE CHAIR

This past year, 2010, was a year of challenge, accomplishments, change and trying to plan for impending changes for the Department of Neurology of Wayne State University School of Medicine and the Department of Neurology of the WSU Practice Group. At the Detroit Medical Center we continued to operate under extensions, sometimes as brief as 1-2 months, of a contract that was several years old. For reasons that may relate to the uncertainty of the effect of the purchase of the DMC by Vanguard Health might have on new contractual obligations, there was really no progress on contracts for programmatic maintenance and development for individual departments. The new clearly underfunded Graduate Medical Education contract for the departments to do the teaching for the GME programs, which are now solely sponsored by the DMC, began during 2010, and it is too soon to see what all of the effects might be. The neurology residents chosen in early 2011 match who begin their PGY1 in medicine in July 2011 and their PGY2 in neurology in July of 2012 will be the first class recruited and chosen under the new system. There is already concern about the unwillingness of the DMC to pay towards the costs of H1 visas on the residency and fellowship recruitment process in many of the non-procedural specialties and sub-specialties in medicine. How the gradual implementation of the new health care reform law, actually insurance care is a more realistic term, will affect teaching hospitals and medical school departments is also uncertain particularly as financially strapped states, Michigan among them, deal with plans to cut back on their contributions to Medicaid. Also uncertain are the potential effects of legal challenges to the law and some of the provisions of the law itself as well as the determination of some politicians to reverse the law, either in a sweeping fashion, or to chip away at it via the budgetary process. Despite these challenges the Department has continued to be a regional, national and international leader in research while also continuing to provide excellence in clinical care and in education of undergraduate medical students, neurology residents and fellows and through our research accomplishments and co-appointments of many of our faculty in basic science departments and the Center for Molecular Medicine and Genetics, and education for graduate students and post-doctoral fellows.

The very high level of research, both quality and levels of productivity, has continued to be a key element of departmental activities. Areas of research included multiple sclerosis and related disorders, neuromuscular diseases including inherited neuropathies, amyotrophic lateral sclerosis (ALS, Lou Gehrig’s disease), muscular dystrophies, inflammatory/immune-mediated neuropathies and myasthenia gravis, stroke/cerebrovascular diseases, epilepsy/seizure disorders, other neurogenetic disorders, neurocritical care, pain, movement disorders, neurodegenerative diseases including Alzheimer’s disease, brain tumors and traumatic brain injury. The research approaches encompassed basic science/wet bench, clinical research including therapeutic clinical trials, advanced metric neuroimaging and clinical neurophysiologic techniques, and translational research. Indeed many members of our department were engaged in translational research long before it became a “buzz word” in scientific and lay circles. Funding for studies has come from the National Institutes of Health, the Veterans Administration, the National Multiple Sclerosis Society, the Muscular Dystrophy Association, the Charcot Marie Tooth Foundation, as well as studies sponsored by pharmaceutical companies, some as part of multicenter clinical trials, but others as investigator initiated studies often employing experimental imaging and wet bench cell and molecular biological approaches. And of course our research programs are greatly enhanced by direct philanthropic contributions including the Parker Webber Chair in Neurology Endowment, the Mary Parker Neuroscience Fund, the Hiller ALS Center and the Goldye Nelson Endowment for research in Alzheimer’s and related diseases.
Our faculty members continue in leadership roles in scholarly societies and organizations, regional, national and international as well as on editorial boards and serving as ad hoc reviewers for leading journals. As part of our service members of the department serve on medical and scientific advisory committees as well as on boards of voluntary health agencies, grant review committees and study sections for the National Institutes of Health, the Department of Defense and many voluntary health organizations including the National Multiple Sclerosis Society, the Muscular Dystrophy Association, American Heart Association, American Stroke Association, the Charcot Marie Tooth Association and others. Dr Aashit Shah was elected as an active member of the American Neurological Association, the leading academic neurologic organization/scholarly society, in the United States. He was also promoted to Professor of Neurology and Director of the Adult Epilepsy Program. In addition members of our department continue to serve as visiting professors and speakers at institutions throughout the US and many other countries as well as invited speakers at national and international meetings.

In the area of clinical services the Department of Neurology and the Division of Pediatric Neurology continue to excel, as do faculty members who are primary in other departments with co-appointments in neurology. In 2010 the Neurology and Neurosurgery Program at Harper University Hospital was once again listed as one of the leading programs in the US in US News and World Report and was the highest rated program at the DMC. The recent listings for 2010 of Best Doctors in the US, America’s Top Doctors and Detroit HOUR Magazine included 20 members of WSU/PG department of Neurology, 2 members of the Pediatric Neurology Division of University Pediatricians and one member each of the Departments of Ophthalmology and Pathology of the WSU/PG. Thus the combined 23 physicians is the largest neurology group so honored in the tri-county area. In adult and pediatric neurology our programs in multiple sclerosis, neuromuscular diseases, stroke, neurocritical care, epilepsy, headache/pain, movement disorders and neurooncology were all represented. There is a special feature on our “Best Doctors” elsewhere in this report.

Within the WSU/PG our faculty assumed leadership positions with Dr Omar Khan appointed as Associate Chief Medical Officer for Hospital Relations and Dr Ramesh Madhavan appointed Associate Chief Medical Officer for Information Technology. I was elected to a two-year term on the Executive Committee of WSU/PG. In 2010 our Stroke Group, Neurocritical Care Group and the Neuroendovascular Intervention Group (Neurosurgery and Neurology) became the Stroke Group for the hospitals of the Michigan Stroke Network. Thus our physicians now provide 24/7 coverage for all of the adult hospitals of the DMC as well as many other hospitals throughout the entire State of Michigan. This is enabled by the use of Telemedicine for Stroke. Dr Madhavan serves as director of Telemedicine for Stroke and Dr Chaturvedi as the Medical Director of the Michigan Stroke Network.

Educational programs for undergraduate medical students as well as graduate medical education for neurology and pediatric neurology residents and post-residency fellows continue to be a major part of our efforts as does our participation in graduate and post-doctoral education and training. Our programs in neurology, pediatric neurology, clinical neurophysiology and stroke/vascular neurology, all ACGME programs, continue to be fully approved. We have fellows in neurocritical care and multiple sclerosis/neuroimmunology. In addition to clinical and didactic training our residents and fellows have been active in research and have presented at national meetings including the American Academy of Neurology, the American Neurological Association and the American Epilepsy Society as well as the Michigan Neurological Association. We have also been very active in local, regional, national and international continuing medical education (CME) courses.
Change is the rule rather than the exception in academic medicine. Indeed the attractiveness of members of a department like ours to departments at other institutions is a measure of the strength of our department. While we have been very successful over the years in retaining our outstanding faculty members, in 2010 several members left to join other institutions. Ken Maiese, MD, is now the Chair of Neurology and Neuroscience at the New Jersey College of Medicine/University of Medicine and Dentistry of New Jersey and James Garbern, MD, PhD, joined the Department of Neurology at the University of Rochester to pursue his interests in stem cell therapy for neurologic diseases. Gyula Acsadi, MD, PhD, was appointed Director of Child Neurology at the University of Connecticut School of Medicine and Agnes Jani-Acsadi, MD, joined the department of Neurology at that institution in the neuromuscular program. Fortunately we have been able to continue to attract new faculty members. During 2010 Maysaa Mehri Basha, MD, was appointed Assistant Professor of Neurology as a member of our epilepsy program as was Ruggero Serafini, MD, PhD. Robert Tomsak, MD, PhD, was recruited as Professor of Ophthalmology and Neurology, to head the neuroophthalmology program and Sokol Todi, PhD, joined as Assistant Professor of Pharmacology and Neurology.

We look forward to 2011 despite the challenges locally and nationally and will continue to emphasize excellence in research, teaching and clinical practice.

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
BEST DOCTORS IN AMERICA

Twenty-three 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 2010-2011, 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.

Joshua Adler, MD, PhD
Associate Professor

Geoffrey Barger, MD
Associate Professor

Seemant Chaturvedi, MD
Professor

William Coplin, MD
Associate Professor

Harry Chugani, MD
Professor

Maher Fakhouri, MD
Assistant Professor

Edwin George, MD, PhD
Assistant Professor

John Kamholz, MD, PhD
Professor

Omar Khan, MD
Professor

William Kupsky, MD
Professor

Richard A Lewis, MD
Professor

Robert P Lisak, MD
Professor
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.”

The editorial staff 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 Anders Sima, Professor of Pathology and Neurology. All members of the department serve as *ad hoc* reviewers for multiple manuscripts submitted throughout the year.

