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Introduction

The Department of Neurology continues to advance its mission, capabilities, and reputation for academic, clinical, and research activities. We strive to foster a working environment that supports and encourages the development and growth of our faculty and staff's professional careers. From July 1, 2011 through June 30, 2012, there were 51 faculty members with primary appointments in Neurology and we expect additional faculty to join us next year. The Department welcomed Dr. Kelly Kay, Dr. Ahmed El-Dokla, Dr. Autumn Klein, Dr. Maria Baldwin, Dr. Laurie Knepper, Dr. Jan Drappatz, Dr. Hassan Hassouri with a variety of specialties: in General Neurology, Epilepsy, Women’s Neurology, Neurooncology, Headache, and Neuromuscular. Secondary appointments are held by Bing Wang, MD, PhD, Mary Ganguli, MD, William Klunk, MD, PhD, Robert Sweet, MD and Cheryl Bernstein, MD in recognition of their clinical and research interactions with the Department of Neurology. Many faculty members maintain secondary appointments throughout the University providing clinical and research collaborations.

The Department continues to make significant advances in patient care, teaching, and clinical and basic research, consistent with the mission of the Neurology Department, the School of Medicine, and University of Pittsburgh Physicians (UPP). Key areas of excellence include the UPMC Stroke Institute; the UPMC Headache Center; the Alzheimer’s Disease Research Center (ADRC); the Pittsburgh Institute for Neurodegenerative Diseases (PIND); and the American Parkinson Disease Association Advanced Center for Parkinson’s Research. The Neuromuscular, Epilepsy, Headache, Cognitive and Behavioral Neurology, Stroke, Movement, Neuro-immunology/Multiple Sclerosis and General Neurology divisions provide key clinical diagnosis and treatment.

We are committed to providing compassionate, comprehensive, timely and high quality service to our patients. We maintain a policy of making an appointment within three days of the request. Our clinical faculty receives a large number of referrals for sub-specialty care from community neurologists, other community specialists, and other clinical department faculty physicians.

Our clinical and research faculty value the role of providing education and support for future physicians and researchers. We provide our residents, medical students, graduate students and postdoctoral student researchers with an enriched and supportive professional environment that creates a high-value educational experience. The Department conducts weekly Neurology Grand Rounds; our program in 2011-2012 featured 37 lectures, five of whom were from other institutions. In addition, multiple conferences and lectures were overseen by our clinical divisions or research centers. The department also co-sponsors special lectures through PIND, the ADRC and in conjunction with the Department of Medicine and Neurosurgery.

Clinical research activities benefit our current patients, allow access to cutting-edge therapeutic trials, and provide significant advances in the overall field of clinical neurology and our clinical research programs have grown significantly. We develop, maintain, and promote innovative and integrated research programs that promote fundamental discoveries in basic science areas.

The Department of Neurology faculty and staff are very involved with medically related organizations on the local, national, and international levels. This involvement extends beyond the medical realm to groups providing support to patients and caregivers, organizing and supporting fundraising efforts for voluntary health organizations and raising awareness of neurological diseases. Many of our faculty members and staff have national leadership positions on NIH advisory or research review committees, in voluntary health organizations, and professional societies.

Leadership

Lawrence Wechsler, M.D., Chair of the Department of Neurology is professor of Neurology and Neurological Surgery at the University of Pittsburgh School of Medicine and is former director of the University of Pittsburgh Medical Center (UPMC) Stroke Institute. He also serves as Vice President for Telemedicine in the Physician Services Division. Prior to assuming the chair position, Dr. Wechsler served as Vice Chair for Clinical Affairs and maintained oversight of all clinical operations within the department. Under his direction the neurology department has continued to expand both its clinical operations and research activities. The department was ranked 10th in the US News and World Report rankings of neurology and neurosurgery programs in the most recent listings. Dr. Wechsler’s interests include acute stroke therapy, imaging and telemedicine. He has
participated in many clinical trials of treatments for stroke as an investigator or member of the steering committee. He was Editor in Chief of the *Journal of Neuroimaging* from 1999-2007. Dr. Wechsler holds memberships in several organizations, including the American Neurological Association, American Stroke Association, American Society of Neuroimaging and the American Academy of Neurology. He is currently the president of the American Society of Neuroimaging. He chairs the Stroke Systems Work Group at the American Academy of Neurology and co-chairs the telemedicine work group. Dr. Wechsler has authored or co-authored numerous articles related to stroke and stroke therapy.

At UPMC, Dr. Wechsler developed and implemented the telemedicine program for acute stroke assessment. Beginning in 2006, telemedicine has been implemented in all UPMC system hospitals in order to provide access to acute stroke assessment and treatment by faculty of the UPMC Stroke Institute. Additionally, several other non-UPMC facilities are now utilizing telemedicine similarly for stroke care.

There are 3 vice chairs in the Department of Neurology:

- **Steven H. Graham, M.D., Ph.D.** is Professor of Neurology and Vice Chair for Research. He directs the operations of the Research Division. Chief among his responsibilities is recruiting world-quality researchers to an expanding basic science program. Dr. Graham is an accomplished researcher in neuronal cell death following ischemic injury. He is Associate Chief of Staff for Research for the Pittsburgh VA Healthcare System and is the Director of the Geriatric Research Educational and Clinical Center, the major focus of which is cerebrovascular disease.
- **Paula Clemens, M.D.** is Associate Professor of Neurology and Vice Chair for Veterans Affairs. She is Chief of the Neurology Service at the Pittsburgh VA Healthcare System, responsible for clinical care and teaching at the VA. She is also an accomplished researcher in clinical and basic studies of treatments for disorders of skeletal muscle, one of an elite group of researchers who utilize gene therapy in the experimental treatment of neuromuscular diseases.
- **Tim Greenamyre, MD, PhD** is Professor of Neurology and Vice Chair for Academic Affairs, UPMC Endowed Chair in Movement Disorders and Director of the Pittsburgh Institute for Neurodegenerative Diseases. Dr. Greenamyre’s research focuses on the cause of Parkinson’s disease and he has been named Director of an NINDS Program Project Grant entitled “Mitochondrial Proteins in Parkinson’s Disease”

Additional leadership is provided by the Executive Committee: the Department Chair; Vice Chairs; the Division Chiefs; and Patrick Conway, Department Executive Administrator; Leslie Dunn, Academic Administrator; and Erin La Bua, Clinical Administrator.

**Research Activities**

The Department of Neurology has a sustained commitment to excellence in the three major components of academic medicine: teaching, clinical care and research that advances medical knowledge and therapy. Research funding for the clinical, basic, and translational studies in the department has increased steadily over the past few years and in FY2012 the department received $8,329,756 in NIH grant support.

**Basic Research**

Basic scientists in the Department of Neurology continue to be successful in securing extramural funding. Several new extramural grants were awarded to neurology faculty from July 1, 2011 to June 30, 2012. In addition, Neurology faculty received notice that several other awards will be funded in the coming fiscal year.

Basic neuro-science investigators in the Department of Neurology had a number of successes during the past academic year. Some of the major achievements include:

- **J. Timothy Greenamyre** continued as overall Director of the NINDS Program Project Grant entitled “Mitochondrial Proteins in Parkinson’s Disease” and leads a project focusing on mechanisms of iron accumulation in PD. **Theresa Hastings** and **Jun Chen** also lead projects in this grant and **Guodong Cao** is the Director of the Molecular Core. In addition, Dr. Greenamyre continued work on his RC1 NIEHS grant examining gene-environment interactions in transgenic rat models of Parkinson’s disease. Work continued on two grants funded by the Michael J. Fox Foundation: one examining neuroprotection by
**PXDNL**, a novel heme-containing peroxidase, and the second exploring pathological characteristics of alpha-synuclein transgenic rats.

**Steven Graham** continued work on his NINDS R01 grant focusing on cyclooxygenase 2 and ischemic neuronal injury and his project in the NINDS Program Project Grant entitled “Molecular Mechanisms in Traumatic Brain Injury: Bench to Bedside.” Work progressed on the R21 grant focused on the role of COX2-derived cyclopoentenone prostaglandins in the exacerbation of hypoxic ischemic brain injury by inhibiting protein disulfice isomerase and worsening endoplasmic reticulum stress.

**Jun Chen** was awarded the renewal of his NINDS R01 “Neuroprotection in Models of Cerebral Ischemia.” He continued work on his NINDS grants focusing on neuroprotection against Parkinsonian cell death, exploring the neuroprotective effects of HSP27 in cerebral ischemia and investigating the inducible DNA repair in cerebral ischemia. In addition, he continued work on his VA Merit Review award focusing on HSPs and neuroprotection in cerebral ischemia.

**Guodong Cao** progressed on his Veteran Affair Healthcare study on the neurogenesis and oligodendrogenesis effect of a novel mutant erythropoietin in ischemic brain. In addition, he continued to work on his R21 grant examining the therapeutic effects of a novel erythropoietin (EPO) mutant molecule against ischemic brain injury.

**Dandan Sun** was awarded an NINDS R01 grant focused on Na-K-2Cl cotransporter in glioblastoma multiforme. She continues her work on 2 additional R01s on the Na-K-2Cl cotransporter in cerebral ischemia and the role of NA/H exchanger in cerebral ischemia.

**Ed Burton** was awarded a grant from the Parkinson’s Disease Foundation USA to evaluate the role of mitochondrial dynamics in dopamine neurons in whole zebrafish. He continued to work on a Department of Veterans Affairs Merit Review grant examining alpha-synuclein RNAi in a model of sporadic Parkinson’s disease.

**David Hinkle** continued work on his K08 Mentored Clinical Scientist Development Award to study the potential role of DJ-1, an astrocyte-expressed gene that is implicated in Parkinson’s disease. He was awarded an NIEHS R01 to assess the role of DJ-1 in astrocyte-mediated neuroprotection as it relates to models of Parkinson’s disease.

**Amanda Smith** continued work on a VA grant to examine the impact of lifestyle modification, such as exercise and dietary on the aged parkinsonian rodent nigrostriatal pathway. In addition, she continued to explore endogenous neuroprotective agents in Parkinson’s disease.

**Sarah Berman** continued to work on her NINDS-funded K08 Mentored Clinical Scientist Development Award focused on mitochondrial dynamics in neurodegeneration.

**Milos Ikonomovic** continued to work on the Pittsburgh Foundation grant to explore novel amyloid-targeting therapies for preserving cognitive function in Alzheimer's disease. He also continued to work on his project in the Program Project Grant from the NINDS entitled “Molecular Mechanisms in Traumatic Brain Injury: Bench to Bedside” and his project in the NIA Program Project Grant, “*In Vivo* PiB PET Amyloid Imaging in Normals, MCI and Dementia.” He was awarded funding on a collaborative grant from the NIA funded National Alzheimer’s Collaborative Center (NACC) to examine the ability of some brains to resist AD pathology. In addition, he continued work on funding from GE Healthcare to conduct histopathological validation of *in vivo* amyloid imaging with PiB and characterization of flutemetamol binding in Alzheimer’s disease.

**Paula Clemens** continued work on her VA Administration Merit Review award “Molecular Treatment of Muscle Atrophy.” She is the Medical Director for the Cooperative International Neuromuscular Research Group (CINRG), a multi-center academic trials group devoted to the study of therapeutic agents for patients with muscular dystrophy. She continued to chair 2 multi-center CINRG human clinical studies this year. In addition she was site PI in a Department of Defense trial of Coenzyme Q10 and prednisone in Duchenne dystrophy. She also co-directs our University of Pittsburgh site in the NINDS-funded NeuroNEXT, a national clinical trials network established to coordinate Phase 1 - 2 neuroscience clinical trials.
• Feng Zhang continued work on his Scientist Development Award from the American Heart Association. This award supports highly promising beginning scientists as they move toward competition as independent investigators and will provide research funding for Dr. Zhang for four years.

• Michael Zigmond was awarded a jointly held (Hoffer at Case Western University) NINDS R01 grant examining mechanisms of exercise-induced protection and rescue in models of dopamine deficiency.

Clinical Research
Clinical research in the Department of Neurology continues to expand and significant numbers of patients with neurologic diseases are enrolled in ongoing clinical trials. This is an invaluable resource for continued development of research in the department, and also attracts patients to our medical center.

• Lawrence Wechsler is the Director of the University of Pittsburgh site in the NINDS-funded NeuroNEXT, a national clinical trials network established to coordinate Phase 1-2 neuroscience clinical trials.

• Lawrence Wechsler, Max Hammer and Tudor Jovin from the UPMC Stroke Institute continued their participation in federal and industry sponsored clinical trials.

• Oscar Lopez is the Director of the NIA-funded Alzheimer Disease Research Center (ADRC) and leads a project examining amyloid deposition, vascular disease and clinical progress of AD. He also leads a project in the NIA-funded Program Project Grant, ‘In Vivo PiB PET Amyloid Imaging in Normals, MCI and Dementia.’ In addition, he continued work on his NIA R01 grant, “Predictors of Alzheimer’s Disease in Mild cognitive Impairment” and is a co-investigator on a number of other NIH-funded grants.

• The ADRC continued to be a part of the NIA-funded Alzheimer’s Disease Neuroimaging Initiative; (including ADNI – GO, ADNI-2), the NIA Alzheimer’s Disease Cooperative Study, a multi-center program conducting clinical research on treatments for Alzheimer’s disease; the NIA-funded National Alzheimer’s Coordinating Center; and the Alzheimer’s Disease Genetics Consortium.

• Judith Saxton utilized NIA ARRA funding to continue work on her NIA-funded R01 grant investigating the utility of cognitive testing in the primary care setting by using computer tests to identify older patients with mild cognitive impairment. In addition, she continued to serve as Clinical Core leader for the Alzheimer Disease Research Center and the PiB PET Amyloid Imaging Program Project grant.

• Beth Snitz continued to work on her NIA funded Patient-Oriented Research Career Development Award (K-23), entitled “Subjective cognitive complaints, longitudinal cognitive decline, and beta-amyloid deposition in non-demented older adults.” She recently assumed the leadership role of the Clinical Core of the NIA-funded PiB PET Amyloid Imaging Program Project grant as Dr. Saxton prepared to retire.

• Eric McDade continued to serve as site PI for the NIA-funded Dominantly Inherited Alzheimer Network (DIAN), an international, multi-site study of autosomal dominant Alzheimer Dementia. In addition, he has been named an Associate Director of the ADRC Clinical Core.

• Samay Jain received an NINDS Patient-Oriented Career Development Award (K23) which focuses on multi-organ autonomic electrophysiology in Parkinson’s disease. He also received a Rapid Response Innovation Award from the Michael J. Fox Foundation to examine clinical decision-making in the pre-motor period of Parkinson’s disease.

Training Grants

• Michael Zigmond continued directing an NINDS T32 training grant to provide training in the neurobiology of neurodegenerative diseases. In addition, Dr. Zigmond continues to direct an NINDS U13 grant to conduct survival skills and ethics workshops for neuroscientists.
Department Funding Sources

Extramural Funding FY12
The Adult Neurology Residency Training Program

The Neurology Residency Training Program continues to attract outstanding physicians from the United States and around the world for state-of-the-art training in the diagnosis and treatment of diseases of the nervous system. Twenty residents train in the four-year program, which begins with one year of internal medicine residency and then proceeds to three years of fulltime training in neurology. The resident complement has been increased to seven new residents per year, so that in one year’s time, the program will train twenty-eight residents. Resident trainees receive detailed instruction and practical daily experience in the art of the neurological examination, localization of abnormalities in the nervous system, differential diagnosis, and neurological therapeutics. For a solid underpinning of basic neuroscience for their clinical training, our residents are taught neuroanatomy, neurophysiology, neurochemistry, neuroradiology, neuropathology, and neuropharmacology as well as retrieval and analysis of current medical information. There has been increased emphasis on the fundamentals and application of evidence-based neurology in the last three years, with special emphasis on the use of online data for decision-making assistance. Under the direction of an outstanding faculty of attending neurologists, residents assume progressive oversight of patient care during the course of their training. During the last two years of training, ample elective time allows each resident to develop skills and expertise tailored to his or her particular interests, while the core curriculum assures a high degree of competency in general neurology. The residents are given multiple opportunities to teach via formal lectures, small group conferences and grand rounds presentations, all activities which begin to prepare them for careers in academic neurology, which most pursue. The vast majority of the graduating residents pursue fellowship training, most at the institution of their choice.

Neurology Boot Camp: Incoming residents are greeted by an innovative and unique method of introducing trainees to the rapidly growing field of neurology. This approach, termed “Neurology Boot Camp,” immerses our junior trainees in a month-long fulltime intensive experience fashioned to provide a strong base of knowledge and understanding upon which the remainder of their experience will build. This introductory course makes use of extensive case studies, case simulations, an intensive Basic Neurologic Life Support lecture series, a series of interactive neuroradiology-neuroanatomy correlation sessions, neurological examination rounds, and hands-on rapid medical information retrieval, using the University’s extensive computerized medical databases and Internet resources. This shift in initial training fosters the achievement of a high level of clinical competency earlier in the course of training, and lays an even stronger foundation of skills for ongoing lifelong self-education. The unique intensive introductory program encompassing core clinical neurosciences has been further developed and refined to insure that neurology residents enter their clinical training with a solid grounding in the fundamental principles underlying current diagnosis and treatment. At this point, seven classes of junior trainees have completed the course and unanimously agreed that the intensive training gave them a real advantage when they arrived on the floors to start their clinical training in neurology.

The residency program continues to attract outstanding applicants from medical schools across the country. Recent achievements and changes in the residency program include:

- Addition of a “Basic Neurologic Life Support” lecture series to the four week “Intensive Introduction to Clinical Neurology” course held for the junior residents each July.
- Over 500 applications were received for the 2011-2012 match. This marks a continued increase in applications to the program. The program continues to match seven PGY-1 residents, and anticipates continuing to do so. Strong recruitment results continue to improve the overall quality of the residency program.
- Graduating residents who completed neurology training in the Department of Neurology passed the American Board of Psychiatry and Neurology (ABPN) certification examination at very high rates.
- Residents from Neurosurgery, Medicine, Psychiatry, and PM&R rotated through the neurology service to receive their required specialty training, enhancing the experience for both them and the Neurology residents.

Dr. John Doyle maintains leadership of the Neurology Residency Program as well as serving as Chief of the Division of General Neurology.
Advanced Neurological Fellowships

Advanced training fellowships in Clinical Neurophysiology, Stroke, Endovascular Neurology and Movement Disorders are offered through the Department of Neurology. In July 2002 the Stroke fellowship here was one of the first in the county to receive ACGME approval. Fellows enter these highly competitive positions after completing a full neurology residency.

Clinical Neurophysiology fellowships emphasize electroencephalography, peripheral neuromuscular physiology, epilepsy, and neuromuscular disease. Fellows can elect regions of emphasis within these areas, but graduate with a broad skill set in clinical neurophysiology. Three fellowships are offered yearly.

Stroke fellowships provide training in the rapidly evolving field of neurovascular disorders and therapeutics. Stroke fellows gain extensive experience with clinical management of complex disorders, advanced neuroimaging techniques, thrombolytic therapy, evidence-based stroke therapy, and investigational approaches to stroke treatment. The Stroke fellowship has been expanded to include exposure to interventional therapies and procedures as well. Two fellowships are offered yearly.

Endovascular Neurology fellowships include training in diagnostic angiography, aneurysm coiling and stroke interventions. Fellows are trained by an interventional team including a neurologist and neurosurgeon. Considerable experience is obtained from an extremely active acute stroke service and a busy neurosurgical referral practice. Two fellowships are offered yearly.

Movement Disorders fellows are offered comprehensive training in all aspects of movement disorders, including extensive clinical experience and training in deep brain stimulations and botox use. Fellows are exposed to current research in movement disorders and neural degeneration. One position per year is offered.

Headache and Epilepsy Fellowships are in the planning stages with a targeted start in 2012.

Neurology Medical Student Curriculum

Neurology is taught in a combined 8 week course with Psychiatry in the third year of medical school. The clinical portion of the rotation is divided into two parts with the students dividing their clinical time between 3 weeks of Neurology and 5 weeks of Psychiatry. This clinical exposure has mixed inpatient, outpatient and consult time slots. Throughout the rotation, all students are provided didactic material primarily from Neurology and Psychiatry. This consists of 8 core lectures each from Neurology and Psychiatry. In addition to the Neurology and Psychiatry material, students are also exposed to additional didactic material from Pediatric Neurology, Neurosurgery, Neuropathology and Neuro-radiology throughout the rotation. Occasionally, students are allowed to monitor neurosurgical cases in the operating room. They also attend two formal neuropathology conferences that include gross sectioning of brains obtained at autopsy with discussion of the noted pathology.

Students are evaluated via evaluation form by the faculty who mentored and oversaw them during the clinical aspect of the course. This form requires more objective criteria for evaluation of the student’s history and physical examination, case presentations, data analysis, factual knowledge, problem solving, patient interaction, cooperation and dependability. This portion of their evaluation comprises 66% of their final neurology grade. The other 33% is determined by the student’s performance on a standardized test from the National Board of Medical Examiners for Neurology. This allows comparison of our students with others across the nation. It is our desire that all students should be able to handle common neurological problems and emergencies in their future practices.

The neurological clerkship is comprised of a well-balanced curriculum including didactic and “hands on” exposure. The students are provided detailed goals and objectives that should direct them in their studies and prepare them for medical practice and on national board-type examinations. Dr. Galen Mitchell continues as Director of Medical Student Education.
Future Initiatives

Plans for the Department of Neurology include initiatives in the clinical, research, and teaching areas of our mission. The department continues to expand with resultant improvement in clinical patient diagnosis and treatment activities. The department will expand the Healthtrak access to include direct scheduling and electronic visits (E-visits) to afford patients autonomy and flexibility as active consumers of healthcare services. The department will continue optimization of the Electronic Health Record (EHR) and review existing workflows to provide further efficiency and streamlining as faculty and staff have become engaged participants of the upgrades. The Department will utilize meaningful use data to report quality measures indicative of a fully integrated EHR. Additionally, the department will work with Press Ganey to obtain and promote patient satisfaction and best practices amongst all divisions as the department continues to expand to various locations within the community.

With the expansion of the clinical research, residency, and fellowship programs, the department will focus on streamlined patient throughput in clinical and administrative space to improve workflow and access to necessary resources. The project will encompass all clinical and administrative staffing to provide timely and appropriate care in patient friendly locations utilizing sufficient resources from clinic, multi-disciplines, and community resources.

A major initiative is recruitment of several physicians in General Neurology and several subspecialty areas. Vascular Neurology, Movement Disorders, Neuroimmunology/Multiple Sclerosis, Neuromuscular Disorders, Cognitive and Behavioral Neurology and Epilepsy will receive particular emphasis to provide the most comprehensive outpatient neurology services and respond to referrals from other physicians.

Neurology’s research program continues to grow. Our researchers have specific plans to increase funding for basic, clinical and translational research. The department has become one of the top nationwide for NIH research funding and will strive to achieve more funding. The firm establishment and expansion of the clinical and translational research programs in neurodegenerative diseases will receive increased attention and resources.

The education of medical students, residents, and fellows continues to be a high priority. The department will continue to improve and further develop the didactic programs for neurology residents under the direction of residency director John Doyle, M.D. Fellowships will be organized and further developed in Vascular Neurology, Movement Disorders, Neurobehavior, and Neuromuscular Disease. The department continues to recruit for 2 Epilepsy Fellowships, and a new Headache Fellowship will begin in July 2012.

The administrative functions of the department are continuously reviewed and improvements made whenever appropriate. The roles of our Division Chiefs have been expanded to support department administrative efforts. The Executive Committee consists of the 10 Division Chiefs and the Vice Chairs for Research, Academic Affairs and VA Affairs. The Executive Committee will expand with the addition of a Community Neurology Division in August 2012. The Executive Committee will continue to regularly review Department operations and initiate improvements, modify policy, and advise expansion of clinical, research and teaching programs as appropriate.

Clinical Activities

The 2011-2012 academic year saw continuing growth in the diagnosis and treatment services of the clinical practice in the Department of Neurology (University of Pittsburgh Physicians–Neurology). The Department includes the Divisions of Epilepsy, General Neurology, Headache, Movement Disorders, Neuromuscular Disorders, Neuroimmunology/Multiple Sclerosis, Cognitive and Behavioral Neurology, Vascular Neurology and Women’s Neurology. The continued growth of the Alzheimer Disease Research Center in Neurology has expanded services in behavioral neurology and memory disorders. Each division maintains a distinct mix of patient care, clinical research, and teaching activities.

Neurology maintains a highly visible presence at several locations throughout Western Pennsylvania. The majority of clinical activity takes place in the Oakland health system facilities, as well as meeting the needs in other geographical areas. The Department has two headache center locations, in Oakland and in Wexford. An active physician practice continues to operate in Mt. Lebanon. Both the Monroeville-Oxford Drive and UPMC Mercy offices offer general neurology appointments, as well as Electromyograms (EMG) in an outpatient setting.
UPMC Mercy also offers a full spectrum of outpatient services including a fully accredited sonography laboratory. The Monroeville-Oxford Drive location offers daily access to specialists through the Med-Express clinics. The UPMC Passavant Professional Building location offers general neurology and electromyograms (EMG). Faculty members continue to be very active in community programs relating to their subspecialties, such as the MS Society; National Parkinson’s Foundation; Pittsburgh Parkinson’s Foundation; the ALS Society; the National Headache Society; Epilepsy Foundation of America; Muscular Dystrophy Association; Myasthenia Gravis Association; Huntington’s Disease Society of America; and the Alzheimer’s Association. This includes serving on community or professional advisory boards, and national boards of directors.

Financially, the Neurology clinical practice continues to maintain strong controls over expenditures and consistent efforts at revenue enhancement including further expansion of clinical practice locations. Clinic operations and staffing patterns are continuously monitored to ensure optimum return on financial investments. The growing presence of physician extenders and multi-disciplinary clinics provides a multitude of services and ensures timely handling of all areas of care thus increasing efficiency and patient satisfaction. Faculty members are encouraged to optimize their clinic time and to fully and efficiently utilize the time they spend in the clinic. With the addition of electronic medical records, faculty is afforded the ability to access records on-demand in clinic and from remote locations while improving patient care. The patient population continues to grow and clinic accessibility has expanded to meet the demand. Neurology clinic accessibility has been significantly enhanced with new faculty, appointment time management, and appropriate utilization of support staff.

Department Clinical Divisions

Division of Cognitive and Behavioral Neurology

Oscar Lopez, MD, Chief of the Cognitive and Behavioral Neurology Division directs the NIA-funded Alzheimer’s Disease Research Center (ADRC) and is Co-Leader of the ADRC Clinical Core and conducts both NIH and industry-sponsored experimental therapeutic studies of Alzheimer’s disease. Dr. Lopez’s main area of concentration is Alzheimer’s disease research, AIDS dementia, and vascular dementia. He leads an NIH-funded study examining predictors of Alzheimer’s disease in mild cognitive impairment (MCI). Dr. Lopez is currently conducting studies, as principal investigator and co-investigator, of the factors that modulate the transition from normal to mild cognitive impairment (MCI) and to dementia in relationship to cerebral amyloid deposition. These studies examine how cardiovascular and cerebrovascular factors create a vulnerability state for Alzheimer’s disease and neurodegeneration, and how they affect physiologically relevant compensatory mechanisms in the brain using MRI, FDG-PET, and Pittsburgh Compound B (PiB) technologies.

Dr. McDade has been named an Associate Director at the Clinical Care of the NIA-funded Alzheimer’s Disease Research Center and also actively evaluates those with cognitive disorders in the Department of Neurology. His primary clinical interests are in adult onset neurodegenerative dementia syndromes including the earliest manifestations, termed mild cognitive impairment, Alzheimer dementia, frontotemporal dementia, Lewy body dementia, and progressive supranuclear palsy and corticobasal syndrome. As part of his interest in early symptoms of dementia one of his focuses is on familial dementia including Alzheimer’s disease and frontotemporal dementia.

Working in collaboration with Dr. Klunk, Dr. McDade is Principal investigator for the University of Pittsburgh site of the international collaborative study of familial AD, the Dominantly Inherited Alzheimer Network (DIAN). DIAN is an international research partnership of leading scientists determined to understand a rare form of Alzheimer’s disease that is caused by a gene mutation. Understanding of this form of Alzheimer's disease may provide clues to decoding other dementias and developing dementia treatments.

Dr. McDade’s research interest includes frontotemporal dementia as well as the interaction between cognitive aging, acute stroke and the role of cerebral amyloid in predicting cognitive decline. Dr. McDade is co-investigator on industry sponsored therapeutic drug trials for Alzheimer dementia.

In addition to his clinical and research pursuits he is actively involved in Neurology Resident and Medical Student education at the University where he is involved in bedside clinical teaching as well as didactic instruction.
Judith Saxton, PhD focuses her research on the assessment of older patients with cognitive problems. Dr. Saxton is Principal Investigator of an NIA-funded study entitled “Cognitive Assessment of Primary Care Patients”. The major goal of this study is to investigate the utility of cognitive testing in the Primary Care setting. Both clinical outcomes and clinical practice are investigated in this six-year study that involves more than 500 subjects over age 65 and 24 community primary care physicians. One innovative aspect of the study is the use of computer tests to identify older patients with mild cognitive impairment. Dr. Saxton is also Director of the Clinical Core of the Alzheimer’s Disease Research Center and Co-Director of the Education and Information Core. She also works with colleagues on two studies of the Pittsburgh compound-B (PiB), in which positron emission tomography (PET) is used to identify amyloid deposition in the brains of normal healthy individuals and those with cognitive impairment. Dr. Saxton is Director of the Clinical Core of the Program Project Grant “In Vivo PiB PET Amyloid Imaging: Normals, MCI & Dementia”. Over the past three years Dr. Saxton has published two chapters in peer-reviewed journals.

Beth Snitz, Ph. D. is a neuropsychologist with a clinical and research focus on mild cognitive impairment in aging and early detection and prediction of Alzheimer’s disease. Her research interests also include cognitive correlates of beta-amyloid deposition as measured by Pittsburgh Compound B (PiB) – PET imaging. She received a Patient-Oriented Research Career Development Award (K-23) from the NIA, with the project title ‘Subjective cognitive complaints, longitudinal cognitive decline, and beta-amyloid deposition in non-demented older adults.’ This research investigates subjective cognitive complaints as a potential facet of early beta-amyloid-associated, subclinical neuronal dysfunction, along with subtle cognitive deficits and gradual cognitive decline. It also investigates the role of personality, mood and reporting bias in the measurement of subjective complaints in aging and their relationship to beta-amyloid deposition. This five-year career development award provides the foundation for a research program dedicated to investigating the early natural history of cognition associated with AD pathology in aging.

Dr. Snitz has been named Co-Leader of the Clinical Core of the NIA-funded program project grant ‘In Vivo PiB PET Amyloid Imaging: Normals, mild cognitive impairment & Dementia.’ She is a clinical neuropsychologist at the Alzheimer’s Disease Research Center, and she collaborates closely with mentors and colleagues Drs. Saxton, Lopez, Klunk, Ganguli and DeKosky on epidemiologic and clinical studies of cognitive aging, MCI and PiB-PET imaging, including a population study of predictors and outcomes of MCI in small-town Southwestern Pennsylvania (Ganguli PI); a longitudinal study of normal aging and beta-amyloid deposition (Klunk PI); and a study of cognitive correlates of early striatal beta-amyloid deposition in early onset familial Alzheimer’s disease (Klunk PI).

**Epilepsy Division**

During the 2011-2012 academic year, Epilepsy Division staff included: Anto Bagić, MD, PhD, (Associate Professor of Neurology and Chief of the division), Richard Brenner, MD (Clinical Professor of Neurology), Gena Ghearing, MD (Assistant Professor of Neurology; Director, EEG Laboratory), Alexandra Popescu, MD (Assistant Professor of Neurology), Rick Hendrickson, PhD (Assistant Professor of Neurology, Neuropsychologist), Anne C. Van Cott, MD (Associate Professor of Neurology, Neurology Service/VA Pittsburgh Healthcare System), Maria Baldwin, MD (Assistant Professor Neurology; Director, Continuous EEG Laboratory). Additional clinical care is provided by Jill Bischoff, CRNP.

In addition to the Department of Neurology, clinical and research activities of the Epilepsy Division take place in the context of the University of Pittsburgh Comprehensive Epilepsy Center (UPCEC) which is considered a Level 4 Epilepsy Center because of its compliance with guidelines of the National Association of Epilepsy Centers. The center provides state-of-the-art diagnostic and treatment services to adults and children with uncontrolled seizures. It is a joint program combining the resources of the University of Pittsburgh School of Medicine, the University of Pittsburgh Medical Center, Presbyterian University Hospital and Children's Hospital of Pittsburgh. Established in 1986, it provides regional referral and consultation services to Pennsylvania, Ohio, West Virginia, and beyond. Staff specializes in the evaluation and treatment of patients with forms of epilepsy that are difficult to diagnose or manage. Research conducted at the Epilepsy Center has contributed to the introduction of seven new antiepileptic drugs over the past decade. Most recently, the UPCEC adult division started its participation in the ROSE...
(Radiosurgery or Surgery for Epilepsy) trial, a NIH-funded, multicenter randomized controlled trial designed to compare radiosurgery as a treatment option for medically-intractable mesial temporal lobe epilepsy against standard resective surgery.

In terms of technology, the epilepsy clinical care facilities of the University of Pittsburgh Epilepsy Center and the University of Pittsburgh Medical Center are second-to-none with pediatric and adult epilepsy closed-circuit television/electroencephalography (CCTV-EEG), adult and pediatric outpatient ambulatory care facilities, EEG labs, ambulatory EEG, state-of-the-art neurosurgical operating rooms, PET, SPECT, MRI, fMRI, and a state-of-the-art magnetoencephalography (MEG) facility featuring a 306 sensor whole head MEG system that also includes 128 channel EEG recording capabilities. The University of Pittsburgh Medical Center belongs to the select group of premier institutions in the world to offer the best available whole head MEG evaluations to intractable epilepsy patients and patients with other brain disorders. UPMC MEG System operated within the Center for Advanced Brain Magnetic Source Imaging (CABMSI) from December 2005 until January 2010, and is now part of the UPMC Brain Mapping Center. This was the first non-governmental MEG system in the region and includes Pennsylvania, Ohio, West Virginia, Virginia and Maryland. As a result, many patients from a distance have been referred to Pittsburgh and are seizure-free following successful surgery planned on multimodal imaging that includes MEG studies.

Facilities at the center and the expertise of the staff result in definitive diagnoses in patients with seizures of uncertain origin and medication regimens for optimal seizure control and minimal side-effects. Patients with medication-resistant seizures can be evaluated for all surgical treatment alternatives including most commonly performed resective surgery and a Vagal Nerve Stimulator (VNS) implantation. Patients also have access to neuropsychological evaluations, medication response monitoring, rehabilitation, psychosocial services, referrals and the possibility of participating in promising clinical drug trials.

**General Neurology Division**

Currently, physicians from the Division of General Neurology see patients at the Kaufmann Building in Oakland, at UPMC Monroeville, UPMC Mercy, and at a satellite site in Mount Lebanon. The goal of the division is to expand services to other communities surrounding Pittsburgh to enhance access to the care provided by the neurologists in the UPP practice. The Division Chief is John Doyle, MD who is also director of the residency program in neurology. Other division members in 2011-2012 were Dr. Lisa Roeske-Anderson, Dr. Morgan Jeffries, Dr. Angela Lu, and Dr. Kelly Kay. Dr. Hassan Hassouri joined the division in January 2012.

Dr. Doyle sees general neurology patients in Oakland and at the department’s south hills satellite in Mount Lebanon. Dr. Roeske-Anderson cares for general neurology and neuromuscular cases in Oakland; she also performs electrodiagnostic (EMG) testing there. She has a particular interest in the use of IVIG in neurologic diseases. Dr. Lu has office hours for general neurology and electrodiagnostic (EMG) testing at UPMC Mercy on a daily basis. Dr. Morgan Jeffries sees patients at the Oakland offices, while Dr. Kelly Kay conducts a general neurology clinic and electrodiagnostic (EMG) testing at the Monroeville satellite offices. Dr. Hassan Hassouri has office hours for general neurology and electrodiagnostic (EMG) testing at UPMC Passavant as well as staffs inpatient consults at both UPMC Passavant and UPMC Passavant Cranberry.

The General Neurology Division is integral to the training of both medical students and neurology residents. All members work closely with medical students during required neurology rotations. Dr. Doyle directs the neurology continuity clinics for neurology residents, and is assisted by Drs. Roeske-Anderson. During the second and third years of training, the neurology resident must conduct a half-day clinic each week, and follow the patients seen there for the remainder of the training period. Extensive instruction in clinical neurology, the use of online information retrieval during patient encounters, neuroimaging, and effective patient management and communication is provided. Resident responsibility progressively increases during the two-year period. The outpatient clinics prepare residents for clinical practice at the completion of their training.

Drs. Roeske-Anderson and Doyle continued their monthly grand rounds at which they present interesting current clinical cases as well as cases where diagnosis or treatment is problematic.
The Division of General Neurology continues to pursue affiliation with the newly-formed General Neurology Committee of the American Academy of Neurology.

Headache Division

The Headache Division continues to operate clinically at 2 different locations: the state-of-the art outpatient facility opened in 2007 in central Oakland, and the satellite office situated in the North Hills along the I-79 corridor. Drs. Robert Kaniecki, Michael Soso, Barbara Vogler, Laurie Knepper, as well as physician assistant Kimberly McGonigle, continue to provide outpatient clinical services. Monthly clinical volumes at the Headache Center continued to exceed expectations at approximately 700 patients each month. In addition to typical clinical assessments the clinicians provide emergency parenteral therapies, nerve blocks and trigger point injections, and botulinum toxin administration to appropriate patients with severe or chronic headaches. In addition to outpatient responsibilities in the clinic setting, Dr Vogler and Dr. Knepper spend time on the Neurology Consult service and Dr Kaniecki on the Neurology Inpatient service at Presbyterian University Hospital; residents and medical students are supervised on both services. Lectures on headache and pain are delivered by Dr. Kaniecki to the first, second and third-year medical students and to residents and graduate students in Neurology, Psychiatry, Internal Medicine, Family Practice, Pharmacology, and Pain Medicine. Dr. Kaniecki supervises resident and medical student rotations though the Headache Center. Dr. Soso serves on the Institutional Review Board for the University of Pittsburgh School of Medicine, while Dr. Kaniecki serves as chairman of the Scientific Review Committee for the Department of Neurology. Dr. Kaniecki continues to serve on the residency selection committee and the executive committee for the Department of Neurology. Dr. Kaniecki continues to conduct clinical research and publish in the field of Headache. Dr Vogler received her board certification in Headache Medicine from the United Council for Neurological Subspecialties. Dr. Knepper joined the practice in 2011 and is working toward her board certification in headache medicine. Dr. Kaniecki remains a co-editor of the Abstracts and Citations section of the journal Headache. In 2011 the Headache Division’s application for a fellowship program in Headache Medicine was accepted by the United Council for Neurological Subspecialties, with the fellowship slated to open in July 2012. The Headache Center is planning to continue the expansion of clinical and research services as it continues the recruitment process for additional faculty.

Movement Disorders Division

The Movement Disorders Division is directed by J. Timothy Greenamyre, M.D., Ph.D. and includes Drs. Sarah Berman, Ed Burton, David Hinkle, Samay Jain, and Valerie Suski. Additional clinical services are provided by Jessica Kappel, PA-C. The Movement Disorders Division has three broad objectives: (i) to provide subspecialty care in Parkinson’s disease and other movement disorders; (ii) provide education in movement disorders for medical students, graduate students, residents and fellows; and (iii) carry out research in basic and clinical aspects of movement disorders. The American Parkinson Disease Association (APDA) has designated the Division as an Advanced Center for Parkinson’s disease Research, one of only 8 such centers in the nation.

The Division currently provides subspecialty care to patients with movement disorders through the Comprehensive Movement Disorders Clinic, with participation by faculty and staff from the Departments of Physical Medicine and Rehabilitation, Otolaryngology and Neurological Surgery. Many individuals seen in the clinic also volunteer to participate in clinical trials of new treatments and in studies supported by the NIH and the VA Healthcare System. Clinical programs have grown steadily over the last few years and include the continued expansion of deep brain stimulation as a treatment for advanced Parkinson disease (in collaboration with the Department of Neurological Surgery) and a Dystonia/Botulinum Toxin Clinic. The Huntington Disease Clinic continues to grow and is a Huntington Study Group research site.

During the past year, the Movement Disorders faculty continued to provide bedside and didactic teaching to undergraduates, medical students and residents. Once a month there is a clinical conference for faculty, residents and students at which interesting or difficult-to-diagnose cases are presented. There is a regular lecture series for residents, and the Movement Disorders lecture series for the first year medical students has been revised and has received excellent evaluations. A clinical fellowship program has now started.
As it expands, the Division continues to have a vigorous and well-funded research program that investigates both clinical and basic aspects of movement disorders. Each of the faculty has been successful in obtaining extramural funding for their projects. Several new collaborative projects have begun, which cross traditional boundaries of scientific discipline and academic department.

**Neuroimmunology/Multiple Sclerosis Division**

The Neuroimmunology Division includes Drs. Rock Heyman, Galen Mitchell and Islam Zaydan and Ryan Orie, PA-C. This active division has a comprehensive outpatient clinical program that has earned awards for its excellence. The MS program is designated as a Comprehensive MS Care Center by the National MS Society, recognizing comprehensive clinical, research, and educational programs. Two of the division's nurses (Clinical Supervisor Margie O'Leary and Marlene Boyd, RN) as well as Speech Pathologist Patricia Bednarik, are board certified in MS care. Kathleen Brandfass, MS, PT, Director of Neurologic Physical therapy, Center for Rehabilitation Services is on site with our team. The program includes comprehensive care for all aspects of care with close affiliations with many services at UPMC and throughout the region to meet the needs of people with MS at all levels of disease severity. The infusion center managed by nurses Rebecca Rosiek and Victoria Young has expanded to meet the needs of patients on intravenous therapies including monoclonal antibodies, corticosteroids and immunoglobulin. Many patients with other immunologic conditions such as neuromyelitis optica, Sjogren's syndrome or sarcoidosis involving the central nervous system are seen by this division in support of regional physicians.

Division research continues and includes involvement in multi-center studies of novel oral or infusion therapies for MS. Some of the agents used in current protocols are fingolimid (FTY720), daclizumab, BG00012, and botulinum toxin (neurogenic bladder). A smaller research project regarding MS and bariatric surgery is underway. The research coordinator Kerry Oddis and assistant Darlene Punjack provide organization and support for these trials.

Educational programs by division staff are directed towards people with MS, caregivers, allied health professionals, medical students, residents, and physicians. Division personnel frequently lecture to the numerous support groups throughout the region and often nationally. Recent presentations by divisional professional staff at the CMSC meeting encompassed many areas of MS care. The division presented a wide ranging day long patient conference which quickly filled to capacity. Divisional health care professional educational conferences occur every Thursday morning and work meetings every Tuesday morning. The division also works with regional health insurance organizations to better organize and access the evolving MS care landscape. We work closely with the National Multiple Sclerosis Society to provide education and care. Special programs exist to deal with issues related to domestic neglect or violence as well as a unique program, MS PAWS, which assists people with MS who have a temporary inability to care for their companion animals.

**Neuromuscular Diseases Division**

The Neuromuscular Division is directed by David Lacomis, MD. Dr. Lacomis and division members Paula Clemens, MD and Sasa Zivkovic, MD provide care for neuromuscular patients including those seen in the affiliated Muscular Dystrophy Association Clinic and MDA-ALS Center. Drs. Clemens and Zivkovic also treat patients at the Pittsburgh VA Medical Center in Oakland. Dr. Ahmed El-Dokla joined the division in 2011 and treats patients at the Monroeville satellite office as well as the Kaufmann Medical Building in Oakland.

The division trains fellows in clinical neurophysiology and provides electrodiagnostic services (electromyography and autonomic testing) at UPMC-Presbyterian. Dr. Lacomis performs needle muscle biopsies and is in charge of the neuromuscular pathology services in the Neuropathology Division. Dr. Clemens also trains pre-doctoral students working in her laboratory and is the Chief of Neurology at the Pittsburgh VA.

Active research programs include both basic and clinical studies (Dr. Clemens). Basic research projects include gene replacement studies for muscular dystrophy, characterization of the molecular pathology of muscle wasting in muscular dystrophy and nerve injuries, and several methods of modulation of NF-κB signaling pathways for amelioration of the dystrophic phenotype and modulation of the immunity induced by viral vector-mediated gene delivery for the treatment of muscular dystrophy. Clinical trials in Duchenne muscular dystrophy (DMD) (Dr.
Clemens with Hoda Abdel-Hamid, MD, Pediatric Neurology) include involvement in a multi-center academic trials group devoted to the study of therapeutic agents for patients with DMD and a large natural history study of DMD over the full age spectrum of the disease. Dr. Clemens is also contributing Pompe disease patient information to the Lysosomal Storage Diseases registry at UPMC (Dr. David Finegold, PI). Dr. Clemens led an observational study this year exploring the cardiac outcome measure for clinical trials in pediatric muscular dystrophy (funded by an administrative supplement to the University of Pittsburgh CTSA).

The other major area of research involves ALS including clinical trials (ceftriaxone, dexpramipexole) (Drs. Lacomis and Zivkovic), cognitive dysfunction, imaging, and magnetoencephalography in ALS (Dr. Zivkovic), biomarkers, optimizing non-invasive ventilation, and epidemiology (Dr. Lacomis). Dr. Lacomis serves as the co-director of the University of Pittsburgh Center for ALS Research along with Robert Ferrante, PhD, the new co-director who has plans to substantially expand the Center’s activities in basic and translational research as well as clinical trials. Dr. Zivkovic is also a co-investigator in Dr. Elsa Strotmeyer’s NIH-funded study of “Peripheral nerve function decline in an aged cohort”, and he directs the familial amyloidosis registry at UPMC. Research initiatives for 2011-12 include participation in the following multicenter studies for ALS (Dr. Lacomis – PI): (1) A phase III trial of dexpramipexole in ALS (2) phase III study of ceftriaxone and (3) extension of a multicenter biomarkers study. Drs. Clemens and Abdel-Hamid continue with muscular dystrophy trials through participation in the Cooperative International Neuromuscular Research Group (CINRG), a multi-site academic clinical trials network. Recent publications included those documenting the benefit of weekend corticosteroids in Duchenne patients and the lack of benefit of oral pentoxifylline in that patient population. Dr. Clemens takes an active role in CINRG, as chair of the Publications Subcommittee, Medical Director and Chair of the Executive Committee, and study chair for a multi-center protocol (funded by the Department of Defense).

Neurooncology Program

The Adult Neurooncology Program is the major regional referral center for patients with central nervous system tumors, cancer metastatic to the nervous system, and patients with neurologic complications of cancer. Frank Lieberman, MD (Professor of Neurology, Neurosurgery, and Medical Oncology and Director of the Adult Neurooncology Program) provides inpatient consultation care for inpatients at the UPMC Shadyside and Presbyterian campuses. In September 2011, Dr. Jan Drappatz joined the Adult Neurooncology program as Associate Professor of Neurology and Medical Oncology and Associate Director of the Adult Neurooncology Program. Dr. Drappatz was first a neurooncology fellow and then faculty member at Dana Farber Cancer Center. Dr. Drappatz brings expertise and commitment to expanding access of brain tumor patients to promising phase 1 clinical trials of novel anticancer agents, molecularly targeted drug therapies for malignant gliomas, and development of novel therapies for patients with primary central nervous system lymphoma. In 2007, the Hillman Cancer Center opened the Multidisciplinary Neurooncology Clinic, comprised of neurology, neurosurgery, and radiation oncology faculty, all combining to provide coordinated multispecialty care to patients with brain tumors. The Adult Neurooncology Program provides comprehensive neurologic care for patients with cancer, including management of seizure disorders, cancer related pain syndromes, neurologic side effects of chemotherapy and radiation therapy, and paraneoplastic neurologic disorders. Neurooncology faculty members administer chemotherapy for patients with primary brain tumors and oversee and care for patients participating in clinical trials through the University of Pittsburgh Cancer Institute’. The neurooncology program participates in a number of varied studies:

• The translational brain clinical trials program focuses on molecularly targeted drug trials of agents in phase 1 or phase 2 trials for malignant gliomas. and includes participation in Radiation Therapy Oncology Group, Adult Brain Tumor Consortium. The Adult Neurooncology Program participated in the study of the Novacure T100 device in recurrent glioblastoma which led to FDA registration of the device, and is currently participating in a similar trial for newly diagnosed glioblastoma patients.

• The Adult Neurooncology Program provides access to innovative molecularly targeted drug trials patients with intracranial or spinal ependymomas as a member institution of the Collaborative Ependymoma Research Network trials. Program faculty also provides consultation services regarding the diagnosis and management of ependymoma patients.
In collaboration with Dr. Lieberman, Dr. Hideho Okada, Associate Professor of Neurosurgery, is directing an innovative program testing a novel approach to immunotherapy of gliomas using a vaccine based on glioma-associated peptides. Vaccine trials for patients with low grade gliomas began in 2009 and represent a paradigm changing innovation in the use of immunotherapeutic strategies for brain tumor treatment.

In collaboration with Dr. Lieberman, Marina Nikoforova and Ronald Hamilton in the Department of Pathology are using microdissection based genetic analysis of brain tumor specimens removed at surgery to better characterize molecular subgroups of glioblastoma, oligodendroglioma, anaplastic astrocyoma, and low grade astrocytomas with different prognosis and response to therapy. Dr. Nikoforovna is applying genome wide SNIP analysis to paraffin embedded specimens.

Dr. Lieberman, in collaboration with Ronald Hamilton and William Laframboise in the Department of Pathology, are using DNA microarray techniques adapted to paraffin embedded specimens to analyze glioblastomas arising in workers from the epidemiologic study of Pratt Whitney plants.

The development of more effective therapies for patients with skull base and spinal tumors has become a major focus of the Adult Neurooncology Program. In collaboration with Neurosurgery faculty Arlan Mintz, Jonathon Engh, Paul Gardner and head and neck surgeon Carl Snyderman, Drs. Lieberman and Hussein Tawbi (Division of Hematology/Oncology) care for patients with complex skull base meningiomas, and are members of the multidisciplinary group focusing on treatment of skull base and spinal chordomas.

The Adult Neurooncology Program is collaborating with other members of the Adult Brain Tumor Consortium to evaluate novel MRI and PET imaging techniques in assessing treatment response to molecularly targeted therapies, including the use of 7T MRI to monitor the effects of anti-angiogenic therapies on the vascular anatomy of malignant gliomas. As part of a National Cancer Institute funded Program Project, headed by James Mountz (Department of Radiology), Dr. Lieberman and colleagues are evaluating a novel PET tracer which selectively identifies apoptotic cells as a potential tool for determining whether malignant gliomas are responding to treatment before there is a change in tumor size. This trial is also evaluating the tracer as a method for differentiating pseudoprogression after chemoradiation for glioblastoma from true tumor progression. Dr. Lieberman and colleagues are members of the Quantitative Imaging Network (QIN) program, a National Cancer Institute task force developing guidelines for the application of PET and MRI techniques to oncology clinical trials and clinical practice. In collaboration with Paula Sherwood (School of Nursing) the neurooncology program is participating in studies of caregiver stress in families of brain tumor patients.

The Adult Neurooncology Program also provides training in neurooncology for neurology residents, neurosurgery residents, hematology/oncology fellows, and medical students. Residents and fellows attend the neurooncology clinics at the Hillman Center as well as participate in the neurooncology inpatient consultation service at UPMC Shadyside. Dr. Lieberman directs a weekly multidisciplinary Neurooncology tumor board which guides the treatment of complex cases throughout the UPMC Cancer Center network.