Dr Lisak completed his thirteenth year as Editor-in-chief in December 2010. During those thirteen years the journal showed enormous growth and improved impact throughout the medical world. The submission rate soared annually from 400 to 1325. The impact factor rose from 1.84 to 2.324 in 2009. The journal now ranks 78 of all 167 journals in the Thomson Reuters Clinical Neurology category and 139 of a total 230 in the Neurosciences category. These indicators are a reflection of the journal’s growing importance as an international journal covering all aspects of neurology. EES (online submission/review process) was implemented in May, 2006. Special issues and supplements, a regular feature of JNS, focus on the newest research and developments in a specific field.

The evolution of the journal is 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 the Arab Republic demonstrate the growing global impact on emerging markets.

The mission is to promote the visibility of the journal worldwide by encouraging high quality submissions and new authors. The editorial board meets annually to discuss the journal’s progress and to suggest innovations to achieve this mission. Dr Lisak also presents an annual report to the WFN Publications Committee.
DEPARTMENT HIGHLIGHTS

*U.S. News and World Report* ranked the Departments of Neurology and Neurosurgery programs at Harper University Hospital one of the best in the nation and the No. 2 in Michigan in the annual ranking of hospitals and hospital services.

**MULTIPLE SCLEROSIS PROGRAM**

2010 resulted in the completion of a highly successful decade of continued leadership for the Wayne State University Multiple Sclerosis Program in Michigan which 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 650 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, Dr. Kamholz with expertise in neurogenetics also provides care to MS patients. The MS Clinic coordinates comprehensive multi-disciplinary care for thousands of patients. In this regard, 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 subspecialty clinic of Harper University Hospital Neurology Clinic, to the patient community is access to cutting edge research and new treatments. In 2010, 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.
These treatments include natalizumab (Tysabri®), alemtuzumab (Campath®), and rituximab (Rituxan®) amongst a list of other options. Additional investigations are being planned for patients with progressive forms of MS. Another major thrust in 2010 and the near future is to develop new symptomatic therapies for MS patients to improve their quality of life. This includes therapies to help patients walk better, improve endurance, reduce spasms, and reduce fatigue.

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). Currently, the MRI program of the MS Center is conducting 4 different state of the art imaging studies to investigate brain tissue injury and repair in MS. One such study will combine MRI scans with molecular imaging using PET scans, a novel area of research in MS.

At the 2010 World Congress of Multiple Sclerosis, The Wayne State University MS Program presented over 20 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 2010, 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, and 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. Preliminary discussions are planned for June 2011 to design human experimental studies using embryonic stem cell therapy in multiple sclerosis. Wayne State University MS Program will lead the development of this program with Geron Corporation.
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 MS program has a large “wet bench” component with research carried out by Drs Paula Dore-Duffy (Director of Neuroimmunology), Joyce Benjamins, Robert Lisak, John Kamholz, James Garbern, Samia Ragheb, Fei Song, and Jeffrey Loeb as well as with colleagues in other departments including Drs Harley Tse (Immunology/Neurobiology, Associate in Neurology), Robert Skoff (Anatomy and Cell Biology, Associate in Neurology), and Alexander Gow (Center for Molecular Medicine and Genetics, Pediatrics and Neurology). Details are covered in other portions of the research report.

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, Lisak and Loeb). 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 is 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. Ongoing research projects are examining the role of growth factors and neurotrophic factors, which are important in remyelination, neuroprotection and neuroregeneration as well as the mechanisms of action of various disease modifying agents (Drs Benjamins, Lisak, Loeb, and Song). Dr Song and Dr Loeb have initiated research examining changes in a key neurotrophic factor, neuregulin, in brain and spinal cord in an animal model of MS with the goal of identifying a new treatment for MS. 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, to better understand key aspects of the brain inflammation in MS and identify new targets for therapies. Dr Benjamins has identified a strategy for protecting oligodendrocytes with pharmacologic agents acting on an amino acid receptor in the cells, and has found protective effects of one of these agents in an animal model of MS. Drs Garner, Gow and Kamholz investigate animal and cellular models of Pelizaeus Merzbacher disease (PMD), a neurogenetic human disease with mutations in the gene for myelin proteolipid protein; the disease affects the same cells that are damaged in MS. Dr Gow has reported a new “gene shift” method for examining mechanisms regulating the responses of oligodendrocytes and other cells to injury. Dr Kamholz has initiated a new research direction, to examine the role of mitochondria, the energy producers in the cell, in mediating damage and recovery in MS and other neurodegenerative diseases.

A number of investigators are participating in the MS Collaborative Research Center for Translational Research with Dr Dore-Duffy as Director. The center, funded by the National Multiple Sclerosis Society for five years, fosters interactions between investigators involved in
clinical and basic research related to MS and promotes 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 12 currently 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.

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, the National Multiple Sclerosis Society and the Department of Defense. 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. Dr Tselis is a member 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 of JNS. Dr Lisak is Chair of the Multiple Sclerosis Section of the American Academy of Neurology. He also serves on the editorial boards of Clinical Neuropharmacology, Journal of Experimental and Clinical Neuroimmunology, and Immunologic Research. Dr Dore-Duffy serves on the editorial boards of Clinical Neuropharmacology, Journal of Microvascular Research, and Immunologic Research. Dr Dore-Duffy also serves on the editorial boards of Clinical Neuropharmacology, Journal of Microvascular Research, and the Open Circulation and Vascular Journal. Dr Benjamins serves on the editorial boards of the Journal of Neuroscience Research and the International Journal of Developmental Neuroscience. Dr Loeb is a member of a grant review committee 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. Drs Dore-Duffy, Kamholz, Khan, 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 dysregualtion 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. Last summer with the help of a medical student, Mehvish Mehrani, she used pericytes as stem cells. Pericytes were injected IV and ameliorated EAE and age related vascular changes. Mavesh was awarded a summer study grant from the Consortium of Multiple Sclerosis Centers and their work was presented at the MS Consortium meeting by Dr Vladimir Katyshev, a member of the Dore-Duffy lab.

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. Drs Kreipke, Rafols and Dore-Duffy prepared a special invited volume of Neurological Research due out in the next month.

A new area of research has begun in the lab that includes the isolation of fat pericytes and their involvement in stem cell activity.

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 Garber, 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.

**Hiller ALS Clinic and Research Center**

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, Sindhu Ramchandren 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.

**Wayne State University Inherited Neuropathy (also known as Charcot-Marie-Tooth Disease) Clinic**

The Wayne State University Inherited Neuropathy 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.
**Muscular Dystrophy Clinic**

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. Drs Kamholz and Ramchandran and the Genetic Counselors, Shawna Feely, Carly Siskind and Lindsey Miller are also key members of the clinic. 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.

**Inflammatory Neuropathy Center of Excellence**

Our group is also a leading center for the investigation and treatment of immune mediated neuropathies. The clinic is one of 6 international groups that have been designated **Centers of Excellence in the Diagnosis and Treatment of Inflammatory Neuropathies** by the GBS-CIDP Foundation International. Dr. Lewis is director and the Center includes Drs Agnes Acsadi, Gyula Acsadi, Lisak and Ramchandren. The group is also 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.

**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. All Detroit Medical Center adult acute care hospitals have 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. A recent publication focused on identifying factors associated with misdiagnosis of stroke in young adults. 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 served on an American Stroke Association writing committee that published new guidelines in 2010 on prevention of first stroke. He 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. Initial results have been presented at a scientific conference in 2010. Dr Rajamani is also leading a study investigating MRI imaging of carotid stenosis.

Kumar Rajamani, MD is the WSU site principal investigator for an NIH sponsored SmartRisk trial looking at MRI features of asymptomatic carotid plaques based on which one could determine which patients are at high risk for stroke due to carotid stenosis. Traditional thrombolytic therapy with tPA is approved for use within 3 hours. However, many stroke patients present after this window of treatment is lost. Dr Rajamani is site PI for the study (DIAS 4) investigating a newer thrombolytic medication-desmoteplase in acute stroke patients which is being administered at 3-9 hours after the stroke potentially widening the therapeutic window. Dr Rajamani is currently the Vascular Neurology Fellowship Program director and also serves on the Executive Committee of the Michigan Neurological Association.