Division of Vascular Neurology: The Division is synonymous with the UPMC Stroke Institute and its activities are described under the Stroke Institute activities.

Women’s Neurology Division
The Division of Women’s Neurology at the University of Pittsburgh Medical Center is the newest division in the Department of Neurology and was established in July 2011. This unique interdisciplinary program bridges neurology with obstetrics, gynecology, and women’s medicine, and focuses on gender differences in medical evaluation, diagnosis, and implementation of treatment and care. Its specialists consider how hormonal and reproductive changes throughout a woman’s lifespan, including pregnancy and menopause, as well as the use of oral contraceptives and assisted reproduction, impact neurological health and disease. There are three areas of emphasis: clinical care, development of research, and patient and physician education. The division offers a clinical program where patients can see physicians specializing in clinical evaluation of the female neurological patient. The division has identified research clinicians who investigate neurological diseases specific to women and how gender-specific issues impact neurological disease. Physicians educate patients on topics specific to women experiencing neurological illnesses, train residents and fellows in this area, and provide information to physicians in the community at large.
A unique aspect to the division is the clinical and research collaboration with physicians at Magee Women’s Hospital and the neuro-obstetrical concentration. With over 10,000 deliveries a year, Magee is one of the largest obstetrical hospitals in the country and houses the extensive Magee Obstetric Medical and Infant (MOMI) research database with information on more than 100,000 deliveries since 1995. These resources are unlike those anywhere else in the country and can be used to answer clinical questions regarding women and neurological illness.

The goals of the division are to provide exceptional neurological care for women across the lifespan and to evaluate patients as individuals by combining excellence in clinical care, research, and patient and provider education. Autumn Klein, MD, PhD serves as division chief.

**Department Institutes and National Center Affiliations**

### Alzheimer Disease Research Center

The ADRC at the University of Pittsburgh, currently directed by Oscar Lopez, MD, was established in 1985 by a grant from the National Institute on Aging (NIA) and has been successfully renewed through 2015. The center initially focused on behavioral, neuropsychological and neuropsychiatric changes over the course of the disease and has evolved into a broadly based, full-service dementia research center, fulfilling its missions to conduct clinical, basic, and translational research; provide excellent patient care and follow-up, and educate students, residents, fellows, faculty, community physicians, and the lay community. Areas of research specialization include neuroimaging and new neuroimaging modalities, neuropsychiatric symptoms and manifestations in Alzheimer’s disease and other dementias, neuropathology, genetics, examination of factors that can alter the clinical course of the disease, and the overlap of Alzheimer’s disease with other neurodegenerative disorders. A wide range of basic and clinical research studies within the University community and with external collaborating institutions are supported by the patient registry, data, biological materials, or expert consultation from the ADRC. Current research studies funded by the ADRC include:

- The identification of amyloid pathology more than 15 years prior to the onset of symptoms in early onset AD
- The examination of the factors that may promote or delay the progression of mild cognitive impairment to very early AD
- The examination of aging effects on microglia and their role in the early pathology of AD
- The feasibility of using an internet-based cognitive stimulation program in subjects with mild cognitive impairment
- The exploration of utilizing ultrahigh field microscopic in-vivo/in-vitro MR imaging of mild cognitive impairment and AD.

The clinical research component of the ADRC includes an evaluation and treatment program for individuals experiencing memory impairment. Accurate diagnoses are established through an interdisciplinary approach with evaluations in neurology, psychiatry, neuropsychology, medicine and social work. After diagnosis, eligible subjects are followed longitudinally and participate in additional ADRC research studies. Currently, cutting-edge neuroimaging studies and several experimental therapeutic trials are ongoing in Alzheimer’s disease and related dementias. The ADRC participates in several national consortia including the Alzheimer’s Disease Cooperative Study, Alzheimer’s Disease Neuroimaging Initiative, the Alzheimer’s Disease Genetics Consortium, and the National Alzheimer’s Collaborative Center.

### American Parkinson Disease Association Center for Advanced Research

The University of Pittsburgh School of Medicine was designated an American Parkinson Disease Association Center for Advanced Research in 2006. The APDA is the nation’s support, free educational materials and scientific research support for 45 years. As an
Advanced Center, Pitt is part of a network of eight APDA centers at major universities and healthcare centers across the country. Dr. Tim Greenamyre, Professor and Vice-Chair of Neurology, Chief of the Movement Disorders Division, and Director of the Pittsburgh Institute for Neurodegenerative Diseases, directs the Pitt APDA Center for Advanced Research.

**Center for ALS Research**

The University of Pittsburgh Center for ALS Research was designated by Dr. Arthur Levine in 2006 with Robert Bowser, PhD (Pathology) as the founding director and David Lacomis, MD (Neurology) as the founding medical director. In 2011 following Dr. Bowser’s departure, Dr. Lacomis assumed the role of Co-Director along with Robert Ferrante, PhD (Neurosurgery and Neurology) as Co-Director. The primary purpose of the Center is to promote collaboration among University of Pittsburgh scientists and clinicians who share an interest in motor neuron disease research thereby expanding basic, clinical, and translational research in amyotrophic lateral sclerosis. The clinical arm is a certified MDA-ALS Center recognized for clinical and research expertise in ALS. Current collaborative projects include identification of cerebrospinal fluid and serum biomarkers, high field MRI fiber tracking, and pluripotent skin stem cell studies. One biomarkers study is geared toward evaluating TDP-43, and specimens are being shared with other institutions in a multicenter discovery and validation study. The pluripotent stem cell study will allow examination of human motor neurons and glia from patients and controls with ALS. The fiber tracking studies are performed in collaboration with investigators in the Department of Neurosurgery and will examine disease spread in the spinal cord as well as the brain over time. An ALS Tissue Bank is maintained in the Division of Neuropathology and is headed by Dr. Julia Kofler. In conjunction with Steve Albert, PhD from the School of Public Health and graduate student Kristen Qutub, caregiver stress is being evaluated. The Center is participating in phase III trials of ceftriaxone and dexpramipexole. An extension of the phase III dexpramipexole study is underway as well, and second phase III trial of dexpramipexole is may begin in 2013 with our Center being a tier one site. We also intend to participate in a Cytokinetics phase IIb study.

**Geriatric Research Education and Clinical Center**

The Geriatric Research Education and Clinical Center (GRECC) is funded by the Department of Veterans Affairs and provides an integrated program of basic biomedical, clinical and health services research, education of trainees and practitioners, and clinical demonstration projects designed to advance knowledge regarding care of the elderly, with an emphasis on stroke. The research component of the GRECC consists of three elements; (1) basic science, (2) health services research, and (3) rehabilitation research. The basic science component is focused on the identification of novel genes whose products play a role in regulating cell death after ischemia, and the development of strategies to reduce expression of neurotoxic response genes or enhance expression of neuroprotective gene products in response to stroke. Health services research is directed at addressing the overuse of medications in the elderly VA population (geriatric polypharmacy). Rehabilitation research includes studies designed to determine the optimal parameters for rehabilitation of aphasia resulting from stroke, determine the degree that hearing impairment contributes to cognitive dysfunction in the elderly, and to develop a quality-of-life instrument for stroke survivors. Clinical studies of acupuncture in elderly patients with chronic pain due to osteoarthritis are also underway. The GRECC faculty expended over $7.9M in direct costs from federally funded research during the fiscal year in addition to the GRECC’s $1.8M VA core funding.

The education component of the GRECC is designed to ensure that existing knowledge in geriatrics and new research findings are integrated into clinical practice and disseminated locally, regionally and nationally, and consists of two elements; (1) postgraduate fellowship training in geriatrics for physicians, clinical rotations for internal medicine residents and medical students, and clinical and didactic offerings for trainees in associated health science fields, and (2) continuing medical education in geriatrics for physicians and other health service practitioners. There were more than 60 GRECC trainees in the last fiscal year and approximately 1000 attendees at GRECC CME activities.
There were three active GRECC clinical demonstration projects: 1) The Pittsburgh Intensive Residential Aphasia Treatment and Educational program (PIRATE) is a novel residential outpatient aphasia rehabilitation program. PIRATE provides a 21 day program of intensive aphasia treatment for veterans who reside at the John Heinz Community Living Center in Aspinwall during treatment. 2) The GRECC has developed a Driving Evaluation Clinic that assesses the ability of elderly veterans to drive. This clinic focuses on medical and cognitive assessment in elderly veterans. 3) A new Dementia Clinic has been developed that provides comprehensive geriatric, neurological, psychiatric and social work services for Veterans with Dementia. These clinical demonstration projects are intended to pilot novel ways of delivering care to elderly veterans.

Dr. Steven Graham, Professor and Vicechair of Neurology, is Director of the GRECC. Other Neurology faculty members in the GRECC are Jun Chen, MD, Edward Burton MD, J. Timothy Greenamyre MD, Milos Ikonomovic, MD, Amanda Smith, PhD and Gaodong Cao, PhD. Faculty from the Department of Medicine, Divisions of Geriatric Medicine and General Internal Medicine, Psychiatry and Communications Sciences Departments in the School of Rehabilitation Sciences are also members of the GRECC.

Pittsburgh Institute for Neurodegenerative Diseases

It is estimated that approximately one in four Americans will suffer from a neurodegenerative disease, and virtually all Americans will have a family member with one of these conditions. Unfortunately, the underlying mechanisms of neurodegeneration—and how they lead to disease—are not well understood. The complexity of these diseases makes it impossible for any single scientist to find the cause or cure. Instead, it will require an integrated, collaborative, interdisciplinary approach—involving interactive groups of scientists and clinicians—to make headway towards cures. This was the vision of Drs. Michael Zigmond and Robert Moore when they approached the Scaife Foundations with their idea to create the Pittsburgh Institute for Neurodegenerative Diseases (PIND).

Ultimately established with generous gifts from the Scaife Family Foundation and the DSF Charitable Foundation—and matching funds from UPMC—the PIND brings together in one place scientists and clinician scientists from diverse disciplines and perspectives as well as several School of Medicine departments (Neurology, Pharmacology, Geriatric Medicine & Structural Biology) to collaborate on studies of neurodegenerative disorders. Currently, there are 12 independent laboratory groups – approximately 100 faculty, postdocs, students and staff – within PIND laboratories. Of these, half of the principal investigators are physician-scientists.

By virtue of both philosophy and architecture, the PIND is a center where there are no walls between individual scientists, and where there are no barriers between basic scientific inquiry and translation of the latest findings into new treatments. As such, the mission of the PIND is to transform cutting-edge science into novel therapies and diagnostics that directly benefit individuals affected by neurodegenerative diseases, such as Parkinson’s disease, Alzheimer’s disease, stroke, Huntington’s disease, and amyotrophic lateral sclerosis (Lou Gehrig’s disease). The PIND’s research portfolio includes investigations into mechanisms of neural cell death; new genetic models of neurodegenerative disease; and methods for protecting the nervous system with drugs, physical interventions and gene therapy.

Last year, extramural grants to PIND investigators totaled almost $7,500,000. Recent grants to PIND faculty include a Program Project Grant to Drs. Chen, Hastings, Chu, Cao and Greenamyre; R01 grant to Palladino; a “Challenge” (RC1) grant to Dr. Greenamyre, and a VA Merit Award to Dr. Burton. Other grants have been obtained from private foundations such as the Michael J Fox Foundation.

The mission of the PIND is bolstered by and integrated with clinical programs in the Department of Neurology, including the Alzheimer’s Disease Research Center, the Comprehensive Movement Disorders Clinic, the UPMC Stroke Institute, and the Muscular Dystrophy Association ALS Center. The Department of Neurology is active in clinical research in neurodegenerative diseases, coordinating or participating in therapeutic trials in Alzheimer’s
disease, stroke, and ALS, and it is a site for trials for both the Parkinson Study Group and the Huntington Study Group. We have been designated the American Parkinson Disease Association as an Advanced Center for Parkinson Disease Research.

The PIND is directed by Dr. Tim Greenamyre, who is Professor and Vice-Chair of Neurology, UPMC Endowed Chair & Chief of the Movement Disorders Division and Director of the APDA Advanced Center for Parkinson’s Disease Research.

The UPMC Stroke Institute
The UPMC Stroke Institute was the first stroke center in Western Pennsylvania to receive The Joint Commission (TJC) designation as a Primary Stroke Center in 2004. The Stroke Institute continues to lead as a major referral center, provider of high quality acute stroke management, and participates in progressive clinical research trials. The program focuses on quality patient care using a multi-disciplinary team approach, flourishing clinical research program, and ongoing educational efforts for health professionals and the community at large. Over the past year, the staff have been preparing for the newly available Comprehensive Stroke Center certification available thru TJC. Effective May 2010, Tudor Jovin, MD was named Director of the UPMC Stroke Institute. He succeeded Lawrence R. Wechsler, MD who was appointed chairman of the Department of Neurology.

The Stroke Institute is comprised of a stroke-specific clinical service which sees over 1300 acute cerebrovascular patients annually on the in-patient service. The outpatient Stroke clinic is staffed by the stroke specialists, fellows, and 2 nurse practitioners. Multiple medical and ancillary services are coordinated to provide the patient with a comprehensive approach to care and to promote the best outcome for the patient. Maxim Hammer serves as the Fellowship Director for the UPMC Stroke Institute, an ACGME neurovascular fellowship, which sponsors 3 stroke fellows and two interventional fellows. The fellows, residents, medical students and visiting physicians from abroad enjoy a rich educational experience supported by resources and experts from other disciplines interested in cerebrovascular disease and research.

Drs. Maxim Hammer, Vivek Reddy, Guillermo Linares, and Ashutosh Jadhav provide patient care and support the fellows, residents and medical students during their medical training; they also participate in clinical trials. Dr. Hammer has assumed leadership of stroke services at the UPMC Mercy campus and continues to staff an outpatient stroke office there. Dr. Tudor Jovin continues his role as a stroke interventionalist; his approach to acute stroke has expanded interventional approaches through clinical research trials. In addition to patient care, Dr. Reddy has responsibilities for the development of the electronic medical record program.

Throughout the year the Stroke Institute faculty and staff provide education for health professionals and the community at large. An annual CME program, Stroke Update, is provided with the goal of providing physicians (locally and nationally) current information on medical, interventional, and surgical management of the stroke patient and updates on scientific advances in stroke and clinical trial activity. Additionally, the seventh annual all day nursing conference with continuing education credits focusing on stroke was provided this year. The Institute supports community programs and provides stroke screenings in many local settings. Both faculty and staff are active on the local, state and national level providing education and participating in legislative activities to promote stroke care.

The unique UPMC hospital system allows the faculty and staff to work with up to 10 UPMC community-based hospitals, improving the standards of stroke care. The Stroke faculty now provides on-site acute stroke management at both UPMC Mercy and UPMC Shadyside hospitals. Telemedicine equipment for 24/7 stroke assessment has also been introduced at UPMC Passavant/Passavant-Cranberry, UPMC St. Margaret, UPMC McKeesport, UPMC Magee, UPMC Horizon, and UPMC Northwest and UPMC Bedford. In 2008, the Institute began to expand services to non-UPMC affiliated hospitals and now provides telemedicine to regional hospitals such as Monongahela Valley Hospital, Jefferson Regional Medical Center, Washington County Hospital in Hagerstown, MD, The Washington Hospital, Washington, PA, Jameson Hospital, and Heritage Valley Medical Center – Beaver Valley campus. Since implementation of telemedicine within UPMC, over 1200 urgent stroke
consults have been conducted via telemedicine and over 330 patients have been treated with IV thrombolytics. Depending on the site capability, patients are either transferred to UPMC PUH for ongoing specialty stroke care or remain at the local hospital for post thrombolytic stroke care.

Veterans Administration Neurology Service

The VA Neurology Service is a busy clinical in-patient and out-patient service within the Medical Specialties Service Line at the VA Pittsburgh Healthcare System (VAPHS). It provides out-patient and in-patient services to veterans with dementia, movement disorders, headache, epilepsy, stroke, multiple sclerosis, neuromuscular disorders, neurological complications of medical diseases and other neurological conditions. Physicians perform out-patient lumbar punctures for diagnosis and botulinum toxin injections for the treatment of focal dystonias and there is a TOUCH program for natalizumab infusions.

The clinical services of VAPHS include out-patient clinics at University Drive and Highland Drive VAMC facilities, in-patient consultations at the University Drive, Highland Drive and Heinz VAMC facilities, an in-patient service at the University Drive VAMC facility and an EEG Laboratory at the University Drive VAMC facility. In April, the Highland Drive VAMC clinics moved to the Heinz VAMC facility. The VAPHS is a referral center for VAMC facilities in Erie, Butler, and Altoona, PA and Clarksburg, WV. The VAPHS EEG Laboratory is accredited by the American Board of Registration of Electroencephalographers and Evoked Potential Technologists (ABRET).

The VA neurology service is fortunate to have a group of expert sub-specialists from the department of neurology who work together as VA neurologists. Among them are Dr. David Hinkle who directs our local movement disorders center, which participates in the central VA Parkinson's Disease, Research, Education and Clinical Center (PADRECC), Dr. Paula Clemens is the director of our local multiple sclerosis effort, participating in the VA Multiple Sclerosis Centers of Excellence. Dr. Steven Graham is director of the Geriatrics Research, Education and Clinical Center (GRECC), a VA institute focused on multi-disciplinary aspects of geriatrics care and research. The VA neurology division participates in the education component of the GRECC as a clinical training site for geriatric psychiatry fellows throughout the year. We also serve as a training site for the geriatrics fellowship programs at UPMC and St. Margaret’s Hospitals.

The VA Neurology Service is a principal training site for our neurology residency program. On a rotating basis, two residents are stationed at the VA to provide in-patient and out-patient care on an academic teaching service attended by one of our attending neurologists. A third resident position is employed to accommodate the first-year neurology residents in their weekly continuity of care clinic. The residents also benefit from the contributions to the didactic training program provided by VA physicians, especially including instruction in EEG reading by Dr. Anne Van Cott and neuropathology by Dr. Gutti Rao. The VA neurology service further contributes to the educational mission of the neurology department by serving as a clinical rotation site for medical students in their third year of training and for acting interns in their fourth year of training.

Clinical and basic research are significant components for most of the neurologists on the VA service. Several VA neurologists (Drs. Ed Burton, Kathy Gardner, Clemens, and Graham) hold VA research grants as described in their individual faculty descriptions.

The VA Neurology Faculty for 2011-2012 was comprised of Dr. Paula Clemens, Chief of Service and Drs. Ed Burton, Kathy Gardner, Steven Graham, David Hinkle, Eric Ogren, Anne Van Cott and Saša Živković.
Research and Scholarly Activities
Dr. Lopez continues actively involved in research. He is the Director of the University of Pittsburgh Alzheimer’s Disease Research Center, the principal investigator of 3 NIH-funded grants, and he is co-investigator in other 6 NIH-funded projects.

Dr. Lopez is conducting a large-scale study in the clinical diagnosis of mild cognitive impairment (MCI), which is considered an intermediate state between normalcy and dementia. His findings are relevant to an understanding of the symptom profile and nosology of MCI. The results of his prospective epidemiological study allow us to conclude that idiopathic MCI is not a distinct clinical syndrome, but is the earliest manifestation of Alzheimer’s disease (AD). An application to continue with this R01 grant will be sent to the NIA in 2012. This grant has generated 36 peer-reviewed publications from April 2007 to April 2012.

Dr. Lopez is currently conducting studies, as principal investigator and co-investigator, of the factors that modulate the transition from normal to mild cognitive impairment (MCI) and to dementia in relationship to cerebral amyloid deposition. These studies examine how cardiovascular and cerebrovascular factors create a vulnerability state for AD and neurodegeneration, and how they affect physiologically relevant compensatory mechanisms in the brain using MRI, FDG-PET, and Pittsburgh Compound B (PiB) technologies.

Dr. Lopez continues conducting genome-wide association studies (GWAS) in late onset AD through the following cooperative studies: 1) Cohorts for Heart and Aging Research in Genomic Epidemiology (CHARGE); this is a consortium formed by the Reykjavik Study, Cardiovascular Health Study (CHS), Framingham Study, and Rotterdam Study to examine the genetic basis of AD and cerebrovascular disease; 2) International Genomics of Alzheimer’s Project (IGAP), an international collaboration that aims to pool genetic data amassed in Europe and North America to construct a detailed map of genetic variations that contribute to AD; and 3) Alzheimer's Disease Genetics Consortium; this is an NIH-funded grant to conduct GWAS to identify genes associated with an increased risk of developing late onset AD. In addition, he collaborates with Fundacio ACE in Spain to create a replication cohort of demented and non-demented subjects in Barcelona, and is co-investigator of the grant “Prediction of Psychosis in Alzheimer’s Disease”; The goals of this study is to further identify common genetic variants associated with Alzheimer’s disease + psychosis (AD+P) in a staged analysis of nearly 10,000 subjects, utilize these variants to predict the adverse cognitive and behavioral trajectories of AD+P in two well-characterized cohorts, and leverage a high quality cerebral cortex transcriptome dataset to identify the molecular changes associated with the AD+P risk alleles.

Dr Lopez co-authored the paper published in *Nature Genetics* where it was reported the discovery of common variants at 12q14 and 12q24 are associated with hippocampal volume. This represents important steps towards the understanding of the pathways involved in neurodegeneration and normal aging. Dr. Lopez’s group has also participated in the “GWAS of Alzheimer’s disease with Psychotic Symptoms” published in *Molecular Psychiatry*. This study is oriented to further understand the “psychotic” phenotype in Alzheimer’s disease patients. These symptoms are common in these patients and have a tremendous impact on caregivers’ burden. This was done in collaboration with the Genetic and Environmental Risk in Alzheimer's Disease (GERAD) consortium. This is collaborative effort from the U.K. and the United States to combine the knowledge, staff and resources to conduct research on the genetics of psychiatric symptoms of Alzheimer's disease.
Dr. Lopez’s group continues with studies that examine the factors that affect brain structure in cognitively normal elderly individuals in the CHS Cognition Study (CHS-CS) (P.I.: Dr Lopez). We have conducted longitudinal studies to examine the effect of physical activity and brain volume in the CHS-CS. Erikson and colleagues examined whether physical activity (measured in 1991-92) was associated with greater GM volume (MRI in 1998-99) after a 9-year follow-up, and whether a threshold could be identified for the amount of walking (measured in blocks walked per week) necessary to spare GM volume, and whether GM volume associated with physical activity would be associated with a reduced risk for cognitive impairment (MCI/dementia) 13 years later (after 2002-03) in cognitively normal subjects. After controlling for white-matter lesions (WMLs), MRI-identified infarcts, and other variables (including BMI), greater physical activity predicted greater volumes of frontal, occipital, entorhinal, and hippocampal regions 9 years later (see Figure 1). Walking 72 blocks per week was necessary to detect increased GM volume, and greater GM volume associated with physical activity reduced the risk for MCI/dementia 2-fold between 1998-99 and 2002-03. This longitudinal study showed that physical activity had a long-term effect, as it was associated with greater GM volume.

**Eric McDade, DO**  
Assistant Professor of Neurology

Dr. Eric McDade joined the Department of Neurology in 2011 following the completion of Fellowship training. He graduated from the Chicago College of Osteopathic Medicine and then completed his Neurology training at the University of Maryland where he was Co-Chief Resident and received the Arnold P. Gold Humanism Award. Dr. McDade then pursued Fellowship training in Dementia and Cognitive Neurology at the Mayo Clinic. While at the Mayo Clinic he also obtained additional training in clinical research through the Clinical and Translational Science Award Institution.
Dr. McDade’s clinical focus is on dementia with a particular interest in frontotemporal dementia, Alzheimer dementia, Lewy-body dementia and in young-age onset dementias as well as familial dementia syndromes. Additionally, he is involved in the evaluating patients at the University of Pittsburgh’s Alzheimer Disease Research Center as well as participating in clinical trials for Alzheimer Dementia. He serves as the Associate Director of the Clinical Core for the Alzheimer’s Disease Research Center.

Through his interest in familial Dementia syndromes, Dr. McDade serves as the Principle Investigator at the University of Pittsburgh for the Dominantly Inherited Alzheimer Network (DIAN), an international, multi-site study of autosomal dominant Alzheimer Dementia.

Judith Saxton, PhD
Associate Professor of Neurology

Dr. Judith Saxton is a neuropsychologist with more than twenty-five years experience in the assessment of older patients with cognitive problems. Most recently she was the Principal Investigator of an NIA-funded study entitled “Cognitive Assessment of Primary Care Patients”. A major goal of the study was to investigate the utility of cognitive testing in the Primary Care setting. Both clinical outcomes and clinical practice were investigated in this six-year study that involved more than 500 subjects over age 65 and 24 community primary care physicians. The primary outcome paper from this study is currently under review. One innovative aspect of the study was the use of computer tests to identify older patients with mild cognitive impairment. Dr. Saxton was also Director of the Clinical Core of the Alzheimer’s Disease Research Center and Co-Director of the Education and Information Core. She worked with colleagues on two studies of the Pittsburgh compound-B (PiB), in which positron emission tomography (PET) is used to identify amyloid deposition in the brains of normal healthy individuals and those with cognitive impairment. Dr. Saxton was Director of the Clinical Core of the Program Project Grant “In Vivo PiB PET Amyloid Imaging: Normals, MCI & Dementia”.

Dr. Saxton’s main area of interest is in the cognitive disorders of aging. She is the author of the Severe Impairment Battery (SIB) and developed a short form of the SIB which allows the cognitive assessment of patients with more profound dementia (Am J Geri Psych; 2005, 13:11; 1-7). The SIB is in use both nationally and internationally and has been translated into more than twelve languages. Dr. Saxton and colleagues are also working on the development of a computer test, the Computer-based Assessment of Mild Cognitive Impairment (CAMCI), which is a brief assessment of cognition designed to identify individuals at the earliest possible stages of cognitive change (Postgraduate Medicine, 2009). Dr. Saxton and colleagues from Psychology Software Tools, a local software company received additional funding from the National Institutes on Aging to develop alternate forms and foreign language translations of the CAMCI, collect normative data, develop training and marketing tools and test usability through real world testing. This grant, entitled “CAMCI: Advancing the Use of Computerized Screening in Healthcare”, will also collect outcomes data on individuals tested with the CAMCI up to six years earlier.

Dr. Saxton will retire from the University of Pittsburgh in July 2012. However, she will continue to work in the field of cognitive aging and will continue her work on the identification of cognitive impairment in primary care patients and specifically on the use of computer testing.

Beth Snitz, PhD
Assistant Professor of Neurology

Dr. Snitz is a neuropsychologist with a clinical and research focus on mild cognitive impairment in aging and early detection and prediction of Alzheimer’s disease (AD). Her research interests also include cognitive correlates of beta-amyloid deposition as measured by Pittsburgh Compound B (PiB) – PET imaging. This past year she continued work on a Patient-Oriented Research Career Development Award (K-23) from the NIA, with the project title
‘Subjective cognitive complaints, longitudinal cognitive decline, and beta-amyloid deposition in non-demented older adults.’ This research investigates subjective cognitive complaints as a potential facet of early beta-amyloid-associated, sub-clinical neuronal dysfunction, along with subtle cognitive deficits and gradual cognitive decline. It also investigates the role of personality, mood and reporting bias in the measurement of subjective complaints in aging and their relationship to beta-amyloid deposition. This five-year career development award will provide the foundation for a research program dedicated to investigating the early natural history of cognition associated with AD pathology in aging.

Dr. Snitz has been named the Director of the Clinical Core of the NIA-funded program project grant ‘In Vivo PiB PET Amyloid Imaging: Normals, MCI & Dementia.’ She is a clinical neuropsychologist at the Alzheimer’s Disease Research Center and was co-investigator on the NCCAM-funded Ginkgo Evaluation of Memory (GEM) Study. She collaborates closely with mentors and colleagues Drs. Saxton, Lopez, Klunk, Ganguli and DeKosky on epidemiologic and clinical studies of cognitive aging, MCI and PiB-PET imaging, including a population study of predictors and outcomes of MCI in small-town Southwestern Pennsylvania (Ganguli PI); a longitudinal study of normal aging and beta-amyloid deposition (Klunk PI); and a study of cognitive correlates of early striatal beta-amyloid deposition in early onset familial AD (Klunk PI).

Epilepsy Division

Anto Bagić, MD, PhD
Associate Professor of Neurology and Chief, Epilepsy Division
Director, UPMC MEG Epilepsy Program and Epilepsy Monitoring Unit
Chief Scientific Advisor, MEG research
Director, University of Pittsburgh Comprehensive Epilepsy Center
Founding Director, Center for Advanced Brain Magnetic Source Imaging (CABMSI; 2005-2009)

Dr. Bagić conducts an Outpatient Epilepsy Clinic, had 40% attending responsibilities in the Epilepsy Monitoring Unit and maintains a monthly Vagal Nerve Stimulator (VNS) Clinic. Under his direction the EMU has reached the highest productivity level in its history with a resultant expansion to 6 monitored beds in July 2011. An ongoing responsibility is to further expand the Epilepsy Program that has already grown to include 5 sub-specialized epileptologists while continuing to direct and further develop the UPMC MEG Epilepsy Program that he founded upon his arrival at the Department in 2005. One more epileptologist will join Epilepsy Division in July 2013.

During the past year, Dr. Bagić’s efforts led to significant growth in the field of clinical applications of MEG in epilepsy and resulted in diverse MEG research collaborations that range from internal pilot studies to the NIH-funded R01 and smaller grants. There has been a significant increase in collaborations with some of the rising investigators from Carnegie Mellon University that are currently focused on cognitive aspects of music and brain plasticity. Dr. Bagić has been investigating hand transplant recipients using MEG since the Hand Transplant Program enrolled its first participant in March 2009. Initial results were presented at international conferences that sparked major international collaborations with MEG experts in Finland and Spain focused on brain plasticity; some are being prepared for publication.

Nationally, Dr. Bagić continued to be very active within the American Clinical MEG Society (ACMEGS) where he is a founding member, served on the Board of Directors and as a treasurer, and chaired the Clinical Practice Guidelines (CPG) Committee that finalized the world’s first clinical practice guidelines for the field of clinical MEG, a vital step in propelling MEG technology from clinical research to clinical routine. These CPGs were published in August 2011 issue of J Clin Neurophysiol. During February 2012 ACMEGS Annual Meeting Dr. Bagić was elected as the President of this Society. Since December 2011 American Epilepsy Society (AES) annual meeting, he become a coordinator of the AES MEG/MSI Special Interest Group (SIG), and he is also the first chair of the new American Clinical Neurophysiology (ACNS) MEG SIG.
Internationally, Dr. Bagić is a member of Credentialing Committee and MEG Reporting Committee of the International Society for Advancement of Clinical MEG (ISACM), and founding member of the Magnetoencephalography International Consortium for Alzheimer’s Disease (MAGIC-AD). This growing international consortium includes the most prominent MEG dementia scientists from Finland, Spain, England, Japan and the United States and has a joint publication and has submitted joint grants. After its recent investigators meeting in Madrid (June, 2012), it became evident that this consortium will become the skeleton of the similar consortium focused on traumatic brain injury. Dr. Bagić continued to chair the Croatian MEG Initiative focused on energizing Croatian scientific community around the idea of acquiring the first MEG system in Eastern Europe.

During the past academic year, Dr. Bagić published 12 MEG-related articles in major journals, and has 5 related articles in review and several in preparation. He also continued his research on public perception, attitude and knowledge about epilepsy and his follow up study is accepted for publication in Epilepsy & Behavior, while his other related publications about social distance towards persons with epilepsy is in submission.

Dr. Bagić’s research is focused on applications of MEG in studying epilepsy, language, cognition and brain plasticity in response to hand transplantation. Dr. Bagić is a co-investigator or consultant on multiple MEG-based studies ongoing at UPMC, including NIH-funded R01 grants. Currently, the most active MEG research efforts are on studying dementia. One of his recent major research activities involves team efforts with his Epilepsy Division within an $18,000,000 NIH-funded multicenter trial aimed at comparing therapeutic efficacy of radiation and surgery in treating temporal lobe epilepsy (ROSE: “Radiosurgery or Surgery for Epilepsy”), and collaboration with the Physical Medicine & Rehabilitation team on using direct cortical recordings acquired during long term invasive monitoring of epilepsy patients in the epilepsy monitoring unit (EMU) for advancing movement decoding algorithms geared towards brain-computer interface.

During the next year, Dr. Bagić will focus on advancing and/or finalizing some of his ongoing MEG studies, particularly those focused on brain plasticity of hand transplant recipients, as well as those involving public aspects of epilepsy, starting the a new epilepsy project that involves combining MEG and EEG source localization in studying intractable epilepsy, accelerating the surgical epilepsy program and expanding the Epilepsy Division. Academically, Dr. Bagić will continue his teaching role within the Residency Program, Clinical Neurophysiology Fellowship Program, MS1 Neuroscience Course, MS4 Clinical Pharmacology, Multimodal Neuroimaging Course and Multimodal Neuroimaging Training Program. One of Dr. Bagić’s short-term goals is recruiting fellows for his newly established epilepsy fellowship at UPMC and organizing all Pittsburgh researchers studying any aspect of epilepsy in Pittsburgh Epilepsy Research Special Interest Group. His clinical efforts during the next year will be centered on optimizing patient flow in the expanded EMU, fostering the growth of outpatient epilepsy program, including particular attention to transition and transfer of epilepsy patients from pediatric to adult epileptologists, starting epilepsy support groups for specific subpopulations such as patients who have undergone epilepsy surgery and intensifying divisional activities through the Epilepsy Foundation of America. One of Dr. Bagić’s goals is to engage the entire Epilepsy Division in various epilepsy advocacy activities.

In addition to his continual involvement in bedside and clinic teaching of neurology residents, fellows and students, Dr. Bagić teaches epilepsy-related lectures within MS1 Neuroscience Course and also epilepsy topics within Acute Series for Internal Medicine Residents. During the last year, he also presented several specific lectures to the neurology residents, including those on epilepsy and pregnancy, evidence-based medicine (EBM) and Vagal Nerve Stimulator (VNS).

After succeeding in obtaining hospital funds for starting and sustained funding of a new Epilepsy Fellowship that includes 2 positions per year, during this academic year, Dr. Bagić has been working on recruiting his first fellows, and two candidates are selected to start in July 2013. This fellowship is envisioned to educate academic epileptologists.
Richard Brenner, MD  
Clinical Professor of Neurology


Dr. Brenner held weekly teaching conferences for clinical neurophysiology fellows, neurology residents, as well as medical students on the neurology rotation. He taught an introductory EEG course to incoming neurology residents. He continued to read EEGs with the clinical neurophysiology fellows and neurology residents.

Gena Ghearing, MD  
Assistant Professor of Neurology

Dr. Ghearing has been continuing to work to increase the activity of the adult surgical epilepsy program which is now averaging approximately two to three surgeries per month. Many of these cases have been complicated cases which require prolonged extraoperative intracranial EEG monitoring and cortical stimulation studies. The program is also incorporating subtraction ictal SPECT, MEG, PET, 3T MRI and functional MRI into the evaluation with the cooperation of colleagues. We have continued the weekly epilepsy surgery conference. This has allowed the exchange of information and facilitated advances among those interested in epilepsy who work in neurology, neuropsychology, neurosurgery, MRI, nuclear medicine, MEG, and other interested groups.

Dr. Ghearing’s activities this year included serving as attending on the Epilepsy Monitoring Unit service, the Neurology Ward service and the Neurology Consult service, as well as seeing patients in the epilepsy clinic. These rotations include teaching medical students, neurology residents, clinical neurophysiology fellows, and occasional medicine, neurosurgery, and psychiatry residents. Dr. Ghearing also presented multiple lectures to neurology residents on topics related to seizures as well as giving other lectures on epilepsy to other audiences including medical students, critical care fellows, psychiatry residents, and the neurology and neuropsychiatry departments.

Dr. Ghearing collaborates with Dr. Bagic, Dr. Kondziolka, Dr. Tyler-Kabara, and Dr. Popescu as an investigator in the Radiosurgery vs. Lobectomy for Temporal Lobe Epilepsy: A Phase III Clinical Trial (ROSE trial). In addition, Dr. Ghearing is working with Dr. Wei Wang, Dr. Tyler-Kabara, Dr. Richardson and colleagues in bioengineering to record human cortical activity using micro-electrocorticography. This year the project has shifted to evaluating high frequency oscillations, and we also successfully recorded micro-seizures and hope to collaborate on a project with Mayo clinic evaluating this further. She also continues her research in ictal asystole and recently published a manuscript on early seizure termination in ictal asystole.

Dr. Ghearing continues to be the director of the EEG lab at Presbyterian Hospital, which underwent extensive renovation and growth this year. We now have 6 ambulatory EEG machines for prolonged outpatient recordings and 12 Video EEG machines, which can be utilized for monitoring in the ICU. We also have started to perform lower extremity somatosensory evoked potentials in addition to upper extremity evoked potentials, brainstem auditory evoked responses, and visual evoked potentials. We added 2 new
electroencephalographers to our lab, now having eight electroencephalographers with subspecialty training in clinical neurophysiology. In addition, the EEG lab at Presbyterian Hospital continues to be a site for training neurology residents, clinical neurophysiology fellows, and EEG technicians.

**Rick Hendrickson, PhD**  
*Assistant Professor of Neurology  
Neuropsychologist, Epilepsy Division*

Dr. Hendrickson continued to provide clinical neuropsychological services for the Epilepsy Division. His cognitive assessments are part of comprehensive pre-surgery evaluations for epilepsy patients referred to the Department of Neurosurgery for improved seizure control via resective surgery. He also evaluates patients with difficult to control seizures referred to the Epilepsy Monitoring Unit for differential diagnosis.

In the last year, Dr. Hendrickson’s research contributed to three presentations that he co-authored on patients with epilepsy and non-epileptic behavioral spells. In addition, he also provided neuropsychological services for a collaborative study of Neurosurgery and Neurology for patients with temporal lobe epilepsy.

Dr. Hendrickson is a co-investigator on Dr. Popescu’s studies of cognitive and psychological functioning of patients with epilepsy and nonepileptic seizures.

In the next year, he plans to continue the research study of radiosurgery versus lobectomy for temporal lobe epilepsy, providing neuropsychological testing. He will also continue to assist with supervision of a resident and two medical students in the analysis of cognitive and psychological variables on the above studies with Dr. Popescu. Dr. Hendrickson will provide neuropsychological services as previously with his primary clinical responsibilities addressing the needs of the Epilepsy Center. With the revised Epilepsy Monitoring Unit, he will primary perform inpatient assessments.

**Alexandra Popescu, MD**  
*Assistant Professor of Neurology*

Alexandra Popescu MD joined the Epilepsy Division in 2009 after completing a clinical neurophysiology fellowship focused on EEG and Epilepsy at Vanderbilt University in Nashville, Tennessee. At the conclusion of her fellowship Dr Popescu was awarded with the “Clinical Neurophysiology Fellowship Award” for exceptional skills in clinical neurophysiology.

Dr. Popescu’s activities this year included serving as attending on the Epilepsy Monitoring Unit. She actively participates in evaluating patients for possible epilepsy surgery and is engaged in Wada (intracarotid sodium amobarbital procedure) testing and the Multidisciplinary Epilepsy Surgery Conference. In addition, she has attending responsibilities in the Neurology Consult service, as well as seeing patients in the epilepsy clinic and working in the EEG lab. These rotations include teaching medical students, neurology residents and clinical neurophysiology fellows. She is actively involved in an introductory EEG course to incoming neurology residents in July. Dr. Popescu also presented lectures to neurology residents on topics related to Epilepsy, EEG and Evoked potentials.

During 2011-2012 Dr. Popescu continued her work with the post cardiac arrest team assessing patients and using continuous EEG monitoring during therapeutic hypothermia. Dr Popescu presented her work in a platform presentation at the 64th American Academy of Neurology annual conference entitled “Timing and Dynamic Progression of EEG Patterns in Comatose Post-Cardiac Arrest Subjects Treated with Hypothermia”.

Other interests include CT Perfusion Imaging in Seizures. This led to a poster presentation by Erin Canale, MD, a resident being mentored by that Dr Popescu, at the 35th Annual Meeting of the American Society of Neuroimaging.
Anne C. Van Cott, MD, FAAN  
Associate Professor of Neurology  
Neurology Service/VA Pittsburgh Healthcare System

In the past academic year, Dr. Van Cott has continued her clinical and research work in epilepsy. Her recent research effort has focused on the treatment of elderly epilepsy patients and quality of life issues in individuals with seizures. An active member of the VA Treatment in Geriatric Epilepsy Research (TIGER) Project, she was a co-author on an article addressing suicidal behavior in older veterans treated for new-onset epilepsy. She is currently serving as a co-investigator in a VA funded research project that will prospectively examine medical and psychiatric co-morbidities in service men returning from Operation Enduring Freedom and Operation Iraqi Freedom. She is also serving as a co-investigator on another VA funded research project that will assess access to the quality of care for epilepsy patients treated in the VA Healthcare System nationally.

She enjoys caring for veterans with epilepsy. She continues to serve as the director of the EEG laboratory at the VA Pittsburgh Health Care System which is accredited by the American Board of Electroencephalographic and Evoked Potential Technologists (ABRET).

Dr. Van Cott has always enjoyed educating fellow health care providers and the public and frequently lectures on the treatment of epilepsy in the elderly. She serves on the Professional Advisory Board of the Epilepsy Foundation (EF) of Western/Central PA. She also continues to play an active role in the education of residents, specifically with regards to the neurological exam and electroencephalography interpretation and serves as a mentor to several residents. In spring 2011 she was a faculty facilitator for Integrated Case Studies (ICS) Course University School of Medicine. She has joined the Neurology department’s medical student curriculum committee.

Dr. Van Cott also is an active member in several national organizations. She is an active member of the VA Epilepsy Center of Excellences. She served as a member of NIH/NINDS Epilepsy Common Data Elements (CDE) Working Group and was the Chair of the Electrophysiology Subgroup of NIH/NINDS Epilepsy CDE Working Group. Dr. Van Cott served as a member of the Center for Disease Control and Prevention (CDC) special Emphasis Panel.

General Neurology Division

John J. Doyle, MD  
Associate Professor of Neurology  
Chief, General Neurology Division

Dr. Doyle became Residency Program Director for the Department of Neurology in October, 2006. He has supervised resident recruitment since, and all available positions have been successfully filled with excellent applicants. He directed the course entitled “An introduction to clinical neurology” (“boot camp”) each year for PGY-2 residents who were starting formal neurology training. The resident complement for the program has been increased to seven adult neurology residents per year.

Dr. Doyle’s chief interests lie in clinical neurology and neurologic education. He sees patients in the outpatient clinic where most of his clinical sessions include neurology residents who are fulfilling training requirements for continuity clinics. As the goals in the clinic are to foster the clinical application of basic neurologic science, the mastery of clinical neurology, including the interpretation and judicious use of neurologic diagnostic tests, and offering effective treatment where available, Dr. Doyle anticipates that by the time the residents complete their training, they will be competent to enter practice. At the present time, he supervises six neurology residents on a weekly basis.
A board requirement for neurology residency training is that formal education be devoted to basic neuroscience including neurophysiology. Dr. Doyle, along with other faculty, teaches basic science courses for neurology residents that meet approximately 45 weeks per year. Instruction is given in neurophysiology, including nerve excitability, synaptic function, neuropharmacology and neurochemistry, and systems analysis including motor, sensory and visceral motor functions. Other courses in this series, which encompasses a three-year cycle, include neuroanatomy, neuropathology, and neurogenetics. This course is offered yearly and is aimed at fostering clinical excellence through the application of up-to-date neuroscience. The content and emphasis of the course is changed yearly because of rapidly evolving research in the neurosciences. Dr. Doyle instructs neurology residents, residents in other disciplines such as psychiatry and physical medicine, and medical students on the neurology in-patient consultation service. His commitment is ten months per year. On average, more than 50 consultations are seen each week.

Dr. Doyle is also involved in medical student education. To this end, he participated in six 2-hour group sessions in problem-based learning during the neuroscience course, three additional small-group seminars, and delivered lectures to the entire first-year medical student class on “Disorders of Consciousness” and “Principles of Neurologic Localization”.

Dr. Doyle was appointed Chief of the Division of General Neurology during 2005, and one of his goals is to upgrade the program of instruction in clinical neurology. One of the ways he will achieve this is to divide the body of knowledge into key areas which each resident will be expected to master prior to graduation. Dr Doyle has worked with Dr. Alan Humphries on ongoing revisions to the neuroscience course for the first-year medical students, and he and Dr. Lisa Roeske-Anderson deliver grand rounds on a monthly basis in a clinical case format.

**Angela Lu, MD**  
**Clinical Assistant Professor of Neurology**

Dr. Lu serves as a general neurologist providing daily out patient clinical care. Her practice at the UPMC Mercy satellite location has allowed the department to increase its clinical productivity and expand its reach to patients in an underserved community.

Dr. Lu completed her fellowship training in clinical neurophysiology at the University of Pittsburgh Medical Center in 2008. She utilizes this expertise in performing EMG studies at Mercy, and also interpreting EEG studies at UPMC Presbyterian Hospital.

Dr. Lu actively participates in both medical student and resident teaching activities. She precepts several neurology residents in their weekly out-patient continuity clinics. She instructs medical students on peripheral neuropathy. She is also involved in teaching residents and fellows in EEG interpretation.

**Kelly Kay, DO**  
**Clinical Assistant Professor of Neurology**

Dr. Kay joined the Department of Neurology in 2011. She received her Doctor of Osteopathic Medicine degree from Lake Erie College of Osteopathic Medicine in 2004 and completed her residency in neurology at Allegheny General Hospital in Pittsburgh in 2008, followed by a fellowship in clinical neurophysiology. Dr. Kay practices general neurology and performs EMG/nerve conduction studies in the Monroeville office. Dr. Kay also rounds on the inpatient neurology and consultation service on the Oakland campus and enjoys working with the neurology residents and medical students.
Eric Ogren, MD  
Assistant Professor of Neurology

Dr. Ogren continues to provide inpatient and outpatient neurological services for the Pittsburgh and Butler Veterans Administration Healthcare Systems. During the week, he sees patients at the Oakland VA Hospital, the H. John Heinz III Progressive Care Center and the Butler VA Hospital. He supervises house-staff in the Monday and Tuesday Oakland VA Neurology Clinics. He is part of the Neurobehavioral program at the H. John Heinz III VA and he’s also a consultant to the Poly-trauma team for veterans with traumatic brain injury.

Lisa C. Roeske-Anderson, MD  
Assistant Professor of Neurology

Dr. Roeske-Anderson continues to maintain a busy general neurology practice in Oakland. She performs EMG/NCS and supervises the IVIG treatments for patients with demyelinating peripheral neuropathies such as Guillain-Barré syndrome and chronic inflammatory demyelinating polyneuropathy. Her teaching contributions include rotating clinic sessions with medical students and neurology residents. With her colleague John Doyle, MD, she has organized a neurology grand round series focusing on complex in-patient and out-patient clinical cases.

Janet Waters, MD, MBA  
Clinical Assistant Professor of Neurology

Dr. Waters joined the Department of Neurology in July 2010. She completed her medical training at The George Washington University Medical School and her Neurology residency at Mount Sinai Medical Center in New York City. She also earned an MBA at the Nance School of Business at Cleveland State University. She is board certified in Neurology. Prior to joining the staff at UPMC, she worked as a Neurology Hospitalist at Memorial Medical Center in Johnstown, PA and served as Medical Director of their Stroke Prevention Program. Dr. Waters treats patients with any type of neurologic symptom and particularly enjoys seeing patients whose diagnosis has been difficult to establish. She sees outpatients at the Kaufmann Neurology Clinic and also provides neurology consults for hospitalized patients at Magee Women’s Hospital, Shadyside Hospital and UPMC Hamot. Dr. Waters also has an interest in the economics of medical practice and has conducted research on the financial feasibility of various practices involved in blood management.

Headache Division

Robert G. Kaniecki, MD  
Assistant Professor of Neurology  
Chief, Headache Division

During the academic year 2011-2012 Dr. Kaniecki continued his role as Director of the outpatient Headache Center which he founded in 2000. He remains clinically active in the evaluation and management of headache patients, personally scheduling 300-400 patients each month. The Headache Center at the University of Pittsburgh has developed into one of the largest headache programs in the country with approximately 8000 outpatient visits per year. It is staffed by 4 physicians and 1 physician assistant at a state-of-the-art 3700 square-foot
The Center continues to provide an assortment of medical options for the management of headache, as well as interventional procedures of neural blockage and botulinum toxin delivery. Dr. Kaniecki also oversees inpatient headache management program and continues to recruit for additional faculty to staff the Headache program.

In addition to his clinical responsibilities, Dr. Kaniecki continues to participate in clinical research. Since 2006 he has served as chairman of the scientific review committee for the Department of Neurology. He delivered poster presentations of his research at the annual scientific meetings of the American Headache Society and the American Academy of Neurology. Since 2008 he has served as Abstracts Editor for the journal *Headache*.

Dr. Kaniecki serves on the residency selection committee and the executive committee for the Department of Neurology and remains active in medical education. He delivers the headache and pain pharmacology lectures for the first-year medical students and also participates in didactic and clinical education of second, third, and fourth-year medical students. Many residents participate in preceptorships at the Headache Center, and Dr. Kaniecki is an active teacher on rounds, in lecture, and with journal club venues. He received the “Excellence in Teaching” award from the neurology residents in 2012, his fourth in 10 years. Outside the University of Pittsburgh system Dr. Kaniecki remains active in continuing medical education, delivering multiple invited CME presentations during the 2011-2012 academic year. He acted as a key contributor to recent editions of the *MKSAP* (Internal Medicine) and *Continuum* (Neurology) continuing education programs.

In 2011 the application for Headache Fellowship was accepted and approved by the United Council for Neurological Subspecialties (UCNS). Dr. Kaniecki now acts as Program Director for this fellowship, which added its first fellow in July.

During the course of the upcoming academic year Dr. Kaniecki expects to continue his active clinical duties and participation in medical educational programs. He intends to expand the educational opportunities in headache for the neurology residents at the University of Pittsburgh. Plans for participation in two major multi-center clinical trials are also in progress, and he will continue to participate in single institutional clinical studies involving the diagnosis and treatment of patients with headache.

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**Kathy Gardner, MD**

**Assistant Professor of Neurology**

Dr. Gardner's research is focused on the genetics of both common and rare hemiplegic forms of migraine. She has an ongoing cohort of migraine families and hemiplegic migraineurs for linkage and mutation analysis. She has established collaborations to help with the collection at headache centers at University of Oklahoma Health Sciences Center. She is the PI for this multi-center study funded by the American Headache Society/ Pfizer and is responsible for oversight and protocol renewals at Children's Hospital and the VA. The hemiplegic migraineurs are referred through NIH-sponsored Genetests website, where she is the author of the monologue on Familial Hemiplegic Migraine (FHM). Dr. Gardner also has a study ongoing at the Children’s Hospital NF clinic to characterize headache types and frequency in subjects of all ages with NF-1 titled “Headaches in Neurofibromatosis-1.” She is an advisor and board member for the local chapter of the Neurofibromatosis Clinics Association and Co-Director of the Children’s Hospital Neurofibromatosis Clinic.

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**Barbara Vogler, MD**

**Clinical Assistant Professor of Neurology**

Dr. Vogler joined the Department of Neurology at the UPP Headache Center in August 2006. Since this time she has worked with numerous University of Pittsburgh medical students and neurology residents both in the outpatient and inpatient setting.

In addition to her clinical responsibilities, Dr. Vogler is director of the clinical research section of the Headache Center. She has entered the center into several multicenter clinical trials.
In the upcoming year, Dr. Vogler will be an Attending for the Headache Fellowship program at the Headache Center.