Ramesh Madhavan, MD DM is the Director of Telemedicine of the Wayne State University Physician Group and the Michigan Stroke Network. He is leading the effort for the incorporation of telemedicine, which has developed nationally and internationally as a reliable means of treating acute stroke patients. The WSU Physician Group provides services to the Michigan Stroke Network, an initiative of the Trinity Health and St Joseph Mercy Oakland Hospital and the Vanguard DMC hospitals. The network is one of the largest stroke networks in the country that use the hub and spoke model for providing comprehensive stroke care. 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 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 and currently provides care to about 35 hospitals in the state of Michigan. 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 using telemedicine as a bridge. The patient is examined by one of the six 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 and interventional treatments in the network hospitals during the past year. Over the past 4 years, the project has been found to be effective and improved stroke care and outcomes in all 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 participating in studies examining new treatments for cognitive impairment. She also co-chairs the Michigan Stroke Initiative.

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 Xavier is the interventional lead investigator for the SAMMPRIS study.

Dr Sandra Narayanan is also an interventional neurologist in our program. Her major areas of interest are aneurysm treatment and acute stroke intervention. She was the lead author on a recent research presentation focusing on improving the “door to needle time” in patients with acute stroke seen at the Detroit Medical Center.

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. Dr Coplin oversees the training of fellow Benjamin Atkinson, MD in the Neurotrauma/Critical Care unit.

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 individuals 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 specialists including dedicated neurologists/epileptologists, neurosurgeons, neuropsychologists, 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, the highest category, by the National Association of Epilepsy Centers.

The adult epilepsy program is lead by Director Aashit Shah, MD and supported by five other epileptologists: Jeffery Loeb, MD, PhD, Marie Atkinson, MD, Maysaa Basha, MD, Ruggero Serafini, MD, PhD as well as founding director Craig Watson, MD, PhD. SandeeP Mittal, MD an epilepsy and neuro-oncology fellowship-trained neurosurgeon directs the adult epilepsy surgery 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 of 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 Atkinson, Chugani, Loeb, Mittal, Shah, Sood, and Watson were named to The Best Doctors in America for 2010-2011, a national listing of physicians who represent the top five percent of doctors in more than 400 specialities and 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 tracers, functional MRI (fMRI), MR spectroscopy (MRS), and other cutting-edge MR
imaging modalities utilizing the 3-Tesla unit at WSU, intraoperative EEG monitoring, and neuropsychological evaluation including intracarotid amytal (Wada) testing, is available to establish seizure classification, to assess response to medical therapy, and to evaluate patients for epilepsy surgery.

Research and clinical interests of **Aashit Shah, MD** include epilepsy surgery, the quantitative analysis of EEG (qEEG) 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 also the Director of the Clinical Neurophysiology Fellowship Program and the Director of the EEG/Evoked Potentials Laboratory. Research and clinical interests of **Dr Marie Atkinson** include the surgical management of patients with medically intractable epilepsy, post traumatic epilepsy after traumatic brain injury, and the management and outcomes of status epilepticus. **Dr Mittal**'s clinical work involves the surgical treatment of patients with brain tumors and intractable epilepsy. He has also established a translational research laboratory at the Karmanos Cancer Institute. His lab focuses on two main research programs involved in brain tumor neurobiology and epileptogenesis. He aims to determine the mechanisms involved in excessive neuronal activity in the peritumoral human cortex leading to refractory seizures. In collaboration with Drs Shah and Loeb, Dr Mittal examines human brain tissue that is carefully mapped during brain tumor/epilepsy surgery in order to determine what makes focal regions of human brain epileptic. He is also actively looking into the molecular mechanisms and biochemical profile of epileptogenic brain tumors such as infiltrating gliomas and meningiomas.

With continued growth of clinical and research endeavors, the Comprehensive Epilepsy Program has recruited two additional epileptologists. **Dr Maysaa Basha** is a Detroiter who recently completed her medical school and neurology residency training at Wayne State University and obtained her training in Clinical Neurophysiology–Epilepsy at Case Western Reserve University and University Hospitals in Cleveland, Ohio. Dr Basha’s primary clinical and research interests include the treatment of medically intractable epilepsy, EEG analysis, seizure semiology, and the role of neuroimaging in Epilepsy. The other recruit is **Dr Ruggero Serafini, MD, PhD**. Dr Serafini is a graduate of Catholic University Medical School in Rome, Italy and obtained his PhD from Mario Negri Institute in Milan. His basic science research interests include neuronal cellular physiology, and he has worked extensively in the area both at Washington University in St Louis and Neurophysiology Laboratory of NIH-NINDS. He completed his residency training at the University of Toledo and Clinical Neurophysiology-Epilepsy fellowship at Henry Ford Hospital. His clinical interest includes difficult to treat epilepsy with specific focus on magnetoencephalography (MEG). He is establishing a cellular physiology laboratory at WSU to decipher basic neuronal physiology of epilepsy.

**Craig Watson, MD, PhD** is the founding Director of the WSU/DMC Comprehensive Epilepsy Program and stepped down from that position in July 2010. He 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 MRI-based hippocampal volume measurement. Dr Watson was recently chosen as an Opinion Leader and Advisor for the project entitled “Development of a Harmonized Protocol for Hippocampal Segmentation: An International EADC-ADNI Joint Project.” This is an international, multicenter joint project of the European Alzheimer Disease Consortium (EADC).
and the Alzheimer Disease Neuroimaging Initiative (ADNI) to develop a single “harmonized” protocol for the MRI-based manual segmentation of the hippocampus to enhance this “gold standard procedure” for use as a diagnostic biomarker and outcome measure in Alzheimer’s disease research and treatment. The 12 most commonly used MRI-based hippocampal volume measurement protocols were selected to participate in this harmonization process. Dr. Watson’s protocol was chosen because: “This protocol is particularly detailed, among the most cited in the general literature (443 citations), and the 4th most cited in the Alzheimer’s disease literature (70 citations).” 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 by Dr Watson. In addition, Dr Watson has research, clinical, and educational interests in neuroanatomical correlates of neurological disorders, and the sixth edition of his textbook, *Basic Human Neuroanatomy: A Clinically Oriented Atlas*, is in press and scheduled to be published in 2011. Dr Watson is a member of the professional advisory committee of the Epilepsy Foundation of Michigan, a Fellow of the American Academy of Neurology, and an elected member of the American Neurological Association.

**Darren Fuerst, PhD** is the neuropsychologist for the adult epilepsy program and is also involved with several other programs. His clinical and research interests include various neuropsychological aspects of medically refractory epilepsy, epilepsy surgery, Wada testing, functional MRI, 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. The program utilizes several advanced neuroimaging technologies including high-resolution, high-field (3T) MRI scanner for structural imaging; functional MRI to non-invasively localize eloquent cortex for motor, language, and visual functions; and diffusion tensor imaging (DTI) with fiber tractography to help in the planning of epilepsy surgery. The functional imaging capabilities are enhanced by our world class positron imaging laboratory at Children’s Hospital of Michigan. The PET-CT obtains metabolic imaging of brain with $[{\text{F-18}}]$deoxyglucose probe, while research PET scanner utilizes several ligands such as $[{\text{C-11}}]$flumazenil, $[{\text{C-11}}]$alpha-methyl-tryptophan, $[{\text{C-11}}]$PK11195 to understand various aspects of epilepsy and related disorders. The Comprehensive Epilepsy Program offers participation in investigational, multicenter trials of new antiepileptic medications is available for patients with difficult to control epilepsy. Our program is currently involved in many 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 novel 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 is the Associate Director for the Center for Molecular Medicine and Genetics and the Director of Basic and Translational Research Programs in the 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.

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 System Biology of Epilepsy Project or SBEP (see http://www.sbep.wayne.edu/). This database relates each patient’s clinical aspects to gene expression, gene location by in 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.

Dr. Loeb also has a number of research projects related to the growth factor neuregulin stemming from his postdoctoral research with Gerald Fischbach, M.D. at Harvard University. This work is funded by a third NIH R01 grant, the National Multiple Sclerosis Society, and generous philanthropic support through the Hiller ALS Clinic and Research Center (http://neurology.med.wayne.edu/hals/index.php). As part of this work, Dr. Loeb is developing novel therapeutics from diseases ranging from ALS, MS, pain, and cancer and has received world-wide patents for this novel approach to therapeutics.

Drs Craig Watson, Jeffrey Loeb and Aashit Shah 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 is now performing 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. Dr Benson also is involved in research on traumatic brain injury.

**NEUROGENETICS PROGRAM**

The Neurogenetics Clinic in the Department of Neurology is directed by John Kamholz MD, PhD. The Neurogenetics Clinic specializes in treating patients and families who have inherited neurological disorders. Some of the diseases treated include Huntington disease, spinocerebellar ataxias, Freidreich ataxia, neurofibromatosis 1, leukodystrophies (inherited diseases of brain white matter) such as adrenoleukodystrophy, lysosomal storage diseases, tuberous sclerosis, and myotonic dystrophy. Three full-time genetic counselors Carly Siskind, Shawna Feely and Lindsey Miller are also associated with the clinic and provide guidance for patients having genetic testing and assist them in interpreting genetic testing results. They also provide comprehensive genetic counseling for both patients and their family members to better understand their disease and its implications. Comprehensive, dedicated outpatient clinics for patients with Charcot-Marie-Tooth disease, an inherited peripheral neuropathy, as well as patients with Muscular Dystrophy have also been established within the Department of Neurology and interact and cooperate with our Neurogenetics program. International consortia with the Department of Neurology at WSU SOM as the home institution have been established to study patients with Pelizaeus-Merzbacher disease (PMD) and Charcot-Marie-Tooth disease.

As part of our focus on delivering comprehensive genetic services, we provide genetic testing for asymptomatic individuals at-risk for adult onset inherited disorders such as Huntington disease and the spinocerebellar ataxias. This testing process includes extensive genetic counseling to help both the patient and family make an informed decision about genetic testing and also to prepare them to cope with the results of the testing and its implication. In addition, we work closely with the Reproductive Genetics program at Hutzel Women’s hospital and can facilitate referrals for those interested in reproductive testing options.

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 this replacement therapy is available.

In the last year we have established a separate clinic to identify and treat patients with abnormalities of mitochondria, the energy generating portion of the cell. Mitochondria have their own DNA, so mutations in this genome can cause specific diseases, such as Leber’s Hereditary optic neuropathy and Kearne-Sayre Syndrome. Interestingly, mitochondrial abnormalities have also been implicated in more common diseases such as diabetes, Parkinson disease, multiple sclerosis, and stroke. Our clinic, currently a part of the Muscular Dystrophy Association (MDA) Clinic within the Department of Neurology, is dedicated to the diagnosis, treatment and basic scientific understanding of diseases of mitochondria and mitochondrial metabolism. The mitochondrial clinic is staffed by Dr John Kamholz and Ms Carin Yates, Co-Director of the Genetic Counseling Program at WSU SOM, and is supported by a number of other individuals from various departments within our school of medicine and the MDA (see our web site at http://www.dmc.org/mitomed). This clinic also has a strong research component headed by Dr Lawrence Grossman, Director of the Center for Molecular Medicine and Genetics, an internationally known scientist with a long-term interest in the molecular biology and evolution of mitochondria.
The Neurogenetics clinic is also able to assist in the identification of the genetic basis for disorders for which the cause is not currently known. Our staff members network with other neurogenetics researchers around the world to assist in research studies, and present unusual cases at national genetics and neurology meetings. In this way we hope to find the genetic cause of diseases that are not currently well understood or have been previously unknown.

**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. Moreover, blocking the action of these factors restores normal responsiveness to sensitive limb. 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.
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 2010 are listed here.

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

Eishi Asano served as an editorial board member for both Clinical Neurophysiology and Brain and Development.

Marie Atkinson was listed in Best Doctors in America and Best Doctors in Michigan.

Geoffrey Barger was listed in Best Doctors in America, Best Doctors for Cancer in America and Best Doctors in Michigan. 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 and Best Doctors in Michigan. He served as president of the Michigan Neurological Association. He was appointed the Medical Director of Michigan Stroke Network. He also 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. He was reappointed to the editorial board of Stroke for a one-year term and is a member of the editorial board of Neurology.

Harry Chugani was listed in Best Doctors in America and Best Doctors in Michigan. He was elected President of the International Child Neurology Association for a four-year term and was an invited member of the Dana Foundation as well as a member of the Professional Advisory Committee of the Epilepsy Foundation of Michigan. 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 and Best Doctors in Michigan. 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 serves on the editorial board of the Journal of Neurocritical Care.

Paula Dore-Duffy continued to serve as Deputy Editor for the Journal of the Neurological Sciences. She also served on the editorial boards of Journal of Microvascular Research, Clinical Neuropharmacology, and the Open Circulation and Vascular Journal. She is a new member of the American Heart Association Review Committee.

M. Maher Fakhouri was listed in Best Doctors in America and Best Doctors in Michigan. He also received the 2010 Successful Recruitment Award for the highest number of total matches of US medical schools for students matching in Neurology.
Darren Fuerst continued to serve on the editorial board for Child Neuropsychology.

Edwin George was listed in Best Doctors in America and Best Doctors in Michigan. He also received the 2010 Successful Recruitment Award for the highest number of total matches of US medical schools for students matching in Neurology. He was elected chair of the Board of Directors, Michigan Parkinson’s Disease Foundation in 2010.

Alexander Gow was promoted to Professor in the Center for Molecular Medicine and Genetics, Pediatrics, and Neurology. He continued to serve as a member of the editorial board for Journal of Neuroscience Research.

John Kamholz was listed in Best Doctors in America and Best Doctors in Michigan. He was appointed to the editorial board of MS Pathophysiology, the Scientific Advisory Committee of PMD Foundation, and the grant review committee of the United Mitochondrial Disease Foundation.

Sheldon Kapen chaired the Sleep and Cognition Session at the annual meeting of the Associated Professional Sleep Societies (APSS). He also served as Councilor, Executive Committee, Sleep Section for the American Academy of Neurology.

Omar Khan was listed in Best Doctors in America, Best Doctors in Michigan, and Who’s Who in Medicine and Healthcare. He received the 2010 Faculty Teaching Award for “Best Teacher” and the Neurology Residents’ Choice Award. He is a member of the Clinical Advisory Committee, National Multiple Sclerosis Society Michigan Chapter; founding member, African-American Initiative in Multiple Sclerosis (AIMS); Chairman, Scientific Session, Multiple Sclerosis Section, AAN; member Medical Advisory Board, National Multiple Sclerosis Society; member, National Task Force for Guidelines on MR Imaging in Multiple Sclerosis. He also served as the Associate Chief Medical Officer, Hospital Affiliations and Business Units, Wayne State University Physicians Group.

Ajay Kumar received the “Young Investigators Travel Award” from NIH and the “Molecular Imaging Travel Award” from the Radiological Society of North America.

William Kupsky was listed in Best Doctors in America and Best Doctors in Michigan. He also received the 2010 Successful Recruitment Award for the highest number of total matches of US medical schools for students matching in Neurology.

Richard Lewis, Associate Chair of Neurology, was listed in Best Doctors in America and Best Doctors in Michigan. He continued to serve as the Deputy Editor of the Journal of the Neurological Sciences and on the editorial boards of the Journal of Clinical Neuromuscular Disorders and the Journal of Neuropathic Pain. He served as Chair, Special Interest Group Motor Unit Physiology, AANEM and the course chair, Dysimmune Neuropathies, AANEM. He also served as an elected member, Board of Directors, Peripheral Nerve Society.

Leonard Lipovich served as an ad-hoc reviewer, Cancer Research UK, Biological Sciences Committee. He was invited to chair the open session on Non-Coding RNAs at the 2010 Rustbelt RNA meeting, Cleveland, Ohio.

Robert Lisak, Parker Webber Chair in Neurology and Chair of Neurology, was listed in Best Doctors in America, Top Physicianss of America, and Best Doctors in Michigan. He continued to serve as Editor-in-Chief of The Journal of the Neurological Sciences and on the editorial boards.
His national and international service included the National Multiple Sclerosis Society: Executive Committee of the National Clinical Advisory Board; Member, NINDS Multiple Sclerosis Common Data Evaluation Work Group; Chair, Oversight Committee for the Regional Pediatric MS Centers of Excellence; Board and Executive Committee of the Board of Governors of the Michigan Chapter of the National Multiple Sclerosis Society; Professional Advisory Committee of the Michigan Chapter of the National Multiple Sclerosis Society; Chair, Section on Multiple Sclerosis, American Academy of Neurology; Consortium of Multiple Sclerosis Centers: Board of Governors; Chair, Research Committee; Myasthenia Gravis Foundation of America: Medical/Scientific Advisory Committee; Guillain-Barre Syndrome/CIDP Foundation, International: Medical Advisory Board; World Federation of Neurology: Publications and Website Committee.

Jeffrey Loeb was listed in Best Doctors in America and Best Doctors in Michigan. He is the Associate Director, Center for Molecular Medicine and Genetics and Director of Research, Hiller ALS Clinic and Research Center, Wayne State University. He was elected to the Epilepsy Foundation’s Professional Advisory Board. He continued to serve as the Director, CMMG Commercialization Center and on the Epilepsy Task Force, Epilepsy Foundation of Michigan; and the American Epilepsy Society, Scientific Program Committee.