Movement Disorders Division

J. Timothy Greenamyre, MD, PhD
Professor and Vice-Chair for Academic Affairs
Chief, Movement Disorders Division
Director, Pittsburgh Institute for Neurodegenerative Diseases

Dr. Greenamyre, Chief of the Movement Disorders Division, established the Comprehensive Movement Disorders Clinic, which serves as the focal point for clinical care, research and teaching of disorders, such as Parkinson’s disease, Huntington’s disease, tremor and dystonia. The Movement Disorders Division now consists of 6 clinician-investigators, 2 medical assistants and 3 clinical coordinators. Dr. Greenamyre maintains an active clinical practice and is an investigator in several clinical trials. In 2009, Dr. Greenamyre was named as one of America’s Top Physicians and as one of the Best Doctors in America.

Dr. Greenamyre is Director of the Pittsburgh Institute for Neurodegenerative Diseases (PIND), an interdepartmental, interdisciplinary institute that occupies the 7th floor of the new Biomedical Sciences Tower 3. The PIND consists of approximately 100 faculty, postdocs, students and staff in an open-lab, collaborative environment – and is dedicated to the study of neurodegenerative diseases, such as Parkinson’s, Alzheimer’s and Huntington’s diseases, as well as ALS, MS and other related disorders. In the PIND, there is an emphasis on defining disease mechanisms with the ultimate goal of developing new diagnostic and therapeutic modalities.

In terms of teaching, Dr. Greenamyre continues to lecture in the Movement Disorders series for 1st year medical students. He is the PhD thesis advisor for an MD-PhD student and serves on several PhD thesis committees. Dr. Greenamyre serves as the primary mentor on 5 K awards for junior faculty and is the supervisor of 6 postdoctoral research fellows.

Dr. Greenamyre is engaged in both clinical and basic laboratory research. His work is funded by NINDS, NIEHS, the American Parkinson Disease Association, the Parkinson’s Disease Foundation and the Michael J. Fox Foundation. He is an investigator in the Huntington Study Group and the Parkinson Study Group. His laboratory investigates basic mechanisms of neurodegeneration. He is a member of the Scientific Advisory Board of the Michael J. Fox Foundation and the Parkinson’s Disease Foundation and the Advisory Board of the Neurological Institute “C. Mondino” in Pavia, Italy. He is Editor-in-Chief of Neurobiology of Disease and a member of the editorial boards of several other scientific journals.

Sarah B. Berman, MD, PhD
Assistant Professor of Neurology

Dr. Berman has been a member of the neurology faculty since 2005, after completing neurology residency and fellowship training at the Johns Hopkins University. She continues to be an active member of the Movement Disorders Division and treats patients with Parkinson’s disease and other movement disorders as part of the Comprehensive Movement Disorders Clinic. In addition, she continues to evaluate and manage patients with deep brain stimulators (DBS) implanted for Parkinson’s disease, tremor, and dystonias. She oversees management and programming of stimulators, other aspects of treatment, and evaluations and referrals for new patient candidates. Since 2008, she also evaluates patients at the Alzheimer’s Disease Research Center.
Dr. Berman is also a principal investigator with the Pittsburgh Institute for Neurodegenerative Diseases (PIND), where she continues to be engaged in an active research program focusing on the role of mitochondria in neurodegenerative diseases, particularly Parkinson’s disease (PD). Dr. Berman’s research focuses on the role of mitochondrial dynamics in neurodegenerative diseases. Mitochondria, the energy-producing organelles in cells, are dynamic in neurons, undergoing frequent division (fission) and fusion, and being transported in a regulated fashion. These processes are critical for synapse function and formation, programmed cell death mechanisms, and protection of mitochondrial DNA, and specific defects in mitochondrial fusion genes cause neurodegenerative diseases. Mitochondrial dynamics have been increasingly implicated in neurodegenerative diseases, particularly PD, but these mitochondrial processes have been very difficult to study directly, particularly in the brain. Using novel methodology, Dr. Berman’s laboratory directly studies the role of mitochondrial dynamics in neurotoxicity of PD models and aging, and her results have suggested that neurotoxicity can be affected by altering mitochondrial dynamics. Dr. Berman recently received additional five-year funding from the NIH National Institute of Neurologic Disorders and Stroke, and has received funding from the Parkinson Disease Foundation (PDF) for a collaborative project with Dr. Edward Burton in the PIND, as well as PDF postdoctoral support for a separate project. In 2011-2012, she published two new manuscripts on her work, and presented her work at invited presentations at the First Regional Translational Research in Mitochondria, Aging, and Disease-TrMAD symposia in Pittsburgh, as well as at Texas Tech University Health Sciences Center and Boston University.

Dr. Berman continued as an active participant in the clinical training of residents and medical students this year through lectures for neurology residents, and for the third-year medical student neurology lecture series. In addition, she has continued to provide lectures around the academic community. She also provided clinical teaching to residents and medical students during inpatient attending duties and outpatient clinics. She currently mentors two postdoctoral fellows as well as several undergraduate students.

Dr. Berman also continued her involvement in service to the PD patient community and sits on the Board of Directors of the National Parkinson Foundation chapter, the Parkinson Foundation of Western Pennsylvania, as well as on their Outreach Committee. She helped with the organization of the Victory Summit, a conference in Pittsburgh for over 450 people with PD and their families, organized by the Davis Phinney Foundation for Parkinson’s, based in Boulder, CO. In addition, she was a panel speaker on the conference’s session on deep brain stimulation for PD. She has also continued to serve on the United Mitochondrial Disease Foundation grant review committee as well.

Over the course of the 2012-2013 academic year Dr. Berman will continue to expand her research into mitochondrial involvement in neurodegenerative diseases and will continue to publish and present her findings. She will continue her clinical activities and expansion of the deep brain stimulator program in the Movement Disorders Division. She will continue her work with the Alzheimer’s Disease Research Center. She plans to continue resident and medical student teaching activities, and community service activities through involvement with the local Parkinson’s patient advocacy group, the United Mitochondrial Disease Foundation, and educational outreach forums with local patient support groups.

Edward A Burton, MD, DPhil, FRCP
Assistant Professor of Neurology
Assistant Professor of Molecular Genetics and Biochemistry

Dr. Burton is a movement disorders neurologist specializing in the diagnosis and management of Parkinson’s disease (PD), multiple system atrophy (MSA), progressive supranuclear palsy (PSP) and dystonia. The central aim of Dr. Burton’s research work is
to understand the mechanisms underlying pathogenesis in these conditions and to develop more effective therapies to control symptoms and mitigate disease progression. The Burton lab has taken two complementary approaches to investigating the functions of genes implicated in these conditions and how they interact with environmental influences thought important in pathogenesis:

1. The zebrafish has many potential advantages for the study of neurological diseases and is especially suitable for screening approaches to identify genetic and chemical modifiers, and to study gene-environment interactions. In addition, zebrafish provide opportunities to carry out in vivo imaging studies, since larvae are translucent. The zebrafish CNS presents an appropriate substrate for modeling human disease: the zebrafish is a vertebrate and its nervous system retains the same basic divisions and neuronal specializations of the human brain, in addition to glial cell populations of relevance to disease pathogenesis. The Burton lab has developed transgenic zebrafish models that replicate many of the biochemical and pathological features of PD, PSP, MSA and DYT1 dystonia, and neurobehavioral assays suitable for drug discovery applications in these models. Dr. Burton’s group has also identified the zebrafish homologues of human synucleins and torsins implicated in PD and dystonia, and shown that they have conserved functions in dopamine neurons of the zebrafish brain. This work was supported by grants from NINDS, Pittsburgh Foundation, CurePSP, the Bachmann-Strauss Foundation and the Dystonia Medical Research Foundation. In addition, in collaboration with Sarah Berman, MD, PhD, the Burton lab has developed transgenic zebrafish allowing live imaging of mitochondrial dynamics in CNS dopamine neurons to study pathogenic mechanisms in PD models. This work is supported by a collaborative grant from the Parkinson’s Disease Foundation.

2. The Burton lab has developed recombinant viral vectors that target the α-synuclein gene implicated in Parkinson’s disease. These vectors substantially knock down α-synuclein expression in the mammalian brain in vivo after intra cerebrobral inoculation. In collaboration with J. Timothy Greenamyre MD, PhD, Dr. Burton’s group is now testing these vectors for therapeutic efficacy in a rat model of Parkinson’s disease caused by exposure to an agricultural pesticide epidemiologically implicated in the etiology of sporadic PD. The studies will potentially yield a novel gene therapy approach for treating PD. This work is supported by the US Department of Veterans’ Affairs.

David A. Hinkle, MD, PhD
Assistant Professor of Neurology

Dr. Hinkle joined the University of Pittsburgh Neurology faculty in 2004 after completing his Neurology residency and fellowship training in movement disorders at the University of Pennsylvania. He has been an active member of the Movement Disorders Division through his participation in the Comprehensive Movement Disorders (CMDC) and Dystonia Clinics, his role as the Course Director for the CMDC continuing medical education activity entitled “Parkinson’s Disease (PD) and other Movement Disorders: Update for the Clinical Practitioner,” and through his outreach activities with local Parkinson’s disease and dystonia patient support groups. Dr. Hinkle speaks in the Neurology resident Movement Disorders lecture series, and serves as the Clinical Advisor for the Pittsburgh Chapter of the Dystonia Medical Research Foundation. In addition to these activities, Dr. Hinkle also attends at the Veterans Administration Movement Disorders clinic, is the VA PD Consortium Director of the National Parkinson’s Disease Research and Education Centers, and attends on the UPMC inpatient neurology consultation service. He is an active participant in the clinical training of Neurology, Psychiatry, Geriatrics, and Internal Medicine students, residents, and fellows through these outpatient and inpatient services. He also lectures in a variety of capacities around campus, including the medical school Neuroscience course.
Dr. Hinkle runs a basic science laboratory within the Pittsburgh Institute for Neurodegenerative Diseases. His lab studies the role of astrocyte-mediated neuroprotection against neurodegenerative disorders. He is particularly interested in how DJ-1, a gene that causes familial PD when silenced, may act through astrocytes to protect neurons under experimental conditions that are relevant to PD. Dr. Hinkle has recently presented this work at several international meetings and has had several publications result from these studies over the past year. His lab plans to investigate the mechanisms of astrocyte-mediated neuroprotection over the next year using high-throughput neuron-astrocyte co-culture bioassays, in-cell Western analysis, quantitative PCR, array-based gene expression profiling, mitochondrial dynamics/physiology, transgenic mouse, and virus-mediated gene transfer technologies. Dr. Hinkle’s lab has two technicians and is funded by the National Institute of Neurological Disorders and Stroke (K08) and the National Institute of Environmental Health Sciences (R01).

Eric K. Hoffmann, PhD
Research Assistant Professor
Pittsburgh Institute for Neurodegenerative Diseases

Eric K. Hoffmann, PhD, is initiating investigations to further define the role of oxidative damage in the neurodegenerative process associated with Parkinson’s disease (PD). Research efforts are focusing on the analysis of a previously uncharacterized peroxidase gene known as PXDNL in the rotenone model of PD. Overexpression of the PXDNL protein in transformed human neuroblastoma cells has been found to confer protection from the neurotoxin rotenone. In addition, reduction of PXDNL gene expression using RNA interference methods results in increased sensitivity to rotenone. Specific DNA sequences within the promoter regions of PXDNL are being tested to determine their responsiveness to oxidative stress. Ongoing studies are characterizing stably transfected human dopaminergic cell lines that overexpress PXDNL in an effort to better define the role of this protein in protection from rotenone-induced neurotoxicity. Structural and functional characterization of the gene and its mRNA splice variants is also in progress. Future studies will involve the analysis of PXDNL expression in in vivo models of PD. Once elucidated, this information will be a valuable asset in the study of how expression of this gene is modulated in cell culture and animal models of oxidative stress and neurodegeneration.

In the coming academic year, Dr. Hoffman plans to continue his research efforts on the mechanisms of oxidative stress and neurodegeneration in Parkinson’s disease. Studies will focus on antioxidant gene expression in response to oxidative stress and the use of RNA interference methods as a means to further define the function of proteins that have been implicated in the etiology of Parkinson’s disease.

Samay Jain, MD
Assistant Professor of Neurology
Clinical Director, Movement Disorders Division
Director, Movement Disorders Fellowship Program
Director, Movement Disorders Resident Rotation
Mentor, School of Medicine Neuroscience Area of Concentration

Dr. Jain joined the Department in July 2006 as Clinical Director of the Movement Disorders Division and Assistant Professor of Neurology. He works in the Comprehensive Movement Disorders Clinic at University of Pittsburgh Medical Center and the Tourette’s Syndrome Clinic in Children’s Hospital of Pittsburgh. Dr. Jain received a B.A. in Cognitive Science and M.D. from the University of Virginia. He then went to the Cleveland Clinic for his Residency in Neurology, followed by a Movement Disorders fellowship in the Neurological Institute at Columbia University. While in New York, he also completed a filmmaking workshop at the New York Film Academy which resulted in two documentaries about individuals with movement disorders. These short films have been shown to patients, physicians, health care providers and general audiences in several states as well as other countries, and are part of the Creativity and
Parkinson Project. In addition to working full-time as a neurologist specializing in movement disorders, he is also working on a documentary about creativity in the lives of patients with Parkinson disease and participates in activities with local Parkinson disease support groups.

Dr. Jain is interested in developing accurate and early clinical diagnosis techniques and therapy for movement disorders as well as complications later in disease. He has presented research pertaining to Parkinson disease, Tourette syndrome, essential tremor, dystonia, myoclonus, encephalitic movement disorders, historical neurology and pediatric movement disorders. Currently he is investigating the non-motor features of Parkinson disease with funding through a National Institute of Health Career Development Award. This project is a collaborative effort between the Pittsburgh Institute of Neurodegenerative Disease, the NIH Clinical Center, the Claude D. Pepper Older Americans Independence Center, and the Biometrics Research Program to improve diagnosis and treatment of Parkinson disease with assessments of non-motor features using clinical and physiologic measures. This work is supported by the National Institute of Neurological Disorders and Stroke. Dr. Jain is collaborating on trials for exercise in Parkinson disease. He is also coordinating studies about Parkinson disease with the Department of Epidemiology in the University of Pittsburgh Graduate School of Public Health with funding from the Michael J. Fox Foundation.

Dr. Jain has established a movement disorder research registry for patients and a protocol for videographing movement disorder patients. These videos are archived in a database where they are used for clinical, teaching and research purposes. He coordinates movement disorder video rounds for faculty, staff, medical education and health care personnel. These rounds serve as a platform for discussion of movement disorders seen in clinic and for establishing a collaborative and educational environment for patient care. Dr. Jain also regularly teaches medical students, and helps coordinate a rotation for residents in the Movement Disorders division. He also is faculty mentor for Neuroscience Area and Undergraduate Thesis Advisor for University of Pittsburgh Honors College.

Valerie Renee Suski, DO
Clinical Assistant Professor

Dr. Suski joined the Department of Neurology in January 2008 after completing her Neurology residency at Virginia Commonwealth University Health System/Medical College of Virginia and a clinical Movement Disorders fellowship at Duke University.

Dr. Suski is an active member of the Movement Disorders Division providing evaluation and treatments including botulinum toxin and deep brain stimulator programming to patients with a wide variety of movement disorders.

She has been the director of the UPMC Huntington's Disease Clinic since July 2009. This is a multidisciplinary clinic consisting of physicians, social workers, genetic counselors, and clinical trial coordinators that provides care for both patients with Huntington's disease and their families. She is a member of the Huntington’s Study Group and is currently participating in three Huntington’s disease clinical trials.

Dr. Suski provides the services of the Movement Disorders Clinic through Telemedicine once a month to a remote community location where this subspecialty is needed. She is especially interested in non-motor complications in Parkinson's disease, atypical Parkinsonism, dystonia, tremor and Huntington's disease. She is also extremely active in service to the Parkinson Support Group and Huntington Support Group community in the Western Pennsylvania region.

Dr. Suski has been active in the clinical training of Neurology residents via the outpatient clinics, inpatient Neurology ward and consultation services. She will be supervising the weekly Neurology Resident Continuity Clinic. She also participates in medical student education, teaching them in the outpatient clinics and during the inpatient services.
Over the course of the 2012-2013 academic year, Dr. Suski plans to continue her clinical activities and involvement in the Comprehensive Movement Disorders Clinic. Other plans include curriculum development for the residents with clinical skills teaching and assessment, a deeper involvement in medical student teaching, and academic writing.

Neuroimmunology/Multiple Sclerosis

Rock Heyman, MD
Associate Professor of Neurology
Chief, Division of Neuroimmunology/Multiple Sclerosis

Dr. Rock Heyman provides direct clinical care for over 1600 people with Multiple Sclerosis (MS) and related disorders throughout the region. He has a system for comprehensive care which includes not only on site and in system multi-disciplinary care, but also integrates support services from many other health and community programs including innovative programs to address domestic violence issues and even support for companion animals of people with MS. He has developed the department of neurology’s on-site infusion center, where both FDA approved and investigational agents are given.

Dr. Heyman is an active advocate for people with MS as well as health care professionals treating and researching MS. He devotes his efforts at the national level to working with the National MS Society (NMSS), serving on their Medical Advisory Board (executive committee), Council of Clinical Advisory Committee Chairmen (Chairman), and Task Forces regarding the relationship of the NMSS with the Pharmaceutical Industry and with the Comprehensive Care Center Affiliation process. His other national office is with the Consortium of MS Centers, where he is a member of the Broad of Trustees as a Member at Large and coordinates consensus conference development. He lectures annually at the international CMSC meeting on MS and Sleep Disorders. Regionally Dr. Heyman serves the Allegheny District Chapter of the NMSS on the Board of Trustees (executive committee), medical advisor, research advocate, and chairman of the Clinical Advisory Committee.

Dr. Heyman’s educational efforts also center on Multiple Sclerosis. He lectures to the University of Pittsburgh medical, physical therapy, and occupational therapy students as well other regional health care professionals. Dr. Heyman is the lecturer for the medical school’s classes on MS and related disorders and teaches in all of the first year medical school neuroscience small group sessions and problem based learning sessions. He has assisted in the development of course materials for the Neuroscience Course problem-based learning and small group neurology conferences. He has presented numerous CME programs regionally and nationally as well as producing enduring CME materials for physicians and other health care professionals as well as educational works (brochures, videos) for patients nationally. The clinical care he provides at the Kaufmann Building site usually also involves teaching medical students, neurology residents, and fellows in clinical MS care and spinal cord injury medicine. Dr. Heyman believes strongly in patient education and he supports numerous patient support and education groups throughout the region and assists with both regional and national media issues regarding MS.

Dr. Heyman is involved in all of the division’s multi-center research trials, as either a principle or co-investigator. He currently and supports research activities related to MS and Neuroimmunology in the department of Genetics (leukodystrophy) as well as with the Alzheimer’s disease research center. He has served as both a treating physician and blinded examiner in trials of MS and is certified in the use of the EDSS and MSFC rating scales. He has developed a Lumbar Puncture Clinic which assists patients, referring physicians, and research trials with efficient acquisition of spinal fluid using state of the art techniques.

Dr Heyman plans continued expansion of his and his division’s services in all aspects of his mission, clinical care, education, research, and advocacy.
Galen W. Mitchell, MD  
Associate Professor of Neurology  
Director of Multiple Sclerosis Research  
Director of Medical Student Education for Clinical Neurology

Dr. Mitchell maintains a clinical practice primarily specializing in autoimmune diseases and cares for patients on the inpatient and outpatient services during the year. As director of Multiple Sclerosis research at UPMC, Dr. Mitchell serves as primary investigator on all the following studies. The research group is currently studying a new medication, FTY-720, that effects adhesion molecules and blocks the egress of activated T cells from the lymph nodes, with potential influence on peripheral T cell transmigration and the immune pathogenesis of MS. The research group is just starting a trial with MBP 8298. This is a synthetic peptide that consists of 17 amino acids having a sequence identical to that of a portion of human myelin basic protein (MBP). The sequence of MBP8298 is associated with the autoimmune process in MS patients with certain immune response genes (HLA types DR2 and/or DR4); MS patients having these genes represent 65 to 75 percent of all MS patients. The apparent mechanism of action of MBP8298 is the induction or restoration of immunological tolerance with respect to ongoing immune attack as a result of high doses of peptide delivered periodically by the intravenous route. The potential benefit of MBP8298 for any individual patient is expected to be related to the role this peptide plays in that patient's immune system. The degree of immunomodulation achieved will depend on the relationship among the peptide, HLA molecules and T cells.

Dr. Mitchell’s group is also studying MBP8298 in subjects with Secondary Progressive Multiple Sclerosis. The trial represents a randomized, multicenter, placebo-controlled double-blind study. Another trial involves BG00012. Although its exact mechanism of action is not known, this oral fumarate is thought to inhibit immune cells and molecules and may be protective against damage to the central nervous system. The compound has been used safely for years to treat psoriasis, an autoimmune condition that affects the skin and joints. In this study, the group will evaluate the efficacy and safety in patients with Relapsing-Remitting Multiple Sclerosis when compared to placebo and an active reference (Glatiramer Acetate). Dr. Mitchell and his group are preparing to study Ocrelizumab, a recombinant DNA-derived humanized monoclonal antibody directed against the cell surface glycoprotein, CD52. Ocrelizumab is an IgG1 kappa with human variable framework and constant regions, and complementarily-determining regions derived from a rat monoclonal antibody. This agent selectively binds to CD52, thereby triggering a host immune response that results in lysis of CD52 + cells. CD52 is a glycoprotein expressed on the surface of essentially all normal and malignant B and T cells, a majority of monocytes, macrophages and natural killer (NK) cells, a subpopulation of granulocytes, and tissues of the male reproductive system. This randomized, rater- and dose-blinded study compares two annual cycles of intravenous low- and high-dose Ocrelizumab to three-times weekly subcutaneous interferon beta 1a (Rebif) in patients with Relapsing Remitting Multiple Sclerosis who have relapsed on therapy. The research center is conducting a phase II, double-blind, randomized, multi-center, adaptive dose-ranging, placebo-controlled, parallel-group study evaluating safety, tolerability and efficacy on MRI lesion parameters and determining the dose response curve of BAF312 given orally once daily in patients with relapsing-remitting multiple sclerosis BAF312 acts on the lymphocytes to inhibit their migration to the location of the inflammation. BAF312 is similar to FTY720, but may be more selective in the particular sphingosine-1-phosphate receptors (8 in number) that it modulates. This selectivity may decrease its possible side effects for the patient. Finally, Dr. Mitchell and group are starting a study to determine the efficacy and safety of Daclizumab in patient with relapsing remitting MS. Daclizumab is a humanized monoclonal antibody that binds to the CD25 alpha subunit of the high affinity IL-2 receptor. This subunit is expressed at low levels on resting T-cells and at high levels on T-cells that can become activated in response to autoimmune conditions such as MS. Daclizumab is believed to work by selectively binding to and inhibiting this receptor on activated T-cells without causing T-cell depletion. In this manner, it is expected to decrease MS exacerbations, MRI activity and MS progression. Patients will either receive Daclizumab or interferon beta 1a, and compared as to disease response.

Dr. Mitchell conducted grand rounds as well as seminars at research and educational symposia and meetings providing information for primary care physicians and neurologists. He conducted a series of lectures for the
Neurology residents on autoimmune diseases and on evidence-based medicine. As director of medical student education, he served on several committees, including the Neuroscience Clerkship Design Committee, Medical Student Clinical Skills Course Design Committee, Student Promotions Committee, Department of Neurology Education Committee and the Curriculum Committee. He continued teaching the 3rd year students on Neurology emphasizing the entire neurological evaluation process and treatment of patients with neurological disease. He also taught a course to the 1st year medical student entitled “The Neurological Evaluation.”

During the next year, Dr. Mitchell will continue his clinical duties and research studies with the addition of new research projects. He also plans to continue teaching at local, national and international levels, speaking about evidence-based medicine, MS and its immune mechanisms and treatment. Through these endeavors, he will represent the Department of Neurology and give it more national recognition. Dr. Mitchell will also continue to serve on numerous education committees as well as teach the medical students, neurology residents and fellows.

Islam Zaydan, MD  
Assistant Professor of Neurology  

Dr. Zaydan joined the Department of Neurology in October 2010. He completed his Internal Medicine training in Egypt and in Marshall University SOM. His medicine training was followed by a Neurology residency and a clinical Neuro-Ophthalmology fellowship at Virginia Commonwealth University Health System/Medical College of Virginia. He was on the faculty at Virginia Commonwealth University Health Systems for 3 years following his training.

Dr. Zaydan is an active member of the Comprehensive UPMC Multiple Sclerosis Center providing evaluation and treatments of patient with central demyelinating disease. This is a multidisciplinary center consisting of physicians, social workers, physical therapists, and clinical trial coordinators that provides care for both patients with Multiple Sclerosis, Devic’s disease and their families. He was a board member of the Virginia Chapter of the MS society and is currently participating in several Multiple Sclerosis clinical trials.

Dr. Zaydan is a fellowship trained neuro-ophthalmologist and holds a joint appointment at the UPMC Ophthalmology Department (UPMC Eye and Ear Institute)/Neuro-Ophthalmology Division where he provides evaluations and treatments of various neuro-ophthalmologic problems including ocular motility disturbances, optic nerve diseases, and visual field/perception disturbances. He has written several chapters on the striate cortex and cerebellum and has presented at the North American Neuro-Ophthalmology Society annual meetings.

Dr. Zaydan is especially interested in optic nerve diseases, as well as ocular motor and visual perception complications of MS and is active in service to the Multiple Sclerosis Support Group community in the Western Pennsylvania region.