Ramesh Madhavan was listed in Best Doctors in America and Best Doctors in Michigan. He continued to serve as the Director, Telemedicine, Michigan Stroke Network, Saint Joseph Mercy Oakland Hospital Pontiac and the Associate Chief Medical Officer, WSU Practice Group. He was selected Ambassador of the American Academy of Neurology-Evidence based training program in India.

Sandra Narayanan was the moderator of the Michigan State Medical Society symposium “Updates in Ischemic and Hemorrhagic Cerebrovascular Disease.” She was a member, Society of Neurointerventional Surgery (SNIS) Standards and Guidelines Committee and served on the editorial boards of Journal of Stroke and Cerebrovascular Disease and Frontiers in Endovascular and Interventional Neurology.

Kumar Rajamani was listed in Best Doctors in America, Best Doctors in Michigan, and Marquis Who’s Who in America. He served as the treasurer, Michigan Neurological Association.

Sunitha Santhakumar was listed in Best Doctors in America, Best Doctors in Michigan and America’s Top Physicians. She serves as the co-chair, Michigan Stroke Initiative (MSI).

James Selwa was appointed Member of the Practice Management and Technology subcommittee of the Medical Economics and Management Committee of the American Academy of Neurology. He also served as Member of the Lab accreditation committee for the American Association of Neuromuscular and Electrodiagnostic Medicine

Aashit Shah was listed in Best Doctors in America, Best Doctors in Michigan, Who’s Who in America, Who’s Who in the World, Who’s Who in Medicine and Health Care, and Who’s Who in America Science and Engineering. He serves as Director, WSU/Detroit Medical Center Comprehensive Epilepsy Program and was promoted to Professor of Neurology. He was elected as a member of the American Neurological Association.

Michael Shy was listed in Best Doctors in America, Best Doctors in Michigan, and Top Docs in America. He served as Associate Editor (Genetics) Journal of Peripheral Nervous System; Chair,
Scientific Advisory Board, Charcot Marie Tooth Association; Member of Medical Advisory Committee of Muscular Dystrophy Association; on the Medical Advisory Board, Neuropathy Association; on the Scientific Advisory Board, MRC Centre for Neuromuscular Disease, University College, London, England; as Chair, CMT-TREAT NMD Global Registry Organizing Committee: XII International Congress on Neuromuscular Disease, Naples Italy; and as Chief Organizer for 4th International CMT Consortium.

Anders A F Sima received the Alfred Nobel Forum Lecturer, Karolinska Institute, Stockholm, Sweden, 2010. He 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, Associate Editor, Journal of Clinical Neurosciences, Co-Editor, Journal of Neuropathic Pain, Editor-in-Chief, Review of Diabetic Studies.

Lalitha Sivaswamy was listed in Best Doctors in America and Best Doctors in Michigan.

Robert Tomsak was listed in Best Doctors in America and Best Doctors in Michigan.

Alexandros Tselis is the Director of Continuing Medical Education, Neurology. He was listed in Best Doctors in America and Best Doctors in Michigan. He continued to serve as Associate Editor and Book Review Editor for the Journal of the Neurological Sciences and as a Contributing Editor for the Bulletin of the World Federation of Neurology. He also served as a member of the Neurology Subcommittee, AIDS Clinical Trials Group, NIH/NIAID and Special Review Committee for MS grant reviews for the Department of Defense.

Craig Watson was listed in Best Doctors in America, Best Doctors in Michigan, and Guide to America’s Top Physicians. He was named Opinion Leader/Advisor “Development of a Harmonized Protocol for Hippocampal Segmentation: An International EADC-ADNI Joint Project.” This is an international, multicenter joint project of the European Alzheimer Disease Consortium (EADC) and the Alzheimer Disease Neuroimaging Initiative (ADNI).
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.

The department sponsored its annual Wayne State University Charcot-Marie-Tooth Charity Golf Tournament on June 2 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. Fund raising from voluntary health foundations and societies is lagging because of the economy. As part of the economic recovery acts there has been an increase in NIH funding; however, the proposed increases barely suffice to keep up with inflation.

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 2010, not cumulative contributions from prior years.

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Funded Research

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.

The department is nationally recognized for its biomedical research. Sources of funding include the federal government (National Institutes of Health, National Science Foundation, and Veterans Administration), voluntary health organizations and foundations, including the National Multiple Sclerosis Society, Muscular Dystrophy Society, American Heart Association, Charcot-Marie-Tooth Foundation, Blue Cross/Blue Shield of Michigan, as well as pharmaceutical corporations.

New external funding beginning in 2010 includes the following grants and contracts for both clinical and basic research.


“Effect of rasagiline (Azilect®) on Tissue Injury in Patients with Parkinson’s Disease: An Exploratory non-conventional multi-modal MRI study.” Sponsor: Teva Neuroscience. Omar Khan, PI, Edwin George, co-PI.

“A Multicenter, Randomized, Rater-Blind, Parallel-Group, Active-Controlled Study to Evaluate the Benefits of Switching Therapy (Glatiramer Acetate or Interferon β-1a) to Natalizumab in Subjects with Relapsing-Remitting Multiple Sclerosis (Surpass Study).” Sponsor: Biogen Idec. Omar Khan, PI, Robert Lisak and Alexandros Tselis, co-PIs.

“Glatiramer Acetate Low-Frequency Administration (GALA) study. A phase III randomized, double-blind, placebo-controlled trial comparing the efficacy and safety of glatiramer acetate 40 mg subcutaneously three times a week compared to placebo in relapsing-remitting multiple sclerosis.” Sponsor: Teva Pharmaceuticals. Omar Khan, PI, Robert Lisak, Alexandros Tselis co-PIs.
“A Phase 3 Extension Study of Intravenous Low- and High-Dose Alemtuzumab to Three Times Weekly Subcutaneous Interferon Beta-1a (Rebif) in Patients with Relapsing-Remitting Multiple Sclerosis Who Have Completed Core Phase III (MS CARE I and II) and CAMMS 223 studies.” Sponsor: Genzyme. Omar Khan, PI, Robert Lisak and Alexandros Tselis co-PIs.

“Extension study to evaluate the efficacy and safety of teriflunomide (HMR1726D) in reducing the frequency of relapses and delaying the accumulation of physical disability in subjects with multiple sclerosis with relapses.” Sponsor: Sanofi-Aventis. Omar Khan, PI, Robert Lisak and Alexandros Tselis, co-PIs.

“An Exploratory, Non-Conventional, Advanced MRI Study to Examine the Neuroprotective Effect of Azilect® Added to Copaxone® in patients with RRMS. Sponsor: Teva Pharmaceuticals, Ltd. Alexandros Tselis, PI, Omar Khan, co-PI.

“A 6-month, Randomized, Active Comparator, Open-label, Multi-Center Study to Evaluate Patient Out Comes, Safety and Tolerability of Fingolimod (FTY720) 0.5 mg/day in Patients with Relapsing Forms of Multiple Sclerosis who are candidates for MS therapy change from Previous Disease Modifying Therapy (EPOC).” Sponsor: Novartis Pharmaceuticals. Omar Khan, PI and Alexandros Tselis, co-PI.

“A multicenter, randomized, controlled trial of intravenous ocrelizumab compared to interferon beta-1a subcutaneously in patients with relapsing-remitting multiple sclerosis.” Sponsor: Roche. Omar Khan, PI.

“Regulation of Hepatic Steatosis by an ER Stress-Inducible Transcription Factor, CREBH.” Sponsor: National Institutes of Health. Kezhong Zhang, PI, Leonard Lipovich, co-PI.

“Therapeutic Value or Harm of Neuregulin 1 in Demyelinating Disorders.” Sponsor: U.S. Department of Defense Multiple Sclerosis Concept Award. Jeffrey Loeb, Fei Song, PIs.

“Soluble Neuregulins in Neuromuscular and Peripheral Nerve Development.” Sponsor: NIH/NINDS. Jeffrey Loeb. PI.

“Quantitative assessment of oxidative metabolism in brown fat.” Sponsor: NIH/NIDDK. Otto Muzik, PI.

“Multimodal In-Vivo Non-conventional Brain MRI investigation into Myelin Tissue Injury in Patients with Alzheimer’s Disease.” Sponsor: Goldye Nelson Endowment Wayne State University. Sunitha Santakumar, PI, Omar Khan, co-PI.

“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 in Patients with Severe Dementia of the Alzheimer’s Type (ACTION).” Sponsor: Novartis. Sunitha Santhakumar, PI, Joshua Adler, Randall Benson, and Darren Fuerst, co-PIs.


In addition there are many ongoing grants and clinical trials underway. The funding for these began prior to 2010.
As part of its on-going educational and research programs the department sponsored the following series of lectures from recognized leaders in their fields.


“ALS Focality: Finding Motor Neuron Degeneration in a House of Mirrors.” John Ravits MD, FAAN, Director of Neurophysiology Laboratory, Department of Neurology, Virginia Mason Medical Center, Seattle, WA. January 8, 2010.

“Mitochondrial Disease – Diagnosis and Treatment in Children and Adults.” Mark Tarnopolsky, MD, PhD, FRCP, Professor of Pediatrics and Medicine, Director of Neuromuscular and Neurometabolic Clinic, McMaster University Medical Center, Hamilton, Ontario, Canada. January 15, 2010.

“Encephalitis Lethargica.” Joseph Berger, MD, Department of Neurology, University of Kentucky College of Medicine, Kentucky. January 22, 2010.

“Pediatric Eye Movement Disorders.” Agnes Wong, MD, PhD, FRCSC, Associate Professor of Ophthalmology & Vision Sciences, Neurology, and Otolaryngology – Head & Neck Surgery, the Hospital for Sick Children and University of Toronto, Toronto, Ontario, Canada. February 19, 2010.

“An Epidemiologic View of the Etiology of Multiple Sclerosis.” John F. Kurtzke, MD FACP, FAAN, Rear Admiral, United States Navy (Retired), Distinguished Professor of Neurology, Uniformed Services University Professor Emeritus, Georgetown University School of Medicine, Washington, DC. March 12, 2010.

“Brain Connectivity in Autism Spectrum Disorders.” Ralph-Axel Müller, PhD, Brain Development Imaging Laboratory, Department of Psychology, San Diego State University, Department of Cognitive Science, University of California San Diego, San Diego, CA. March 19, 2010.

“Our Experiences on Critical Illness Myoneuropathies at CMC Vellore.” Matthew Alexander, MBBS, MD, DM, Professor of Neurology, Department of Neurological Sciences, Christian Medical College and Hospital, Vellore, India. April 30, 2010.


"Regulatory T Cells in the Control of Autoimmunity: Application to Myastheni Gravis." Matthew N. Meriggioli, MD, Director, Division of Neuromuscular Disease, Department of Neurology and Rehabilitation, University of Illinois Medical Center, Chicago, IL. May 7, 2010.

“Current and Future Treatment Strategies for Autoimmune Myasthenia Gravis.” Matthew N. Meriggioli, MD, Director, Division of Neuromuscular Disease, Department of Neurology and Rehabilitation, University of Illinois Medical Center, Chicago, IL. May 8, 2010.
“Introduction to Legal Neurology.” Marc Fisher, MD, Professor of Neurology, Anatomy & Neurobiology, Political Science and Pathology & Laboratory Medicine, University California Irvine, College of Medicine, Orange, CA. May 14, 2010.

Diverse Mechanisms of Microcephaly: Insights from Human Genetic Research.” Ganeswaran Mochida, MD, MMSc, Staff Scientist, Division of Genetics, Children’s Hospital Boston, Instructor in Neurology, Harvard Medical School, Boston, MA. June 18, 2010.

“Intracerebral Hemorrhage Guidelines: Were We Correct?” Lewis Morgenstern, MD, Professor of Neurology, Neurosurgery, Emergency Medicine and Epidemiology, Director of the Stroke Program, University of Michigan Medical School and School of Public Health, Ann Arbor, MI. September 10, 2010.

“Environmental Determinant of MS Risk.” Albert Ascherio, MD, Professor of Epidemiology and Nutrition. Harvard School of Public Health, Professor of Medicine, Harvard Medical School Boston, MA. November 19, 2010.

“Recent Advances in the Pathology of MS.” Bruce Trapp, PhD, Professor and Chair, Department of Neurosciences, Lerner Research Institute, the Cleveland Clinic Foundation, Cleveland, OH. November 20, 2010.

“Recent Advances in the Immunology of MS.” Howard Weiner, MD, Robert L Kroc Professor of Neurology, Co-Director, MS Program & Center for Neurologic Diseases, Brigham & Woman’s Hospital, Harvard Medical School, Boston, MA. November 20, 2010.

“Imaging Iron and Ultra-High Field MRI: Applications in MS.” Ravi Menon, PhD, Canada Research Chair, Professor of Medical Biophysics, Diagnostic Radiology & Nuclear Medicine, Deputy Director, Robarts Research Institute, The University of Western Ontario, London, Canada. November 20, 2010.

“Emerging Therapies: Efficacy & Safety.” Fred Lublin, MD, Saunders Family Professor of Neurology, Director, Corinne Goldsmith Dickinson MS Center, Mount Sinai School of Medicine, New York, NY, Chairman, Research Program Advisory Committee, National MS Society. November 20, 2010.

“Coiling of Small Intracranial Aneurysms.” Osama Zaidat, MD, MS, Professor of Neurology, Neurosurgery, and Radiology, Medical College of Wisconsin, Milwaukee. WI. December 3, 2010.

“Congenital Myopathies: From Man to Fish and (Hopefully) Back.” James Dowling, MD, PhD, Assistant Professor of Neurology and Pediatrics and Communicable Diseases, Division of Pediatric Neurology, Director, Pediatric Neuromuscular Clinic, University of Michigan Children’s Hospital, Ann Arbor, MI. December 17, 2010.
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. 31 faculty members delivered 120 lectures in 19 countries. Some of these are listed below.


“Diagnosis and Treatment of Epilepsy.” Maysaa Basha, Epilepsy Foundation of Michigan Wellness and Epilepsy Regional Conference, Novi, MI. November 13, 2010.


“Therapies that Reduce Stroke Risk.” Seemant Chaturvedi, Munson Medical Center Medical Staff Conference. Traverse City, MI. October 29, 2010.


“Advanced Neuroimaging in Pediatric Neurological Disorders.” **Harry Chugani**, Bertha T. Johnson Lectureship: Nationwide Children’s Hospital, Ohio State University, Columbus, OH. October 6, 2010.

“Surgical Treatment of Epilepsy in children.” **Harry Chugani**, Bertha T. Johnson Lectureship: Nationwide Children’s Hospital, Ohio State University, Columbus, OH. October 7, 2010.


“Neuroimaging in Paediatric Neurological Disorders.” **Harry Chugani**, Paediatric Neurology Association of Hong Kong, Annual Scientific Meeting, Queen Elizabeth Hospital, Hong Kong. November 12, 2010.

“Surgery for Refractory Epilepsy.” **Harry Chugani**, Paediatric Neurology Association of Hong Kong, Annual Scientific Meeting, Queen Elizabeth Hospital, Hong Kong. November 12, 2010.


“CNS Pericytes are source of adult stem cells; Signaling at the blood-brain and blood tumor barriers.” **Paula Dore-Duffy**, 13th International Blood-Brain Barrier Symposium, Zurich, Switzerland. September 3, 2010.


“Genetic Testing.” **Shawna Feely**, National Ataxia Foundation Meeting, Detroit Medical Center, Detroit, MI. March 20, 2010.


“Receptor Imaging – PET.” Csaba Juhasz, 19th International Cleveland Clinic Epilepsy Symposia, Cleveland, OH. October 6, 2010.


“Clinical Update.” Omar Khan, Chairman and course director, Wayne State University 6th Annual Multiple Sclerosis Symposium, Birmingham, MI. November 20, 2010.


“Recent Advances in Multiple Sclerosis.” Omar Khan, CME Curriculum for Primary Care Physicians. Fort Lauderdale, FL. May 8, 2010.


“Imaging in Multiple Sclerosis.” Omar Khan, Grand Rounds, Neurology, University of California at Irvine School of Medicine, Irvine, CA. July 14, 2010.

“Emerging imaging issues and controversies in multiple sclerosis.” Omar Khan, Grand Rounds, Neurology, University of Kentucky College of Medicine, Lexington, KY. August 17, 2010.

“Contemporary Issues and Controversies in Multiple Sclerosis.” Omar Khan, Grand Rounds, Neurology, University of Miami Miller School of Medicine, Miami, FL. September 29, 2010.


“Diagnosis and Treatment of Pediatric Epilepsy Syndromes.” Ajay Kumar, Inside Epilepsy Symposium, Atlantic Neuroscience Institute, NJ. May 1, 2010.