Neuromuscular Diseases

David Lacomis, MD  
Professor of Neurology and Pathology  
Chief, Division of Neuromuscular Diseases  
Director, Clinical Neuropathology Fellowship Program

Dr. Lacomis is the director of the Muscular Dystrophy Association Clinic and MDA-ALS Center, specializing in myasthenia gravis, amyotrophic lateral sclerosis (ALS), and muscle diseases. He is also the co-director of the EMG Laboratory at UPMC Presbyterian and the director of the Autonoms Laboratory. Dr. Lacomis continues to direct the Clinical Neuropathology Fellowship Program and mentored one fellow this year. He remained active in teaching medical students in the Neuroscience Course and housestaff from Neurology and Pathology. He is also in charge of the Neuromuscular Pathology Service and trained one neuropathology fellow in nerve and muscle pathology. Dr. Lacomis was again named among the Top Doctors by Pittsburgh Magazine and in Best Doctors nationally.
Dr. Lacomis has been involved in a number of major research projects in the past year. He is the site principal investigator (PI) for a Phase III randomized, double-blind, placebo-control study of the safety and efficacy of dexpramipexole in amyotrophic lateral sclerosis (ALS). He continues to serve as the site PI of the ongoing open-label component of the Phase II study of dexpramipexole in ALS. He is also a site PI for the ongoing NIH-sponsored Phase III study of intravenous ceftriaxone in ALS. Dr. Lacomis became Co-director of the Center for ALS Research in the past year and is now joined by Robert Ferrante, PhD, MS as the other co-director. They are collaborating on a number of projects and are now investigators in a small multicenter study for discovery and validation of ALS biomarkers. They are also initiating a program to create and study motor neurons from pluripotent stem cells from the skin of ALS patients and controls. They are also collaborating with investigators in the Department of Neurosurgery using high field MRI for fiber tract imaging in both the brain and spinal cord in ALS patients to better understand patterns of disease spread. Dr. Lacomis, along with collaborators from the Center for ALS Research, Drs. Ferrante and Albert, are mentoring Human Genetics masters degree student, Kristen Qutub, in a study of ALS caregiver burden in order to identify potential triggers of caregiver stress so that appropriate interventions can be formulated. Dr. Lacomis is also collaborating with Drs. Chester Oddis and Rohit Aggarwal from the Division of Rheumatology in studying necrotizing myopathies, especially those associated with antibodies against signal recognition particle (SRP) and HMG Co-A. Dr. Lacomis is primarily evaluating the histopathological changes in these patients so that they can be correlated with serologic and clinical markers. Previous work with Steve Meriney, PhD from the Department of Neuroscience, regarding calcium channel agonists as therapeutic agents in Lambert-Eaton Myasthenic Syndrome was presented at the International Conference on Myasthenia Gravis and related disorders in New York. Dr. Lacomis served as a moderator of a breakout session held during the International ALS Conference in Tarrytown, New York. The breakout session assessed factors that were thought to be most critical to discovery of the pathogenesis and causes of ALS among clinicians and investigators.

Dr. Lacomis serves on the Scientific Advisory Committee for the Myasthenia Gravis Foundation of America, and is on the editorial board of the Journal of Clinical Neuromuscular Diseases. He is on the Clinical Neurophysiology Examination Committee for the American Board of Psychiatry and Neurology.

Saša Živković, MD
Associate Professor of Neurology

In the academic year July 1, 2011 through June 30, 2012, Dr Zivkovic continued his clinical and research work focusing on amyotrophic lateral sclerosis, peripheral neuropathy and neurologic complications of organ transplantation.

Dr. Zivkovic specializes in the treatment of patients with neuromuscular disorders and participates in the work of the MDA Neuromuscular Clinic and MDA-ALS Multidisciplinary Clinic. Since November 2004 he has also treated patients with neuromuscular and other neurologic diseases at VA Pittsburgh. He also performs electrodiagnostic testing in Presbyterian Hospital EMG lab and performs approximately 300 EMG and nerve conduction studies annually. Dr. Zivkovic was also active in clinical research as a member of the North-Eastern ALS Consortium (NEALS), National ALS Research Group (ALS RG) and National VA ALS Consortium. He was a co-investigator on a treatment trial of R(+)-pramipexole in ALS (PI D. Lacomis).

In collaboration with Drs. Paula Clemens and David Lacomis, Dr Zivkovic has published a study on characteristics of late-onset myasthenia in Journal of Neurology. Dr Zivkovic was also invited to serve as a guest-editor of a special issue of Current Neuropharmacology dedicated to pathophysiology and treatment of autoimmune neurologic disorders. Special issue with review articles by experts from United States, Cyprus and Spain, was published in September 2011 and includes a review on autoimmune neuromuscular disorders written by Drs. Zivkovic and Jessica Kraker. Dr Zivkovic has also contributed a chapter on neurologic complications of multiorgan transplantation for an incoming issue of Handbook of Clinical Neurology edited by Dr Jose Biller. He also continued his clinical research on neurologic complications of organ transplantation in collaboration with Dr.
Kareem Abu-Elmagd from UPMC Thomas Starzl Transplantation Institute, and on the evaluation of neuromuscular function and peripheral neuropathy in the elderly in collaboration with Dr. Else Strotmeyer, Graduate School of Public Health.

Dr Zivkovic actively participates in the education of medical students at the University of Pittsburgh, and teaches in the course Neuroscience and Clinical Neuroscience Clerkship. He has also been teaching neurology residents and clinical neurophysiology fellows in EMG lab, outpatient clinics and inpatient consult service. Additionally, he continued to serve as an editorial consultant for the online database PIER for the chapter on “Distal symmetric polyneuropathy”. Dr Zivkovic was selected again by his peers as one of Best Doctors in America (Best Doctors, Inc.). He serves as an editorial advisory board member for World Journal of Hepatology. He also continued to serve as an ad hoc reviewer for journals Acta Neurologica Scandinavica, BMC Research Notes, Clinical Neurology and Neurosurgery, Journal of Neuroimaging, and Journal of Neurology, Neurosurgery and Psychiatry.

In academic year 2011-2012, Dr. Zivkovic will participate in clinical treatment trials of ALS at UPMC with Dr. David Lacomis, and will continue clinical research of cognitive dysfunction in ALS at UPMC and VA Pittsburgh HCS. He will also continue research on neurologic complications of organ transplantation, and on decline of peripheral nerve function in elderly. He will remain site PI for a Pittsburgh site of worldwide amyloidosis registry THAOS.

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**Neuro-Oncology**

Frank S. Lieberman, MD  
Associate Professor of Neurology and Medical Oncology  
Director Adult Neuro-Oncology Program UMPC Cancer Center

Dr. Lieberman is director of the adult neuro-oncology program at UPMC Cancer Centers. His clinical and research efforts in 2009-2010 encompassed both the treatment of primary CNS tumors and the neurological complications of cancer. Brain tumor translational investigations focus on the application of molecular genetic techniques and functional imaging techniques to develop strategies for individually optimized molecularly targeted treatment of patients with malignant gliomas, the most common brain tumors in adults.

Dr. Lieberman serves as institutional principal investigator for UPMC in the Adult Brain Tumor Consortium and in the Collaborative Ependymoma Research Network, the only multicenter clinical trials consortium for the study of ependymoma. He is a member of the CNS tumor committee for the Radiation Therapy Oncology Group, and the institutional principal investigator for RTOG brain tumor trials at UPMC Cancer Centers. Dr. Lieberman serves on the clinical advisory board for the International Chordoma Foundation and was a participant in the First and Second International Chordoma Research Symposia in 2007 and 2008 respectively.

In collaboration with Hideho Okada, MD, PhD, Assistant Professor of Neurosurgery, Dr. Lieberman is a coinvestigator for the institutional gliomas peptide-based vaccine trial in patients with recurrent malignant gliomas and 2 new vaccine trials for patients with low grade gliomas. In collaboration with Gary Marsh, PhD, Department of Biostatistics, Dr. Lieberman is co-investigator in the largest occupational exposure study involving human gliomas conducted to date, involving the Pratt Whitney plants in Hartford, CT. In collaboration with Robert Sobol, PhD, Dr. Lieberman is investigating DNA repair mechanisms as modulators of glioma sensitivity to chemotherapy in temozolomide. The refinement of Neuroimaging techniques to allow for earlier discrimination of treatment response in clinical trials of malignant gliomas is a major investigational priority. In collaboration with Drs. Fernando Boada, Eric Schwartz, and Erik Weiner, Dr. Lieberman is evaluating the use of MR H1 proton spectroscopy, Na+ triple filtered quantum spectroscopy, Dynamic contrast enhanced MRI, and gradient echo...
ultrahigh field strength (7T) imaging in patients being treated with antiangiogenic therapies. Dr. Lieberman is also involved in collaborative study of novel PET technique using a tracer which is selectively sequestered in apoptotic tumor cells, in which the tracer is being assessed as a marker of treatment response in brain metastasis from nonsmall cell lung cancer.

Dr. Lieberman directs the clinical Neuro-Oncology program for UPMC Hillman Cancer Center, is director of the neuro-oncology rotation at UPMC Hillman-Shadyside for neurology residents and fellows and is an attending for Neurology housestaff morning report one day per week. He provides neuro-oncology consultation service for UPMC Presbyterian, Magee, and Shadyside hospitals. He attends on the neurology consultation service at UPMC Presbyterian. He directs the Neuro-Oncology Tumor Board; a weekly CME category 1 approved academic teaching case management conference and a monthly Neuro-Oncology Tumor Board conference at UPMC Shadyside which is a case presentation and topic review format for the oncology community. He also serves on the bioethics committee at UPMC Shadyside.

Dr. Lieberman is a member of the Society for Neuro-Oncology and has been a member of the scientific review committee for the annual meetings since 2006. He currently serves on the committee designing and administering the subspecialty neurooncology board examination for the American Academy of Neurology. He is a member of the American Association of Cancer Researchers, American Society of Clinical Oncology, and the American Academy of Neurology.

Research Division

Guodong Cao, PhD
Research Assistant Professor of Neurology

Dr. Cao’s research focuses on the molecular mechanisms of neuronal cell death and white matter injury associated with cerebral ischemia. Recently Dr. Cao found that a natural protein called nicotinamide phosphoribosyltransferase (NAMPT), the rate-limit enzyme for biosynthesis of NAD, can cross the blood brain barrier and provide potent gray matter as well as white matter protection following cerebral ischemia. A RO1 grant investigating the role of NAMPT on white matter protection is in pending (within the funding line). Another merit review proposal investigating the angiogenesis and neurogenesis effect of NAMPT was submitted to VA BLRD. Dr. Cao is also very active in professional service in 2012 calendar year. He serves as the lead guest editor for a special issue titled “neurorestorative therapy in cerebral ischemia” for the Journal Stroke Research and Treatment, which will be published in March 2013. He also served in the Reviewer Committee for several Journals and WSA-Innovative Award, American Heart Association.

Jun Chen, MD
Professor of Neurology and Pharmacology

Dr. Chen’s laboratory is interested in molecular mechanisms of neuronal cell death associated with cerebral ischemia and Parkinson’s disease. The work focuses on determining the role of programmed cell death and mitochondrial dysfunction using various in vivo and in vitro disease models. The main theme of this research is that elucidation of the signaling mechanisms underlying the pathologic neurodegenerative processes in the brain may explore new targets for therapeutic intervention of the disease. The lab is currently investigating the specific signaling molecules and pathways that trigger mitochondrial apoptosis and the downstream cell death-execution cascades in neurons.

Dr. Chen has actively participated in teaching graduate students. He is a training faculty member of the CNUP and MD/PhD programs and a dissertation advisor for graduate students. Dr. Chen teaches two different graduate study courses (Cell and Molecular Neurobiology MSNBIO 2100 and Neuropharmacology MSMPHL 3375).
Dr. Chen has continued to serve at both national and international levels. He is a member of study sections at NIH, AHA, and VA, and also serves as a reviewer or consul member for various international science foundations. He is the Chair of American Heart Associate Brain-2 Committee. He is an elected member of the Board of Directors of the International Society of Cerebral Blood Flow and Metabolism and serves as the chairman of the membership committee of the society. He serves as an editorial board member for Journal of Neuroscience, Journal of Cerebral Blood Flow and Metabolism, Stroke, Neurobiology of Disease, and Translational Stroke Research.

Paula R. Clemens, MD
Associate Professor of Neurology
Chief, Division of Veterans Affairs

During the academic year from July 1, 2011 to June 30, 2012, Dr. Clemens provided leadership for the Neurology Service at the Pittsburgh VA Healthcare System. She directs an in-patient, out-patient and consultation service with 8 part-or full-time neurologists and 3 neurology resident physician positions. The active teaching service also comprised third and fourth year medical students, geriatrics fellows and geriatric psychiatry fellows during the course of the year.

Dr. Clemens pursues basic and clinical research focused on discovering and improving treatment of skeletal muscle diseases. In her basic research laboratory, research projects include gene replacement studies for muscular dystrophy, characterization of the molecular pathology of muscle wasting and modulation of NF-κB signaling pathways for treatment, gene transfer and peptide-mediated strategies to interfere with NF-κB activation and ameliorate the dystrophic phenotype and modulation of the immunity induced by viral vector-mediated gene delivery for the treatment of muscular dystrophy. She is actively involved in the training programs of pre-doctoral students working in her laboratory and participates in a number of thesis committees. Her collaborators include faculty in the Departments of Orthopedics, Pediatrics and Microbiology and Molecular Genetics. Human clinical research studies directed by Dr. Clemens include involvement in a multi-center academic trials group devoted to the study of therapeutic agents for patients with muscular dystrophy, the Cooperative International Neuromuscular Research Group (CINRG). She chairs the Publications Subcommittee and is the Medical Director for CINRG. She chaired 2 multi-center CINRG human clinical studies this year. To accomplish muscular dystrophy clinical trials, Dr. Clemens collaborates and works with Drs. Sasa Zivkovic and Hoda Abdel-Hamid, and a clinical trials operations manager, Kate Hughes, MS.

Dr. Clemens was the recipient of 2 new NIH awards this year. She co-directs an NIAMS-funded P50 Center of Research Translation of Systemic Exon Skipping for Muscular Dystrophy and an NINDS-funded NeuroNEXT clinical study site. NeuroNEXT is a nationwide clinical trials network established this year to conduct phase 1-2 neuroscience clinical trials.

Dr. Clemens co-directs the second year medical student course, Integrated Case Studies. This entirely problem-based learning course is based on selected clinical cases presented from a computer interface maintained by the Laboratory for Educational Technology at the University of Pittsburgh and provides a bridge from the core basic science courses in the first two years to the clinical electives that begin in the third year of medical school training. Dr. Clemens precepts third and fourth year medical students at the VAMC. This year she was awarded a Clerkship Preceptor of the Year award by the University of Pittsburgh School of Medicine.

In the coming year, Dr. Clemens will continue her basic and clinical research program in the treatment of neuromuscular disease, which includes active involvement in the graduate training programs. She will continue her clinical activities as a neuromuscular specialist, her involvement in the neurology residency clinical training program, and her role as the administrative head of the neurology service at the Pittsburgh Veterans Administration Healthcare System.
Steven H. Graham, MD, PhD  
**Connolly Family Chair in the Stroke Institute**  
**Professor and Vice-chairman for Research**  
**Director, Geriatric Research Educational and Clinical Center**

Dr. Graham’s research focuses on the mechanisms by which neurons die after stroke and brain trauma. New insights into the mechanisms by which cyclooxygenase 2 (COX2), the enzyme that is the target of drugs such as Vioxx, injures neurons after anoxia in vitro were obtained during the 2008-2009 academic year. These results suggest that prostaglandins, not the peroxidase activity of the enzyme itself, are responsible for COX2’s toxic effect on neurons. Other ongoing research projects address the role of the Fas cell death receptor in stroke and brain trauma. An adenovirus associated viral vector that expresses cFLIP-L, an endogenous inhibitor of Fas-induced cell death, has been constructed and is being tested in models of ischemia in vitro. Dr. Graham is the Director of the Geriatric Research, Educational and Clinical Center (GRECC) at the VA. Dr Graham is also serving as Associate Chief of Staff for Research at the VA. As Vice-chair for Research he oversees the rapidly growing research program of the Department. Dr. Graham teaches in the MS Neuroscience course and precepts medical students and residents on the inpatient services at the VA. He is also a staff neurologist at the VA with a special interest in stroke and dementia.

Dr. Graham will continue his studies regarding the mechanism by which COX2 directly injures neurons after anoxia, focusing on the role of prostaglandins in exacerbating cell death. As GRECC Director, he plans to recruit new faculty and further develop its research program in cerebrovascular disease.

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Teresa G. Hastings, PhD  
**Associate Professor of Neurology**  
**Pittsburgh Institute for Neurodegenerative Diseases**

Dr. Hastings is a member of the Pittsburgh Institute for Neurodegenerative Diseases (PIND). Her research examines the role of dopamine oxidation, ROS formation, protein modification, and mitochondrial dysfunction in the selective vulnerability of dopaminergic neurons. The goal of her work is to identify therapeutic agents to prevent neurodegeneration associated with Parkinson’s disease, drugs of abuse, and aging in general. Using proteomic techniques, Dr. Hastings’ laboratory is identifying mitochondrial and intracellular proteins that show changes in expression, oxidative modification, or aggregation following exposure to dopamine and other oxidative stressors. This is an important step in linking alterations in critical protein structure and function to the death of the neuron. New projects in the lab include examining the neuroprotective effect of dietary selenium and the role of mitochondrial selenoproteins in preventing neurotoxicity.

Dr. Hastings is active in the Center for Neuroscience (CNUP) Graduate Program. This year she served on 12 graduate student committees. She is the Director of and a lecturer in Block 1 of the CNUP graduate course Cellular and Molecular Neurobiology. She also lectures in other courses. This year, Dr. Hastings is mentoring one postdoctoral fellow and three undergraduate students. She serves as training faculty on three institutional training grants including "NINDS Postdoctoral Training in the Neurobiology of Neurodegenerative Disease (M. Zigmond, Director)," “NIH Medical Scientist Training Program (C.A. Wiley, Director) and "NIH Predoctoral Training in Basic Neuroscience" (A.F. Sved, Director).

Dr. Hastings is a member of the MSTP/CNUP Admissions/Recruitment Committee, the Department of Neurology Promotions Committee and the Tenure Stream Review Committee and the Executive Committee for the Pittsburgh Institute for Neurodegenerative Diseases (PIND). She is also a member of the Steering Committee for the NIH Institutional Predoctoral Training Grant, the Medical Scientist Training Program (MSTP) Steering Committee, and the Competitive Medical Research Fund (CMRF) Standing Review Committee.
Milos D. Ikonomovic, MD  
Associate Professor of Neurology

Over the past academic year, Dr Ikonomovic and his research team have made several major advances in their studies examining the pathobiology of two inter-related neurodegenerative conditions, traumatic brain injury (TBI) and Alzheimer’s disease (AD). Utilizing a controlled cortical impact model of experimental TBI and a mouse model of AD, as well as human brain tissue and spinal fluid samples from severe TBI and AD patients, the laboratory has been examining the relationship between neuronal degeneration and amyloid-β (Aβ) aggregation, which is increased after TBI but is also a major pathogenic factor in AD. Their new findings include the observation that simvastatin treatment of brain injured mice reduces brain Aβ concentration and inflammatory reaction, resulting in significantly improved histological and behavioral outcomes; these findings were presented recently at the 2012 conference of the National Neurotrauma Society.

Dr. Ikonomovic is Principal Investigator on his new MERIT grant awarded by the Veterans Affairs, examining whether chronic memantine therapy can improve histological and neurological outcomes in rats subject to TBI. He is also Principal Investigator on a project “Novel Amyloid-Targeting Therapies for Preserving Cognitive Function in Alzheimer’s Disease” funded by the Pittsburgh Foundation. This project investigates the effects of a combined treatment with small Aβ binding compounds and passive Aβ immunization on improving cognitive function and reducing synaptic abnormalities in a transgenic mouse model of AD. Dr. Ikonomovic has continued to work as Principal Investigator on a project within the NIH-funded PPG “Emerging Therapeutics for TBI – Acute to Chronic Changes” led by Dr. C. Edward Dixon (Department of Neurosurgery); his project investigated the effects of several drug interventions on changes in Aβ peptide levels and related toxic-metabolic cascades after TBI. Dr. Ikonomovic is Principal Investigator on a project within the NIH-funded PPG “Neurobiology of Mild Cognitive Impairment” led by Dr. Elliott Mufson (Rush University Medical Center, Chicago); his project examines alterations in Aβ metabolism, synaptic integrity and cholinergic function in subjects with a clinical diagnosis of mild cognitive impairment (MCI) or early AD. Recent results from Dr. Ikonomovic’s laboratory demonstrated that cholinergic enzyme activity is stable in the precuneus cortex in MCI but declined early in AD, in parallel with accumulating amyloid pathology. These new findings have important implications for both diagnostic imaging and potential therapies for AD; they were published recently (Ikonomovic et al., Neurology, 2011;77:39-47). Dr. Ikonomovic is Principal Investigator on a project within the NIH-funded PPG “In Vivo PiB PET Amyloid Imaging: Normals, MCI, and Dementia” led by Dr. William Klunk (Department of Psychiatry). The overall objective of Dr. Ikonomovic’s project is to define neuropathological substrates for PiB binding, by conducting postmortem histological and biochemical analyses of amyloid pathology and correlating these measures with region-matched PiB PET retention levels recorded in the same subjects antemortem. These studies were first to provide the threshold level of the Aβ pathology necessary for a positive [C-11]PiB PET signal (Ikonomovic et al., Acta Neuropathol 2012;123:433-447). New results from Dr. Ikonomovic's laboratory were presented at the American Academy of Neurology 2012.

Dr. Ikonomovic continued to work on several collaborative projects, including the NIH funded study “Establishing the In Vivo Threshold for Amyloid Deposition in Normal Aging” led by Dr. Julie Price (Department of Radiology), seeking to determine rigorous in vivo criteria for distinguishing cognitively unimpaired elderly subjects who have Aβ plaque deposits and those that do not, using PiB PET imaging. Dr. Ikononmovic also collaborates with Dr. David Perlmutter (Department of Pediatrics), examining several novel autophagy enhancer drugs on neuropathologic and behavioral sequellae in transgenic AD mice. Another ongoing collaboration, with Dr. Robert Sweet from the Department of Psychiatry, examines if changes in cortical soluble Aβ and tau concentrations can differentiate AD patients with psychoses relative to AD patients without psychoses. Dr. Ikonomovic also collaborates with Dr. Chester Mathis (Department of Radiology) and Dr. William Klunk (Department of Psychiatry) on several projects seeking to design, test, and develop compounds that will bind selectively to vascular Aβ deposits in cerebral amyloid angiopathy, and developing novel small molecule Aβ binding agents as potential therapies for Alzheimer’s disease.
During the next academic year, Dr. Ikonomovic will continue to work on his current studies and several new research investigations. He continues to train postdoctoral fellows and students in his laboratory. He serves as a consultant for GE Healthcare and the University of Pittsburgh Alzheimer’s Disease Research Center (ADRC). He also serves as an associate editor for the journal Cardiovascular Psychiatry and Neurology, a grant reviewer for the Alzheimer’s Association’s International Research Grant Program and the University of Pittsburgh ADRC Pilot Grant Review, and an ad-hoc grant reviewer for the VA Scientific Review.

Dr. Ikonomovic lectured on Alzheimer’s disease as part of the 2011/12 Spring Term course on the Neurobiology of Brain Disorders, directed MSNBIO 2652 course, Topics in Neurological Disorders, and mentored one 1st year postdoctoral fellow and two undergraduate students.

Anthony K.F. Liou, PhD
Research Assistant Professor of Neurology
Pittsburgh Institute for Neurodegenerative Diseases

Dr. Liou is currently continuing his research focus on using molecular and cell biology methods to identify key proteins that participated in the cell death process in response to toxins such as MPP+ and 6-OHDA in dopaminergic cells and subsequently examine the extent of protection by regulating these proteins in rodent Parkinson’s disease models. At the moment, proteins participate in modulating the fate of the perikarya and neurites are of particular interest. Also, he is keen in elucidating the mechanisms these proteins are involved in effecting cell fate and from them, develop optimal strategy to preserve dopaminergic cell integrity both in in-vitro and in-vivo rodent model of Parkinson’s disease.

In addition, Dr. Liou is interested in functionally characterize the gene Leucine-rich repeat kinase 2 (LRRK2). LRRK2 is a gene that causes clinical symptoms identical to Parkinson’s disease when mutated in specific locations. During the past academic year, he is investigating interacting proteins with LRRK2 wild-type and mutants which may implicate part of the cellular functions of this protein. Further functional characterization will be continued in the next academic year.

Hao Liu, MD, PhD
Research Assistant Professor

Dr. Liu’s research interest focuses on the molecular mechanisms underlying neuronal cell death after stroke and brain trauma. Specifically, Dr Liu and his colleagues, supervised by Dr. Steven H. Graham, are studying the role of cyclopentenone prostaglandins (CyPGs) in post-ischemic neuronal injury. Their work has shown that the generation of CyPGs is highly increased after stroke and that this excessive CyPG production induces neuronal cell death by adducting and unfolding many essential proteins. One of the CyPGs’ modification targets is UCH-L1, which is an abundant protein expressed strictly within the neuronal system and it’s mutation has been linked to Parkinson’s disease. Dr. Liu’s other ongoing projects address the role of UCH-L1 in neuronal cell survival under a variety of pathological conditions, including hypoxia and neurotoxins insults. To facilitate their research, Lenti-viral vectors carrying UCH-L1 or its mutants have been constructed to overexpress UCH-L1 and its mutant proteins in primary neuronal cells. Currently, they are performing experiments to investigate the neuron protective effects of UCH-L1 and the potential mechanisms.
Amanda D. Smith, PhD
Research Assistant Professor of Neurology

Dr. Smith has continued to investigate how experience may alter the vulnerability of dopamine neurons in the substantia nigra to toxic insult and the mechanisms therein. This work has been extended to investigating the use of running as a therapeutic intervention for the DA deficiency produced by intracerebral infusion of 6-hydroxydopamine (6-OHDA) in a rat model of Parkinson’s disease and the role that insulin-like growth factor-1 (IGF-1) and stress hormones play in this neuroprotection. The group has observed that 7 days of voluntary running results in an increase in 2 pro-survival kinases, phospho-ERK1/2 and phospho-Akt, in the striatum that correlates with an attenuation of the loss of tyrosine hydroxylase in the striatum. Exercise increases the levels of several trophic factors. One trophic factor that is increased in the periphery that crosses the blood brain barrier and gains access to the central nervous system is IGF-1. It has been shown that a single bolus infusion of IGF-1 into the striatum 6 hours prior to infusion of 6-OHDA into the same striatal region reduces the extent of the damage by 70%. Further, intrastratial infusion of IGF-1 increases the activation of ERK1/2, Akt and its downstream targets. The potential role of IGF-1 in exercise induced protection against 6-OHDA toxicity and the relation between kinase activation and IGF-1 and exercise induced protection against oxidative stress are currently underway.