“Long non-coding RNA Molecules in Mammalian Gene Regulation -- Regulatory Networks of Coding and Non-coding Transcriptomes.” **Leonard Lipovich**, The Janelia Farm Conference - From the RNA World to the Clinic, Howard Hughes Medical Institute (HHMI), Janelia Farm Research Campus, Ashburn, VA. September 27, 2010.


“Antioxidants and Stroke.” Ramesh Madhavan, American Academy of Neurology Evidence Based Medicine Course, Chennai, India. December 4, 2010


“Recent Updates in Difficult-To-Treat Neuropathies.” Sindhu Ramchandren, Michigan Neurological Association 2010 Annual Meeting and Summer CME Conference, Boyne Mountain Grand Lodge, MI. August 13, 2010


“Meet the Professor designee.” Michael Shy, XII ICNMD. Naples, Italy. July 20, 2010


“An Approach to Diagnosing and Treating Patients with Inherited Neuropathies.” **Michael Shy,** Grand Rounds, Neurology, Ohio State University, Columbus, OH. December 14, 2010.


“The 1-2-3s of A-B-Cs of CMT.” **Carly Siskind,** National Society of Genetic Counselors Meeting, Dallas, TX. October 14, 2010.

“Seizure Semiology in Childhood.” **Lalitha Sivaswamy,** Grand Rounds, Mt. Clemens General Hospital, Mt. Clemens, MI. April 13, 2010.


“Medical and Surgical Treatments for Nystagmus.” **Robert Tomsak,** Grand Rounds, Ophthalmology, University of Michigan, Ann Arbor, MI. July 8, 2010.


“See-saw Nystagmus from Pituitary Tumor.” **Robert Tomsak,** Great Lakes Neuro-ophthalmology Club meeting, Kellog Eye Institute, University of Michigan, Ann Arbor, MI. October 30, 2010.

“Neurological Complications of Immunosuppression and Immunomodulation.” **Alexandros Tselis,** Course Director and Lecturer, American Academy of Neurology, Toronto, Ontario, Canada. April 14, 2010.
EDUCATION / RESIDENCY / FELLOWSHIP PROGRAM

Undergraduate Medical Education

The department was honored for leading the nation in the student residency match. It received the 2010 Successful Recruitment Award from the Association of University Professors of Neurology for the highest total number of medical student matches into neurology residency programs this year. The increased interest in neurology as a career among students can be directly attributed to the efforts of Drs Fakhouri, George, and Kupsky for their work in the Year 2 and Year 3 courses as well as electives in years 3 and 4.

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 with (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), 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.

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, neuroinfectious 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, multiple sclerosis, and stroke. If residents want, 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 5 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). Dr Ramesh Madhavan serves as Program Director for the Adult Neurology program. Dr Lalitha Sivaswamy serves as program
director for Pediatric Neurology. **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**).

**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 President 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 two additional WSU sponsored CME courses of particular note.

**Drs Richard Lewis** and **Agnes Jani-Acsadi** hosted their fourth annual CME course on Neuromuscular Disease on May 8, 2010. “Update on Myasthenia Gravis: Diagnosis and Management” featured guest speaker **Matthew Meriggioli, MD**, Director, Division of Neuromuscular Disease, Department of Neurology and Rehabilitation, University of Illinois Medical Center, Chicago, IL. Other speakers included **Drs Richard A. Lewis, Agnes Jani-Acsadi, James Selwa** 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 for both physicians and family members focused on research and treatment for autoimmune myasthenia gravis.

**Dr Omar Khan** held the Wayne State University 6th annual Multiple Sclerosis Symposium on November 20, 2010 sponsored by the Multiple Sclerosis Center and the Department of Neurology. This symposium was designed for neurologists, neurology residents and nurses. Invited speakers included **Bruce Trapp** (Lerner Research Institute, The Cleveland Clinic Foundation); **Howard Weiner** (Brimon’s Hospital, Harvard Medical School); **Ravi Menon** (Robarts Research Institute, The University of Western Ontario); **Fred Lublin** (Mount Sinai School of Medicine); **Paula Dore-Duffy** (Wayne State University); and the host **Omar Khan** (Wayne State University).

**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 led 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 Anza Memon, MD in Neuroimmunology/Multiple Sclerosis. **Aashit Shah**, Program Director of Clinical Neurophysiology (EMG/EEG), oversaw the training of fellows Noman Ahmed, MD, Christina DeSousa, MD, Anato Du, MD, Kashyar Khondabakhsh, MD, Temenuzhka Mihaylova, MD and Ranjeeta Mani, MD in Clinical Neurophysiology. **Kumar Rajamani**, Program Director, Vascular/Stroke, oversaw the training of fellow Pratik Bhattacharya, MD in Stroke/Cerebrovascular diseases. **William Coplin**, Chief of Service, Neurology, Detroit Receiving Hospital, oversaw the training of fellow Benjamin Atkinson, MD in Neurotrauma/Critical Care.
Faculty Portraits, Department of Neurology WSU/DMC and WSU/VA

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, Associate 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: McMaster's 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

Maysaa M Basha, MD, Assistant Professor of Neurology
Undergraduate: Wayne State University, Detroit, MI, BA, 2001
Medical: Wayne State University School of Medicine, Detroit, MI, 2005
Internship: Wayne State University School of Medicine, Detroit Medical Center, Detroit, MI, 2005-2006
Residency: Wayne State University School of Medicine, Detroit Medical Center, Detroit, MI, 2006-2009
Fellowship: University Hospitals-Case Western Reserve Medical Center, Cleveland, OH, 2009-2010
Interests: Epilepsy, EEG analysis, seizure semiology, and neuroimaging in Epilepsy

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
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<tr>
<th>Name</th>
<th>Title/Position</th>
<th>Undergraduate</th>
<th>Medical</th>
<th>Internship</th>
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<tbody>
<tr>
<td>Seemant Chaturvedi, MD, FAAN</td>
<td>Professor of Neurology; Director, Stroke Program</td>
<td>Princeton University, AB, 1985</td>
<td>University of Connecticut School of Medicine, MD, 1989</td>
<td>St. Francis Hospital; Hartford, CT 1990</td>
<td>University of Massachusetts Medical Center, 1993</td>
<td>University of Western Ontario (Stroke), 1994</td>
<td>Carotid artery stenosis, intracranial atherosclerosis, stroke in young adults, stroke and hypercoagulable states</td>
<td></td>
</tr>
<tr>
<td>Paula Dore-Duffy, PhD</td>
<td>Professor of Neurology; Chief, Neuroimmunology: Associate in Immunology/Microbiology</td>
<td>Simmons College, Boston, BS, 1970</td>
<td>Louisiana State University School of Medicine, PhD, 1976</td>
<td>University of Connecticut School of Medicine, 1976-1978</td>
<td>Assistant Professor of Neurology &amp; Medicine, University of Connecticut, 1978-1982</td>
<td>Associate Professor of Neurology &amp; Medicine, University of Connecticut, 1982-1988</td>
<td>Assistant Professor of Neurology &amp; Medicine, University of Connecticut, 1978-1982</td>
<td>Blood brain barrier and neurovascular diseases, angiogenesis, injury responses, neurotrauma and multiple sclerosis and related diseases, neurologic complications, collagen-vascular diseases, vasculitis, tumors of the brain.</td>
</tr>
</tbody>
</table>
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

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, Professor, Center for Molecular Medicine and Genetics, Pediatrics and Neurology, Charles H Gershenson Distinguished Fellow
Undergraduate: New South Wales I. T., Sydney, Australia, B.S., 1979
Graduate: New South Wales I. T., Sydney Australia, M.S., 1983
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

**Harry Greenberg, MD, Professor of Neurology**
Undergraduate: Cornell University, Ithaca, NY, 1968
Medical: State University of New York, Upstate Medical Center, Syracuse, NY, 1969-1973
Internship: State University of New York, Upstate Medical Center, Syracuse, NY, 1973-1974
Residency: Stanford University Medical School, Neurology, Stanford, CA, 1974-1977
Fellowships: Memorial Sloan-Kettering Cancer Center, Neuro-oncology, New York, NY, 1977-1979

New York Hospital, Cornell University, Neurology, New York, NY, 1978-1979

Prior appointments: Professor Emeritus (Active), University of Michigan, Neurology, Ann Arbor, MI, 2010
Professor, University of Michigan, Neurology, Ann Arbor, MI, 1991-2002
Professor, University of Michigan, Section of Neurosurgery, Ann Arbor, MI, 1991-2002
Associate Professor, University of Michigan, Neurology, Ann Arbor, MI, 1985-1991
Assistant Professor, University of Michigan, Neurology, Ann Arbor, MI, 1979-1985

Interests: Clinical neurology

**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

**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
Fellowships: Wayne State University, Neurology, Post-Doctoral Research, Detroit, MI, 1994-2001

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
Progressive forms of multiple sclerosis

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
Prior appointments: Eastern Virginia Medical School, 1983-1993
University of Connecticut Health Center, 1980-1983
University of Pennsylvania, 1978-1980
Interests: Neuromuscular Diseases, Electromyography, Peripheral Neuropathy, Myasthenia Gravis, Amyotrophic Lateral Sclerosis, Neurosarcoïdosis

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
<table>
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<tr>
<th>Name</th>
<th>Position</th>
<th>Institution and Details</th>
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<tbody>
<tr>
<td>Ramesh Madhavan, MD</td>
<td>Assistant Professor of Neurology; Program Director, Neurology Residency</td>
<td>Massachusetts General Hospital (Neurology), 1990-1993&lt;br&gt;Harvard Medical School (Neurobiology), 1993-1998&lt;br&gt;Beth Israel Deaconess Hospital (Epilepsy &amp; Clinical Neurophysiology), 1993-1998&lt;br&gt;Harvard Medical School, Boston, 1989-1998&lt;br&gt;Epilepsy, Clinical Neurophysiology (EEG) and Epilepsy Surgery neurodegenerative diseases</td>
</tr>
<tr>
<td>Lindsey Miller, Assistant Professor of Neurology; Genetics Counselor, Center for Molecular Medicine and Genetics</td>
<td>Undergraduate: Michigan State University, BS, 2006&lt;br&gt;Graduate: Wayne State University, MS, 2008&lt;br&gt;Internship: Reproductive Genetics at University Women’s Center, Hutzel Hospital, Detroit, MI, 2007&lt;br&gt;Children’s Hospital of Michigan, Division of Genetic and Metabolic Disorders, Detroit, MI, 2007&lt;br&gt;Karmanos Cancer Institute and Harper Hospital, Detroit, MI, 2008</td>
<td>Vascular neurology</td>
</tr>
<tr>
<td>Otto Muzik, PhD, Professor of Pediatrics, Radiology, and Neurology</td>
<td>Graduate: Technical University of Vienna, PhD, 1988&lt;br&gt;Fellowship: University of Michigan (Cardiac PET Group), 1990-1993&lt;br&gt;Prior appointments: Juelich Institute of Medicine, Nuclear Research Center, Germany, 1988-1990</td>
<td>Neurogenetics</td>
</tr>
<tr>
<td>Sandra Narayann, MD, Assistant Professor of Neurosurgery and Neurology</td>
<td>Undergraduate: University of Miami, BS, 1997&lt;br&gt;Medical: University of Miami School of Medicine, Miami, FL, MD, 2001&lt;br&gt;Internship: University of Miami-Jackson Memorial Hospital, 2001-2002&lt;br&gt;Residency: University of Miami-Jackson Memorial Hospital, Miami, FL, 2002-2005&lt;br&gt;Fellowship: Massachusetts General Hospital, Boston, MA (Vascular Neurology), 2005-2006&lt;br&gt;Emory University Hospital, Atlanta, GA (Vascular Neurology), 2006-2007&lt;br&gt;Emory University Hospital, Atlanta, GA (Interventional Neuroradiology), 2007-2008</td>
<td>Vascular neurology and interventional neuroradiology</td>
</tr>
</tbody>
</table>
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, PhB, 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
Ruggero Serafini, MD, PhD, Assistant Professor of Neurology
Graduate: Mario Negri Institute, Milan, Italy, PhD in Neuropharmacology, 1990
Medical: Catholic University Medical School, Rome, Italy, 1986
Residency: University of Toledo Medical Center, Toledo, OH, 2004-2008
Fellowships: Laboratory of Neurophysiology of NIH-NINDS, Bethesda, MD, 1991-1996
Washington University, Anesthesiology Department, Saint Louis, MO, 1989-2000
Henry Ford Hospital, Clinical Neurophysiology-EEG-Epilepsy, Detroit, MI, 2008-2010
Prior Appointments: Duke University Medical Center, Research Assistant Professor, Durham, NC, 2000-2003
Interests: Epilepsy and neurophysiology

Aashit K. Shah, MD, Professor of Neurology; Director, WSU/Detroit Medical Center Comprehensive Epilepsy Program
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
Interests: Pediatrics

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

Daniela Tapos, MD, Assistant Professor of Pediatrics and Neurology
Medical: University of Medicine and Pharmacy, Romania, MD, 1988
Internship: Flushing Hospital Medical Center, New York, NY, 2001-2002
Residency: Flushing Hospital Medical Center, Pediatrics, New York, NY, 2002-2004
Fellowship: Children’s Hospital of Michigan, Pediatric Neurology, Detroit, MI, 2007-2008
Interests: Epilepsy, Tourette Syndrome, Autism, ADHD/ADD. Headaches, and developmental delay

Sokol Todi, PhD, Assistant Professor of Pharmacology and Neurology
Undergraduate: University of Nebraska, Lincoln, NE, 1999
Graduate: University of Iowa, Iowa City, IA, PhD, 2005
Prior Appointments: Research Assistant Professor, Neurology, University of Michigan, 2010
Interests: Neurodegeneration, molecular biology, biochemistry

Robert Tomsak, MD, PhD, Professor of Neuro-ophthalmology
Undergraduate: Boston University, Boston, MA, 1971
Graduate: Case Western Reserve University, Cleveland, OH, PhD (Pathology), 1977
Medical: Case Western Reserve University School of Medicine, Cleveland, OH, 1977
Internship: Cleveland Clinic Foundation, Ophthalmology, Cleveland, OH, 1977
Residency: Cleveland Clinic Foundation, Cleveland, OH, 1987-1980
Fellowship: University of Florida, Bascom Palmer Eye Institute, Miami, FL, 1980
Prior appointments: Program Director, Case Affiliated Residency Program in Ophthalmology, Cleveland, OH, 2007-2009
Professor of Neurology and Ophthalmology, Case Western Reserve University School of Medicine, Cleveland, OH, 2005-2010
Associate Director of Neurology and Ophthalmology, Case Western Reserve University School of Medicine, Cleveland, Ohio, 2002-2005
Director, Division of Clinical Neuro-ophthalmology, University Hospital of Cleveland, 2000-2010

Interests: Neuro-ophthalmology, eye movement disorders, cortical disturbances, headaches and the eye, optic nerve disorders, visual field abnormalities, and idiopathic intracranial hypertension

**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**

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

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: Lincoln Medical & Mental Health Center, Bronx, NY, 1992-1993
Residency: JIPMER Hospital, General Medicine, Pondicherry, India, 1991-1992
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

54
Original Observations Published


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 $\alpha 6\beta 1$ integrin and dystroglycan. Glia. 58:1157-67, 2010.


Original Observations in Press


Published Books, Chapters, Review Articles, Editorials


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


Khan O, Tselis A. CCSVI and MS: science or science fiction? J Neurol Neurosurg Psych (in press).


Published Abstracts


Goodman A on behalf of the MS-F203, MS-F204, MS-F203EXT, and MS-F204 EXT Study Groups (Khan OA, member and local PI, Lisak RP, Tselis A, site investigators). Interim analysis of open-label extension studies of dalfampridine extended release tablets in patients with Multiple Sclerosis. Neurol 74(Suppl 2):A101, 2010.


Herbert J, Wynn D on behalf of the CAMMS223 Trial Group (Khan O, member and local PI, Lisak RP, Tselis A, WSU site investigators). Alemtuzumab’s efficacy in the CAMMS223 Trial as assessed with the Multiple Sclerosis severity score. Mult Scler 16 (Suppl 10): S140-S141, 2010.


Lewis RA. TNF-α inhibitors and demyelinating neuropahties. JPNS 15: 244, 2010.


Wolinsky J, O’Connor P, Confavreux C for the Teriflunomide Multiple Sclerosis Trial Group (Khan O, WSU PI) and the MRI Analysis Center in Houston, USA. LATE BREAKING NEWS. A placebo-controlled phase III trial (TEMSO) of oral teriflunomide in relapsing Multiple Sclerosis: magnetic resonance imaging (MRI) outcomes. Mult Scler 16(Suppl 10):S347-S348, 2010.


Abstracts in Press