Over the course of the next year, Dr. Smith will continue to investigate how experience alters the vulnerability of the nigrostriatal pathway to toxic insult. She has begun examining age as a variable in the toxic effects of dopaminergic neurotoxin and whether the neuroprotective effects of therapy are attenuated with advanced age.

The Smith lab examines how experience may alter the vulnerability of cells in the brain to degeneration and how this vulnerability is influenced by age. Specifically the lab group studies how lifestyle modification, such as exercise, can alter the vulnerability of dopamine cells and whether the benefits of such therapy diminish with age. Another focus is the dual role, either protective or exacerbative, stress and stress-related pathways play in the vulnerability of dopamine cells to degeneration. Finally, the mechanism by which experiences such as exercise and stress alter the vulnerability of cells is under study.

Dandan Sun, MD, PhD
Professor of Neurology

Dr. Sun’s laboratory is interested in understanding the role of ion transporter proteins (Na+–K+–Cl cotransporter, Na+/H+ exchanger, and Na+/Ca2+ exchangers) in ionic dysregulation and neurodegeneration associated with stroke and hypoxic ischemic encephalopathy. In particular, we study how changes of cytosolic ionic concentrations (Na+, H+, Ca2+) as well as organelle Ca2+ (ER and mitochondria) cause nerve cell death and proinflammatory responses in ischemic brains. With respect to Glioblastoma multiforme (GBM) brain tumor, we study how the chloride cotransporter functions in regulating chloride and cell volume in GBM cancer cell survival. These proteins may be potential "targets" for therapeutic intervention.

During the academic year July 2011 – June 2012, Dr. Sun’s laboratory made major research progress and published the following scientific papers:


Feng Zhang, MD, PhD  
Research Assistant Professor of Neurology  
Dr. Zhang joined the faculty of Neurology in November of 2009. His research interest focuses on experimental cerebral ischemia and neuroprotection using small molecular proteins and chemical compounds. Specifically, he has been using endogenous functional proteins, such as erythropoietin (EPO) and leptin, to protect against cerebral ischemia. His ongoing projects include the neuroprotective effects of synthetic triterpenoids, hypothermia, ischemic preconditioning and omega-3 fatty acids, which are rich in fish oil. He is also interested in the mechanisms responsible for the protection of these approaches, including various signaling pathways and antioxidative enzymes. Dr. Zhang serves as a managing editor for the Frontiers in Bioscience, and as ad-hoc referee for several journals, including Brain Research, Translational Stroke Research and Mini-review of Medical Chemistry.

Michael Zigmond, PhD  
Professor of Neurology  
Pittsburgh Institute for Neurodegenerative Diseases  
Over the past year (2011-12) Dr. Zigmond and his research team have continued their studies of cellular and animal models to examine Parkinson's disease (PD) and aging. A major focus of the lab is finding ways to arrest the motor decline associated with PD and with advanced aging. They hypothesize that a loss of trophic factor support is involved in these motor deficits and that this leads to a decline in the activation of survival kinases such as ERK1/2 and Akt and a consequent deterioration of dopaminergic signaling. Their evidence indicates that the expression of neurotrophic factors, including GDNF and BDNF, can be enhanced by physical exercise and that this in turn can stimulate the survival kinases and reduce the vulnerability of dopamine to neurotoxins and to the effects of aging.

The Zigmond lab is also interested in the impact of stressors on the vulnerability of dopamine neurons to subsequent cellular stress. These studies have involved both in vivo and in vitro models. For example, they have found in preliminary studies that several stressors – including maternal separation, traumatic brain injury, and restraint stress – make animals more vulnerable to 6-hydroxydopamine. On the other hand, exposure to a subtoxic concentration of 6-hydroxydopamine, methamphetamine, or MG132 (an inhibitor of proteasomal function) greatly reduced the vulnerability of dopaminergic cells to a subsequent challenge, a phenomenon termed “preconditioning.”

In the coming year, Dr. Zigmond and his team will continue to focus on the mechanisms underlying the stress- and exercise-induced alteration in the vulnerability of dopamine neurons to stress. For example, studies are underway to determine if conditional knockouts of a specific trophic factor receptor or inhibition of kinase activation will block neuroprotection seen with exercise or GDNF or increase the toxic effects of oxidative stress. Results from these and related studies should provide insights into new treatment modalities for PD. This work involves a number of collaborations, including those with Judy Cameron (WPIC), Jun Chen (Neurology), Barry Hoffer (Case) and Richard Smeyne (St. Jude).
In addition to his work with animal and cellular models, Dr. Zigmond will begin this year to work with colleagues at Carnegie Mellon University to acquire skills in the area of “decision sciences” (related to behavioral economics) in order to begin a new area of research for him – how people make decisions related to their lifestyles, specifically their level of physical activity (less than 30% of adults in the US achieve CDC requirements for exercise. He will also continue to serve as the Editor-in-chief for Progress in Neurobiology, and will be editing a book on the neurobiology of brain dysfunctions.

Vascular Neurology

Tudor Jovin, MD
Associate Professor of Neurology and Neurosurgery
Division Chief, Vascular Neurology
Director, Neuroendovascular Fellowship Program
Director, UPMC Stroke Institute

In addition to his clinical responsibilities as a vascular neurologist at Presbyterian University Hospital, Dr. Jovin has significantly contributed to the growth of the interventional neuroradiology service, especially in the area of ischemic stroke-related procedures such as extracranial carotid stenting, extracranial vertebral stenting, intracranial stenting and acute stroke intervention.

One of the first neurointerventionalists in the country with neurology background training, Dr. Jovin has shown strong commitment to the advancement of this field by training several other neurologists and neurosurgeons in neurointerventional procedures. Dr. Jovin’s research in the area of stroke-related interventions has resulted in over 95 peer-reviewed articles.

Dr. Jovin has earned numerous awards and honors during his career, including the William Oldendorf Award of the American Society of Neuroimaging for innovative work describing the ischemic core and penumbra in acute stroke assessed with the Xenon-CT-CBF technology. His pioneering work describing high recanalization rates in endovascular therapy of acute stroke due to carotid artery occlusion resulted in the “Best Scientific Paper Award” from the Society of Vascular and Interventional Neurology in early 2007.

Dr. Jovin serves on the executive committee of the American Academy of Neurology, Interventional Neurology Section as the project work group leader for practice related issues, is a founding board member of the Society of Vascular and Interventional Neurology, where he also serves as the Secretary and is a Member of the Board of Directors for the American Society of Neuroimaging.

Maxim Hammer, MD
Assistant Professor of Neurology
Director of Stroke Services, UPMC Mercy Hospital

Dr. Hammer joined the Neurology faculty in 2003. He is Board certified in Neurology as well as in Vascular Neurology and is interested in clinical practice and clinical research. He balances outpatient clinics with frequent hospital duty on the Stroke Service. In addition to teaching medical students, residents, and fellows, he lectures frequently to nursing students, outside hospital neurologists, emergency physicians, and EMS personnel.

Dr. Hammer is the Director of Stroke services at UPMC Mercy Hospital where he has built an inpatient and outpatient stroke practice, as well as a neurovascular ultrasound lab. He has created an elective neurocritical care rotation for neurology residents and a new elective neurosonology rotation for neurology residents and stroke fellows. He is collaborating with others on creating a Neurocritical Care Fellowship program.
Dr. Hammer’s research interests lie predominantly in acute stroke, but also in vascular cognitive impairment. He is preparing a research protocol, the first of its kind, to study the combined effects of hypothermia and intra-arterial therapy for acute stroke. He is working with medical students, residents and fellows and others on various research projects in stroke.

Vivek Reddy, MD
Assistant Professor of Neurology

Dr. Reddy is involved in a variety of clinical and educational activities as part of the department of neurology. His clinical work involves outpatient services, focusing on the continuing care and evaluation of patients with cerebrovascular disease. He also is very involved in the inpatient clinical stroke service, focusing on standardization of clinical practice and approach to stroke care. He has been very involved in the creation and enhancement of stroke order sets and protocols at UPMC Presbyterian and UPMC Shadyside, which have served as the basis of order sets for other UPMC hospitals.

In addition to his clinical work, Dr. Reddy is the Medical Director for Hospital Information Technology for UPMC. His role extends across all the UPMC facilities and involves guiding the direction, improving utilization of electronic medical records to improve quality of care. He has been involved in several implementations of electronic medical records across the system.

Dr. Reddy provides educational supervision to residents and medical students and gives several lectures to medical students and residents during the academic year. He also participates as a facilitator and presenter in the school of medicine’s annual course, The Basic Science of Care.

Lawrence R. Wechsler, MD
Chair, Department of Neurology
Professor of Neurology and Neurosurgery

Lawrence Wechsler, MD, Professor of Neurology and Neurological Surgery at the University of Pittsburgh School of Medicine is Chair of the Department of Neurology. He also serves as Vice President for Telemedicine in the Physician Services Division.

Dr. Wechsler’s interests include acute stroke therapy, imaging and telemedicine. He participates in many clinical trials of treatments for stroke as an investigator or member of the executive committee. Dr. Wechsler holds memberships in several organizations, including the American Neurological Association, American Stroke Association, American Society of Neuroimaging and the American Academy of Neurology and was Editor-in-Chief of the Journal of Neuroimaging from 1999-2007. He chairs the Stroke Systems Work Group at the American Academy of Neurology and serves as President of the American Society of Neuroimaging. Dr. Wechsler has authored or co-authored numerous articles related to stroke and stroke therapy.

Dr. Wechsler developed and implemented the telemedicine program for acute stroke assessment at UPMC. Telemedicine has been implemented since 2006 in all UPMC system hospitals in order to provide access to acute stroke assessment and treatment by faculty of the UPMC Stroke Institute. Additionally, several other non-UPMC facilities now utilize telemedicine for stroke care. Since the inception of the Telestroke service at UPMC, over 700 stroke patients have been evaluated with outcomes the same as expected for patients treated face-to-face. In addition to Telestroke, UPMC has expanded telemedicine into 16 service lines in 19 facility locations.
Women’s Neurology

Autumn Klein, MD, PhD
Assistant Professor of Neurology
Chief, Women’s Neurology Division

Dr. Klein is the Chief of the Division of Women’s Neurology. Her clinical and research interests focus on neurological disease in pregnancy and neurological issues specific to women. Approximately 75% of her practice is comprised of pregnant and postpartum patients. She is board certified in epilepsy and headache, the two most common neurological diseases in pregnancy. She is one of a few neurologists in the country, if not the only one, who specializes in seeing pregnant women with all types of neurological diseases. She has extensive research experience in both basic science and clinical research, and her current research interests focus on pregnancy and the effects of hormonal fluctuations on neurological disease. Her current research projects investigate obstetrical outcomes in pregnant women with neurological disease including epilepsy and headache, stroke in pregnancy, and the effects of hormones on headache. She is the Vice Chair of the Women in Neurology Subcommittee at the American Academy of Neurology (AAN), and she was recently elected to participate in the AAN’s Emerging Leaders forum. She is also co-chair of the Pregnancy Special Interest Group at the American Epilepsy Society (AES). She received a grant from the Epilepsy Foundation of America to study obstetrical and neonatal outcomes in women enrolled in the North American Antiepileptic Drug Pregnancy Registry. These findings will be presented at the national annual meeting later this year and then released for publication. She was also asked to be involved in the WEPoD study, a multicenter prospective study tracking fertility in women with epilepsy who are trying to get pregnant. She is the co-director of the obstetrical and neonatal core and the site PI for an NIH funded multicenter study titled Maternal Outcomes and Neurocognitive Effects of Antiepileptic Drugs (MONEAD). This research project studies in utero exposure to antiepileptic drugs and the obstetrical, neonatal, and neurocognitive outcomes. In addition, she has several other ongoing research collaborations. She is studying the effect of oral contraceptives on migraine headache using electronic surveys that track pill use and daily headaches. She is also working with a large pharmaceutical distributor to better understand how antiepileptic drugs are prescribed for women of reproductive age and the appropriateness of co-prescribed oral contraceptives. She has several other small ongoing unfunded research projects and she is mentoring three neurology residents in investigative questions. She has created the first-ever women’s neurology fellowship that will begin in 2014.
Study Sections and Advisory Committee Memberships

Sarah B. Berman, MD, PhD

Study Section/Grant review
United Mitochondrial Disease Foundation

Advisory Committees
Member, Board of Directors, National Parkinson Foundation Greater Pittsburgh Chapter
Member, Scientific Advisory Board, National Parkinson Foundation Greater Pittsburgh Chapter
Member, Steering Committee, Physician Scientist Training Program, University of Pittsburgh School of Medicine

Richard Brenner, MD

Advisory Board
Epilepsy Foundation – Western Pennsylvania

Edward Burton, MD, DPhil

Advisory Committees
Michael J Fox Foundation
Dystonia Medical Research Foundation
Department of Veterans’ Affairs

Guodong Cao, PhD

Study Sections
Scientific Reviewer, VISN 4 Competitive Pilot Project Fund, Veterans Affair Healthcare
Scientific reviewer, Austrian Science Fund

Jun Chen, MD

Study Sections
Ad hoc, NIH/NINDS Special Review Panel MDCN, 2010-
Ad hoc, NIH/NINDS Special Review Panel for Program Project Grants, 2007-
Ad hoc, NIH/NINDS NRSA Fellowship Review Committee, 2007-
Ad hoc, NIH/NINDS Special Review Panel for the Loan Repayment Program, 2007 –
Ad hoc, VA Merit Review, 2005-

Advisory Committees
Elected Treasurer, International Society of Cerebral Blood Flow and Metabolism
Board of Directors, International Society of Cerebral Blood Flow and Metabolism
Chair of the Membership Committee, International Society of Cerebral Blood Flow and Metabolism
University of Pittsburgh Department of Neurology, Recruitment Committee
Scientific Committee, Pittsburgh VA Health Care System
Council Member, Chinese Natural Science Foundation

Paula R. Clemens, MD

Study Sections
VA Cellular and Molecular Medicine Study Section (CAMM); permanent member

Advisory Committees
External
Member, Scientific Advisory Committee, NIH-sponsored National Registry for Myotonic Dystrophy and
Facioscapulohumeral Muscular Dystrophy Patients and Family Members
Chair, Scientific Advisory Committee for Paul D. Wellstone Muscular Dystrophy Cooperative Research Center (MDCRC), University of Rochester, Rochester, NY Chair
Cooperative International Neuromuscular Research Group (CINRG) Chair, Publications Committee; Member, Executive Committee; Medical Director
Member, External Training Committee for the Ohio State University Muscle Group Training Program
University of Pittsburgh School of Medicine
Member, Biochemistry and Molecular Genetics Graduate Training Program
Member, MD/PhD Student Advisory Committee, University of Pittsburgh
Member, Committee for Tenured Faculty Promotions and Appointments (TFPA)
Department of Neurology
Member, Neurology Residency Task Force, University of Pittsburgh
Member, Executive Committee, Department of Neurology
Member, Neurology Faculty Promotions Committee, University of Pittsburgh
Member, Neurology Faculty Recruitment Committee, University of Pittsburgh
Co-Chair, Neurology Grand Rounds Committee

Kathy Gardner, MD

Advisory Committees
Children’s Hospital of Pittsburgh
Co-Director, Neurofibromatosis Clinic
Adult Neurologist for the Tuberous Sclerosis Clinic
Pittsburgh
Advisor and board member, local Neurofibromatosis Clinics Association

Steven H. Graham, MD, PhD

Study Sections
Brain Review Committee, American Heart Association

Advisory Committees
University of Pittsburgh School of Medicine
Chair, Promotions Committee, Department of Neurology
Member, Executive Committee, Neurology Department
Department of Veterans Affairs
Member, VA VISN 4 Research Roundtable
Member, VA VISN 4 Academic Affairs Committee
Member, VA Pittsburgh Healthcare System, Medical Executive Board
Member, VA Pittsburgh Healthcare System, Executive Leadership Board
Member, Veterans Research Foundation of Pittsburgh Board of Directors

J. Timothy Greenamyre, MD, PhD

Study Sections
Parkinson’s Disease Society, London, UK
Regular Member, NOMD Study Section

Advisory Boards
National Advisory Boards
Member, Scientific Advisory Board, Parkinson’s Action Network
Member, Scientific Advisory Board, Parkinson’s Disease Foundation
Member, Advisory Board, C. Mondino Institute of Neurology, Pavia, Italy
Member, Scientific Advisory Board, Michael J. Fox Foundation
University of Pittsburgh
School of Medicine AOC Committee
University of Pittsburgh Conflict of Interest and Entrepreneurial Oversight Committees
School of Medicine MSTP Steering Committee
Department of Neurology, Executive Committee
Department of Neurology, Promotions Committee

Max Hammer, MD

Advisory Committees
Member, Neurology Residency Curriculum Committee, Department of Neurology
Member, Professional Practice Executive Committee at UPMC Mercy
Member, Incentive Plan Committee, Department of Neurology
Member, Telestroke Executive Council
Director of Stroke Services, UPMC Mercy Hospital

Teresa Hastings, PhD

Study Sections
CMRF grant review committee, April 2012

Advisory Committees
University of Pittsburgh:
Member, MSTP/CNUP Admissions/Recruitment Committee
Member, MSTP Steering Committee
Member, Department of Neurology Promotions Committee
Member, Department of Neurology Tenure Stream Review Committee
Member, Steering Committee, NIH/NIMH Institutional Predoctoral Training Grant
Member, Executive Committee for PIND

Rock Heyman, MD

Advisory Committees
National Committees
National Multiple Sclerosis Society
Council of Clinical Advisory Chairmen, Chairman
Medical Advisory Board, Executive Committee
Task Force Regarding the Relationship between the Society and the Pharmaceutical Industry
Task Force Regarding Comprehensive Care Center Affiliations
Consortium of Multiple Sclerosis Centers
Board of Trustees
Member at large
Coordinator, Consensus Conference Development
Regional Committees
National Multiple Sclerosis Society
Allegheny District Chapter Board of Trustees
Chairman, Regional Clinical Advisory Committee
Regional Research Advocate
UPMC Committees
Member, Epicare Physician Advisory Board
Director, Multiple Sclerosis Center
University of Pittsburgh School of Medicine
Member, Executive Committee, Neurology Department
Chief, Division of Neuroimmunology
Samay Jain, MD

Advisory Committees
National Organizations
  Member, Parkinson Study Group, Other Non-motor Features Working Group
  Member, Cardiovascular Health Study Neurology Working Group
University of Pittsburgh Physicians
  Member, Department of Neurology, Planning Committee of CME
University of Pittsburgh School of Medicine
  Ad hoc Interviewer for Resident and Faculty Recruits
  UPMC Institutional Review Board

Robert Kaniecki, MD

Study Sections
  American Academy of Neurology, Head and Facial Pain Section
  American Headache Society, Refractory Headache Section

Advisory Committees
  Chairman, Department of Neurology Scientific Review Committee
  Member, Executive Committee, Department of Neurology
  Member, Department of Neurology Residency Selection Committee
  Member, Neurology Clerkship Curriculum Committee

David Lacomis, MD

Advisory Committees
National Advisory Boards
  Member, Scientific Advisory Board, Myasthenia Gravis Foundation of America
  Member, North East Amyotrophic Lateral Sclerosis Consortium (NEALS)
  Member, The Neuropathy Association, Medical Advisory Committee
  Member, American ALS Research Group
University of Pittsburgh Physicians
  Member, Executive Committee, Neurology Department
  Member, Epicare Oversight Committee, Neurology Department
  Member, Incentive Committee, Neurology Department
University of Pittsburgh School of Medicine
  Member, Promotions Committee, Neurology Department

Frank Lieberman, MD

Advisory Committees
  RTOG CNS Tumor Committee
  American Brain Tumor Consortium
  Steering Committee
  New Drugs Committee
  Conflict of Interest Committee
  Translational Imaging Committee
  Chordoma Foundation: Advisory Committee

Oscar Lopez, MD

Study sections
  NIH, Aging Systems and Geriatrics Study Section (ASG). (Permanent member since 2008)
  NIH, National Institute on Aging; Special Emphasis Panel: ZAG1-ZIG-8 (J2)
  NIH, National Institute on Aging; Special Emphasis Panel: ZAG1-ZIG-8 (J3)
Advisory Committees
Lewy Body Dementia Association, Scientific Advisory Committee
National Alzheimer’s Disease Coordinating Center Steering Committee member
Working Group for the American Academy of Neurology Guidelines for the Diagnosis of Mild Cognitive Impairment
Working Group for the American Heart Association Guidelines for the Diagnosis of Vascular Cognitive Impairment; the final report of this group was published in *Stroke* in 2011.
Geriatric Research Education and Clinical Center (GRECC) Advisory Committee, VA Pittsburgh Healthcare System, Pittsburgh, PA
National Heart, Lung, and Blood Institute (NHLBI): Consultant and Member of the Atherosclerosis Risk in Communities Studies (ARIC) Monitor Board. Bethesda, MD

Eric McDade, DO

Advisory Committees
Therapeutic Trial Unit – Dominantly Inherited Alzheimer Network
University of Pittsburgh Medical Center Rare and Chronic Disease Initiative
Associate Director, Clinical Core, Alzheimer Disease Research Center, University of Pittsburgh
Steering Committee Member – Dominantly Inherited Alzheimer Network
Ad Hoc Reviewer, Western Psychiatric Institute and Clinic Research Review Committee

Galen Mitchell, MD

Advisory Committees
University of Pittsburgh School of Medicine
Director of Medical Student Education, Department of Neurology
Co-Chair, Neuroscience Clerkship Design Committee, UPSOM
Member, Retention Committee, UPSOM
Member, Student Promotions Committee, UPSOM
Member, Clinical Procedures Course Design Group, UPSOM
Member, Department of Neurology Education Committee, current
Member, Curriculum Committee, UPMC

Judith Saxton, PhD

Advisory Committees
Affiliate Member, Center for Research in Chronic Disorders, School of Nursing, (J. Dunbar-Jacob, R.N., PhD (P.I.)
Consultant, Geropsychology Post-Doctoral Fellowship Program, VMAC Highland Drive, (Director of Training: Dr. B. Lauber)
Member, Advisory Board, Pittsburgh Geriatric Research Education and Clinical Center, (GRECC), Pittsburgh VA Healthcare System
Reviewer, Western Psychiatric Institute and Clinic Research Review Committee

Beth Snitz, PhD

Advisory Committee
Reviewer, Western Psychiatric Institute and Clinic Research Committee

Dandan Sun, MD, PhD

Study Sections
Ad Hoc Reviewer of NIH Study Seciton NOMD
Ad Hoc Reviewer of NIH Study Section CMBG
Advisory Committees
Chair of American Heart Association Study Group Brain 3
American Neurological Surgery Society Resident Research Fellowship Review Committee (Regular Member)

Anne Van Cott, MD

Advisory Committees
Committee Member, Treatment in Geriatric Epilepsy Research (TIGER) VA Project
Committee Member, VA Epilepsy Consortium
Professional Advisory Board of the Epilepsy Foundation of Western/Central PA, Member

Lawrence Wechsler, MD

Advisory Committees
National
Member, Scientific Sessions Program Committee, American Stroke Association
Member, Board of Directors, United Council of Neurological Specialties
President, American Society of Neuroimaging
Member, American Stroke Association Leadership Committee
Chair, American Academy of Neurology Stroke Systems Task Force
Member, American Academy of Neurology Practice Committee
Chair, American Stroke Association Guidelines Committee
Member, American Stroke Association Board of Directors
Member, American Stroke Association Certification Committee
DIAS Study--DMC
Steering Committee, CLOSURE Trial, ACT I
University of Pittsburgh
Member, CRCS Committee
Member, Department of Neurology Executive Committee
Member, Department of Neurology Promotions Committee
University of Pittsburgh Physicians
Member, UPP Clinical Operations Committee

Michael J. Zigmond, PhD

Study Section
NINDS Study Section on Fellowships, 2012

Advisory Committees
National Advisory Boards:
Chair, Scientific Advisory Board, UCLA Center for Gene-Environment Studies in Parkinson Disease (Marie-Francoise Chesselet, PI), 2003-
Chair, Scientific Advisory Board, UCLA Center of Excellence in Parkinson’s Disease Research (Marie-Francoise Chesselet, PI), 2003-
Chair, Scientific Advisory Committee, Universidad Central del Caribe, 2010-
Columbia University Udall Center Research Program on Parkinson's disease: Pathogenesis of Dopamine Neuron Death (Robert Burke, PI), 1999-
Journal of Undergraduate Research Education
Scientific Advisory Board, The Michael J. Fox Foundation for Parkinson’s, 2001-

Saša Živković, MD

Advisory Committees
Member, University of Pittsburgh Senate, Bylaws and Procedures Committee
Research Grants, Funding and Collaborations
<table>
<thead>
<tr>
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<td>Double blind placebo controlled study evaluating efficacy and safety in participants mild to moderate Alzheimer's disease</td>
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**Federal Grants: Public Health Service Training Grants**

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### Industry Research Funding

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**Total Funding:** $683,825

**Total APD:** $13,899

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<th>Faculty Research Collaborations</th>
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<td><strong>Sarah Berman, MD, PhD</strong></td>
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<td>Michael Palladino, Ph.D.</td>
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<td>Douglas Kondziolka, M.D.</td>
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<td>Valerie Suski, D.O.</td>
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David Lacomis, MD

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<tr>
<td>Chester Oddis</td>
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<tr>
<td>Robert Ferrante</td>
<td>University of Pittsburgh Department of Neurosurgery</td>
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<tr>
<td>Steven Albert</td>
<td>University of Pittsburgh School of Public Health</td>
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<td>Rohit Aggarwal</td>
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<td>Steve Meriney</td>
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Frank Lieberman, MD

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<td>Paula Sherwood</td>
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<td>Gary Marsh</td>
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<td>James Mountz</td>
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<td>Arlan Mintz</td>
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Hao Liu, MD, PhD

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<td>Samuel M. Poloyac, PhD</td>
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<tr>
<td>Manimalha Balasubramani, PhD</td>
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Oscar Lopez, MD

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<td>Owen Carmichael</td>
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<td>Steven DeKosky, MD</td>
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<td>Paul Thompson</td>
<td>University of California-LA Departments of Radiology and Neurology</td>
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<td>Debyy Tsuang</td>
<td>University of Washington, Seattle</td>
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<td>Merce Boada i Rovira</td>
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<td>Lenore Launer</td>
<td>National Institute on Aging</td>
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Eric McDade, DO

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<td>William Klunk, MD, PhD</td>
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<td>University of Pittsburgh Department of Neurology</td>
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Alexandra Popescu, MD

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<td>Jon Rittenberg, MD, MS</td>
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<td>Wei Wang, MD, PhD</td>
<td>University of Pittsburgh Department of Physical Medicine and Rehabilitation</td>
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Judith Saxton, PhD

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<td>Lisa Morrow, PhD</td>
<td>University of Pittsburgh Department of Psychiatry</td>
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Sasa Zivkovic, MD
Anto Bagic, MD, MSc
Rick Hendrickson, PhD
Suzanne Lentzsch, MD PhD
Kareem Abu-Elmagd, MD PhD
Elsa Strotmeyer, PhD

University of Pittsburgh Department of Neurology
University of Pittsburgh Department of Neurology
Pittsburgh Cancer Institute
University of Pittsburgh Thomas Starzl Transplantation Institute
University of Pittsburgh Graduate School of Public Health
Faculty Honors, Editorial Service, and Professional Affiliations

Anto Bagic, MD, MSc

Editorial Service
Ad hoc reviewer

*American Journal of Neuroradiology*
*Brain Research*
*Case Reports in Neurology*
*Croatian Medical Journal*
*Epilepsia*
*Epilepsy & Behavior*
*Epilepsy Research*
*Journal of Neuroimaging*
*Seizure*

Membership in Professional and Scientific Societies
American Academy of Neurology (AAN)
American Academy of Sleep Medicine (AASM)
American Clinical MEG Society (ACMEGS), Board of Directors, Founding member
American Clinical Neurophysiology Society (ACNS)
American Epilepsy Society (AES)
American Medical Association (AMA)
International Society for the Advancement of Clinical MEG (ISACM)

Maria Balwin, MD

Editorial Service
Ad hoc reviewer

*Journal of Clinical Neurophysiology*

Sarah Berman, MD, PhD

Editorial Service
Guest Editor, *Neurobiology of Disease*, Mitochondrial Dynamics and Quality Control in Neuropsychiatric Disease
Ad hoc reviewer

*American Journal of Pathology*
*Antioxidants & Redox Signaling*
*Biochimica et Biophysica Acta – Molecular Basis of Disease*
*Cell Death and Differentiation*
*Human Molecaxular Genetics*
*Journal of Neurochemistry*
*Journal of Neuroscience*
*Journal of Neurochemical Research*
*Journal of Vestibular Research*
*Journal of Visualized Experimentation*
*Mitochondrion*
*Molecular Cell*
*Neuroscience Letters*
*Neurobiology of Disease*
*PLOS One*
Grant review
   Michael J. Fox Foundation-Rapid Response Innovation Awards Program
   Clinical and Translational Science Institute: Basic to Clinical Collaborative Research Pilot Program

Membership in Professional and Scientific Societies
   American Academy of Neurology
   American Association for the Advancement of Science
   Movement Disorders Society
   Parkinson Study Group
   Society for Neuroscience

Richard Brenner, MD

Editorial Service
   Editorial Board
      Journal of Clinical Neurophysiology
   Ad hoc reviewer
      Archives of Neurology
      Biological Psychiatry
      Clinical Neurophysiology
      Epilepsia
      Journal of Clinical Neurophysiology
      Journal of European Neurology
      Journal of Gerontology: Medical Sciences
      Neurology
      Psychiatric Research
      Psychophysiology
      Stroke
      Seizure

Membership in Professional and Scientific Societies
   American Academy of Neurology
   American Clinical Neurophysiology Society
   American Epilepsy Society
   Central Association of Electroencephalographers (CAE)

Edward Burton, MD, DPhil, FRCP

Honors
   2011 Best Doctors.com, Elected for inclusion in Best Doctors in America 2011-2012
   2012 Pittsburgh Magazine, Listed as one of 19 Top Doctors in the region for neurology

Editorial Service
   Ad hoc reviewer
      Developmental Biology
      Gene Therapy
      Neurobiology of Disease
      PLoS One
      Toxicology in vitro
      Zebrafish
   Grant review
      Michael J Fox Foundation
      Department of Veterans’ Affairs
Membership in Professional and Scientific Societies
American Society for Gene Therapy
Association of British Neurologists
Royal College of Physicians of London
Movement Disorders Society
The Society for Neurosciences

Guodong Cao, PhD

Honors
Fudan University Visiting Professor
Capital University of Medicine Visiting Professor

Editorial Service
Lead Guest Editor – *Stroke Research and Treatment* - Special Issues (2012)
Editorial Boards
- *Brain Disorder and Therapy*
- *International Scholarly Research Network Stroke*
Ad hoc reviewer
- *Brain Research*
- *Cell Death and Differentiation*
- *CNS Neuroscience and Therapeutics*
- *Drug Delivery Letters*
- *European Journal of Pharmacology*
- *Journal of Cerebral Blood Flow and Metabolism*
- *Molecular Biology Reports*
- *Neurochemical Research*
- *Neuropharmacology*
- *Neurochemistry International*
- *Neuroscience*
- *Neurotoxicity Research*
- *Pediatric Research*
- *Stem Cell*
- *Translational Stroke Research*

Membership in Professional and Scientific Societies
American Heart Association
Society for Neuroscience

Jun Chen, MD

Honors
Endowed Chair Professorship, University of Pittsburgh 2008-
Changjiang Endowed Professorship, Chinese Education Commission 2009-
VA Career Scientist Award 2011-2016

Editorial Service
Editorial Board Member
- *Associate Editor, Journal of Neuroscience*
- *Associate Editor, Translational Stroke Research*
- *Journal of Cerebral Blood Flow and Metabolism*
- *Neurobiology of Disease*
- *Progress in Neurobiology*
- *Stroke*
Ad hoc reviewer

American Journal of Pathology
Annals of Neurology
Brain Research
Cell Death and Differentiation
European Journal of Neuroscience
European Journal of Pharmacology
Experimental Neurology
Gene Therapy
Glia
Journal of Biological Chemistry
Journal of Cell Biology
Journal of Cerebral Blood Flow and Metabolism
Journal of Clinical Investigation
Journal of Neurochemistry
Lancet Neurology
Molecular Brain Research
Molecular Therapy
Nature Medicine
Nature Neuroscience
Neurobiology of Aging
Neurobiology of Disease
Neurochemistry International
Neuroscience
Neuroscience Letters
Neuroscience Research
Nucleotide Acid Research
PNAS USA
Progress in Neurobiology
Science Signaling
Stroke
Translational Stroke Research

Paula Clemens, MD

Honors
Clerkship Preceptor of the Year Award, University of Pittsburgh School of Medicine

Editorial Service
Ad hoc reviewer
Gene Therapy
Lancet Neurology
Muscle & Nerve
PLos ONE

Membership in Professional and Scientific Societies
American Academy of Neurology
American Neurological Association
American Society of Gene and Cell Therapy

Gena Ghearing, MD

Editorial Service
Ad hoc reviewer
Epilepsia
Neurology

Membership in Professional and Scientific Societies
Allegheny County Medical Society
American Academy of Neurology
American Clinical Neurophysiology Society
American Epilepsy Society
American Medical Association
Pennsylvania Medical Association
Steven Graham, MD, PhD

Editorial Service
Editorial Board
   J. Cerebral Blood Flow and Metabolism
Ad hoc reviewer
   Annals of Neurology
   Brain Research
   Brain Pathology
   European Journal of Neuroscience
   Experimental Neurology
   F.A.S.E.B. Journal
   Gene Therapy
   Journal of Histochemistry and Cytochemistry
   Journal of Neurochemistry
   Journal of Neuroscience
   Journal of Neurotrauma
   Journal of Pharmacology and Experimental Therapeutics
   Molecular Brain Research
   Molecular Neurobiology
   Neurobiology of Disease
   Neuroscience
   Neuroscience Letters
   Neurochemical Research
   Neurochemistry International
   Progress in Neurobiology
   Stroke

Membership in Professional and Scientific Societies
   American Academy of Neurology
   National Stroke Council, American Heart Association
   Society for Neuroscience

J. Timothy Greenamyre, MD, PhD

Honors
   Selected, Best Doctors in America

Editorial Service
   Editor-in-Chief, Neurobiology of Disease
   Consulting Editor for Journal of Clinical Investigation
   Advisory Board, Functional Neurology
   Associate Editor, Neurosurgery
   Reviewing Editor, ASN-Neuro
   Editorial Board, Journal of Parkinson’s Disease
   Editorial Board, Neuropharmacology
   Editorial Board, Basal Ganglia
   Ad hoc reviewer
   Journal of Biological Chemistry
   Journal of Neurochemistry
   Nature Medicine
   Nature Neuroscience
   Neuron
   Proceedings of the National Academy of Sciences
   Science
Membership in Professional and Scientific Societies
- American Academy of Neurology
- American Neurological Association
- Huntington Study Group
- Movement Disorders Society
- Parkinson Study Group
- Society for Neuroscience

Max Hammer, MD

Membership in Professional and Scientific Societies
- American Academy of Neurology
- American Heart Association

Teresa Hastings, PhD

Editorial Service
- Handling Editor, Editorial Board Member for *Journal of Neurochemistry*
- Editorial Board Member for *Experimental Neurology*
- Ad hoc reviewer
  - *Experimental Neurology*
  - *Free Radical Biology and Medicine*
  - *Journal of Neurochemistry*
  - *Journal of Neuroscience*
  - *Journal of Parkinson's Disease*
  - *Neurobiology of Disease*

Membership in Professional and Scientific Societies
- American Academy for Advancement of Science
- International Society for Neurochemistry
- New York Academy of Sciences
- Society for Free Radical Biology and Medicine
- Society for Neuroscience

Rock Heyman, MD

Honors/Recognition
- Best Doctors in America, Woodard/White, Inc.
- Pittsburgh’s Top Doctors, Neurology, Sleep Medicine
- UPMC’s prestigious Award for Commitment and Excellence in Service (ACES), 2012

Editorial Service
- Ad hoc reviewer
  - *International Journal of MS Care*

Membership in Professional and Scientific Societies
- American Academy of Neurology, Multiple Sclerosis Section
- American Sleep Disorders Association
- Consortium of Multiple Sclerosis Centers

David Hinkle, MD, PhD

Faculty Honors
- Best Doctors n America (Neurology/Movement Disorders)
- Best Doctors in Pittsburgh (Neurology)
Editorial Service
Ad hoc reviewer
  Antioxidants and Redox Signaling
  Biochemistry
  Brain Research Bulletin
  Glia
  Journal of Cerebral Blood Flow and Metabolism
  Journal of Neurochemistry
  Journal of Neuroinflammation
  Journal of Neuroscience
  Movement Disorders
  Neurobiology of Disease
  Neurochemistry International
  Neuropathology
  Neuroscience
  Neurotoxicity Research
  Neurotoxicology
  PLoS ONE
  Stroke

Membership in Professional and Scientific Societies
  American Academy of Neurology
  American Association for the Advancement of Science
  Movement Disorder Society
  Parkinson Study Group
  Society for Neuroscience

Milos Ikonomovic, MD

Editorial Service
  Cardiovascular Psychiatry and Neurology – Associate Editor
Ad hoc reviewer
  American Journal of Pathology
  Alzheimer Disease and Associated Disorders,
  Annals of Neurology
  Archives of Neurology
  Brain
  Experimental Neurology
  Journal of Alzheimer’s Disease
  Journal of Comparative Neurology
  Journal of Gerontology
  Journal of Neurotrauma
  Nature
  Neurobiology of Aging
  Neurology
  Neuroscience

Grant reviewer
  The Alzheimer’s Association International Research Grant Program
  University of Pittsburgh Alzheimer Disease Research Center pilot grant review
  Departments of Neurology and Psychiatry Internal Review
  Geriatric Research Education and Clinical Center (GRECC) Scientific Review
  VA Healthcare Network, Competitive Pilot Project Fund review

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Professional Affiliations
American Academy of Neurology
International Brain Research Organization
International Society to Advance Alzheimer Research and Treatment
National Neurotrauma Society
New York Academy of Sciences
Researchers Against Alzheimer’s
Society for Neuroscience

Samay Jain, MD

Honors
Honorable mention, Storyteller category, American Academy of Neurology Neuro Film Festival, 2012

Editorial Service
Reviewer Board, Journal of Pediatric Neurology
Ad hoc reviewer
Case Reports and Clinical Practice Review
International Journal of Psychophysiology
Journal of American Geriatrics Society
Movement Disorders

Membership in Professional and Scientific Societies
American Academy of Neurology
Cardiovascular Health Study
Movement Disorders Society
Parkinson Study Group

Tudor Jovin, MD

Editorial Service
Associate Editor, Interventional Section, Journal of Neuroimaging
Ad hoc reviewer
Journal of Neuroimaging
Lancet Neurology
Stoke Neurology
Annals of Neurology
Journal of Neurology Neurosurgery and Psychiatry
Journal of Endovascular Therapy
Neurosurgery
NINDS grant submissions
Journal of Neurointerventional Surgery

Membership in Professional and Scientific Societies
American Academy of Neurology
American Society of Neuroimaging
American Heart Association – Stroke Council
American Association of Neurological Surgeons
Society of Vascular and Interventional Neurology
Robert Kaniecki, MD

Honors
2011 Department of Neurology Excellence in Teaching Award
“Top Doc” in Pittsburgh Magazine

Editorial Service
Abstracts Editor, Headache
Ad hoc reviewer
Cephalalgia
Clinical Therapeutics
Headache

Membership in Professional and Scientific Societies
American Academy of Neurology
American Council for Headache Education
Allegheny County Medical Society
American Headache Society
International Headache Society
Pennsylvania Medical Society

Kelly Kay, DO

Membership in Professional and Scientific Societies
American Academy of Neurology
American Association of Neuromuscular and Electrodiagnostic Medicine
Pennsylvania Medical Society
Allegheny County Medical Society

Autumn Klein, MD, PhD

Honors
AAN Emerging Leaders Forum – American Academy Neurology

Editorial Service
Ad hoc reviewer
Epilepsy and Behavior
Headache
Journal of Neurology
Lancet Neurology
Neurology
ZonMW TOP Grant (Netherlands)

Membership in Professional and Scientific Societies
AES – Pregnancy Special Interest Group, Co-chair
American Academy of Neurology, Member
American Epilepsy Society (AES), Member
American Headache Society, Member
Headache Cooperative of New England, Member
Topic Work Group-Education-AAN, Leader
Women’s Neurology Committee-AAN, Vice Chair
Lauri Knepper, MD

Honors
Best Doctors in America – Woodward/White, Inc.

Editorial Service
Ad hoc reviewer
   *Journal of Stroke and Cerebrovascular Diseases*

Membership in Professional and Scientific Societies
American Headache Society

David Lacomis, MD

Honors
“America’s Top Doctors,” Castle Connolly Medical Ltd., 2011
“Best Doctors in America” (Woodward/White, Inc.), 2011
“Patients’ Choice (MDx Medical, Inc.)

Editorial Service
Member, Editorial Board, *Journal of Clinical Neuromuscular Diseases*
Section Editor, “What’s in the Literature?” *Journal of clinical Neuromuscular Diseases*
Ad hoc reviewer:
   *Brain Pathology*
   *Canadian Journal of Neurological Sciences*
   *Journal of Clinical Neuromuscular Diseases*
   *Journal Watch Neurology*
   *Muscle and Nerve*
   *Neurocritical Care, A Journal of Acute and Emergency Care*
   *Neurology*
   *Nephron*
   *Southern Medical Journal*

Membership in Professional and Scientific Societies
American Academy of Neurology, Active Member, Fellow
American Association of Electrodiagnostic Medicine, Fellow
American Neurological Association, Active Member

Frank Lieberman, MD

Membership in Professional and Scientific Societies
American Academy of Neurology, Neuro-Oncology Section, Member
American Society of Clinical Oncology, Member
Board of Medical Examiners, Neuro-oncology Exam Committee, Member
Radiation Therapy Oncology Group, CNS Tumors Committee, Member
Society for Neuro-oncology, Member

Anthony K.F. Liou, PhD

Membership in Professional and Scientific Societies
Society for Neuroscience
Hao Liu, MD, PhD

Honors
NIEHS/NIH Travel Award by The 14th International Winter Eicosanoid Conference

Editorial Service
Ad hoc reviewer
Neurotherapeutics

Membership in Professional and Scientific Societies
American Society for biochemistry and Molecular Biology (ASBMB)
Inflammation Research Association, USA
Sigma Xi, The Scientific Research Society
Society for Neurosciences (SFN)

Oscar Lopez, MD

Honors
Joan and Mercé Boada Scientific Achievement Award (2012), Fundació ACE, Barcelona, Spain

Editorial Service
Editorial Board, Neuropsychology Review, Associate Editor
Ad hoc reviewer
Alzheimer’s & Dementia
Alzheimer’s Disease and Related Disorders
Archives of Internal Medicine
Archives of Neurology
Atherosclerosis, Thrombosis & Vascular Biology
Biological Psychiatry
Journal of Neurochemistry
Journal of Neurology, Neurosurgery, & Psychiatry
Journal of the American Geriatrics Society
Molecular Medicine
Neurobiology of Aging
Neuroepidemiology
Neurology
Neuropsychiatric Disease & Treatment
The Middle East Journal of Medical Genetics
The Journal of Gerontology and Medical Sciences

Ad hoc Grant Reviewer
Alzheimer’s Association, Chicago, IL.
Sharing Partnership for Innovative Research in Translation (SPIRiT) Consortium. This is a NIH Clinical and Translational Science Award Program comprised by The Johns Hopkins University, University of Chicago, University of Pennsylvania, University of Pittsburgh, Washington University at St. Louis, and Yale University. USA.
NIH-funded Nutrition-Obesity Research Center (NORC) – University of Alabama – Grant Program.
US-Israel Binational Science Foundation, Jerusalem, Israel.
National Agency of Research (Agence Nationale de la Récherche), Paris, France.
Angela Lu, MD

Membership in Professional and Scientific Societies
American Academy of Neurology

Eric McDade, DO

Editorial Service
Ad hoc reviewer

Alzheimer's & Dementia
Neurology
The Gerontologist

Co-Author – Mild Cognitive Impairment – UpToDate Inc.

Membership in Professional and Scientific Societies
American Academy of Neurology
American Osteopathic Association
Arnold P. Gold Foundation Humanism Honor Society

Galen Mitchell, MD

Membership in Professional and Scientific Societies
American Academy of Neurology
Diplomate, National Board of Medical Examiners

Eric Ogren, MD

Membership in Professional and Scientific Societies
American Academy of Neurology

Alexandra Popescu, MD

Membership in Professional and Scientific Societies
American Academy of Neurology
American Clinical Neurophysiology Society
American Epilepsy Society

Vivek Reddy, MD

Honors
Health Data Management –HER Game Changers Award

Membership in Professional and Scientific Societies
Association of Medical Directors of Information Systems
American Heart Association/American Stroke Association

Lisa Roeske-Anderson, MD

Membership in Professional and Scientific Societies
American Academy of Neurology
Sigma Xi Scientific Research Society
Judith Saxton, PhD

Editorial Service
Ad hoc reviewer
- Aging and Mental Health
- Alcoholism: Clinical and Experimental Research
- Alzheimer Disease and Associated Disorders: An International Journal
- Archives of Internal Medicine
- Assessment: A publication of Psychological Assessment Resources, Inc.
- Dementia and Geriatric Cognitive Disorders
- European Journal of Neurology
- Folia Phoniatricia et Logopaedica
- International Psychogeriatrics
- Journal of Consulting and Clinical Psychology
- Journal of Gerontology: Psychological Sciences
- Journal of Neurology, Neurosurgery and Psychiatry
- Journal of Studies on Alcohol
- Neurology
- Neuropsychology: A Journal of the American Psychological Association
- Psychology and Aging

Membership in Professional and Scientific Societies
- British Psychological Society
- Center for Neuroscience, University of Pittsburgh
- International Neuropsychological Society
- National Academy Neuropsychology

Amanda Smith, PhD

Membership in Professional and Scientific Societies
- Society for Neuroscience

Beth Snitz

Editorial Service
Ad hoc reviewer
- Aging and Mental Health
- Archives of Neurology
- Biological Psychiatry
- Gerontology
- International Psychogeriatrics
- Journal of the American Geriatric Society
- Journal of the International Neuropsychological Society
- Neuropsychology

Membership in Professional and Scientific Societies
- American Psychological Association, Division 40 Clinical Neuropsychology
- International Neuropsychological Society

R. Anne Stetler, MD

Editorial Service
Ad hoc reviewer
- Brain Research
Memberships:

Brain Research Bulletin
Journal of Neuroscience
Journal of Neuroscience Research
Leukemia
Recent Patents on CNS Drug Discovery

Membership in Professional and Scientific Societies
International Society for Cerebral Blood Flow and Metabolism
Society for Neuroscience

Dandan Sun, Md, PhD

Honors
Endowed Professor in Department of Neurology, University of Pittsburgh

Editorial board member
Frontiers in Membrane Physiology
International Journal of Physiology, Pathophysiology and Pharmacology

Ad hoc reviewer
Journal of Cerebral Blood Flow and Metabolism,
J. Neurochemistry,
Journal of Neuroscience,
Stoke

Membership in Professional and Scientific Societies
American Physiological Society
Society for the Cerebral Blood Flow, Metabolism & Function
Society of the Chinese Bioscientists in America
Society for Neuroscience

Valerie Suski, DO

Honors
Pittsburgh Magazine Best Doctors List 2012

Membership in Professional and Scientific Societies
American Academy of Neurology
American Medical Association
American Osteopathic Association
Huntington’s Study Group
Movement Disorders Society
Parkinson’s Study Group

Anne Van Cott, MD

Honors
VA Pittsburgh HCS Individual Special Contribution Award, 2009
Outstanding Professional Employee (Medical/Scientific) Bronze Award, 2009
Excellence in Government Awards Program, Pittsburgh Federal Executive Board
Best Doctors (Neurology), Pittsburgh Magazine, 2012

Membership in Professional and Scientific Societies
Fellow, American Academy of Neurology
Fellow, American Clinical Neurophysiology Society
American Epilepsy Society

Barbara Vogler, MD

Honors
America’s Top Physician for Consumers’ Research Counsel of America

Editorial Service
Ad hoc reviewer
*Headache Journal*

Membership in Professional and Scientific Societies
American Academy of Neurology
American Headache Society

Janet Waters, MD, MBA

Membership in Professional and Scientific Societies
American Academy of Neurology
Beta Gamma Sigma Society

Lawrence Wechsler, MD

Honors
“Top Doctors,” *Pittsburgh Magazine*, 2011

Editorial Service
Review Editor, *Frontiers in Stroke*
Editor-in-Chief, *Frontiers in TeleNeurology* online journal
Ad hoc reviewer
*Annals of Neurology*
*Journal of Neuroimaging*
*Neurology*
*New England Journal of Medicine*
*Stroke*

Membership in Professional and Scientific Societies
American Academy of Neurology
American College of Physicians
American Medical Association
American Neurological Association
American Society of Neuroimaging
Society for Neuroscience

Feng Zhang, MD

Honors
2010-2014 American Heart Association National Scientist Development Award

Editorial Services
Managing Editor, *Frontiers in Bioscience*
Ad hoc reviewer
*Brain Research*
*Mini-review of Medical Chemistry*
*Translational Stroke Research*
Membership in Professional and Scientific Societies
  International Society of Cerebral Blood Flow and Metabolism
  Society for Neuroscience

Michael Zigmond, PhD

Honors
  Plenary Lecturer, American Academy of Neurology

Editorial Service
  Progress in Neurobiology (Editor-in-chief)
    Behavioral and Brain Functions
    Biology Image Library, Neuroscience section
    Engineering & Science Ethics
    JUNE (Journal of Undergraduate Research Education)
    Neurology Research International
    Neuroscience Bulletin

Membership in Professional and Scientific Societies
  American Association for the Advancement of Science
  American Society for Pharmacology and Experimental Therapeutics
  International Brain Research Organization
  New York Academy of Science
  Sigma Xi
  Society for Neuroscience

Saša Živković, MD

Honors
  “Best Doctors in America”

Editorial Service
  Guest Editor of special issue of Current Neuropharmacology “Autoimmune Neurologic Disorders” Sept 2011
  Editorial consultant, ACP PIER online module “Distal Symmetric Polyneuropathy” (author J. England)
  Member, Editorial Advisory Board, World Journal of Hepatology
  Member, Monograph Review Committee, AANEM/Muscle Nerve
  Ad hoc reviewer
    Acta Neurologica Scandinavica
    BMC Research Notes
    Clinical Neurology and Neurosurgery
    Journal of Neuroimaging
    Journal of Neurology, Neurosurgery and Psychiatry

Membership in Professional and Scientific Societies
  ALS Research Group
  Inflammatory Neuropathy Consortium (INC)
  National VA ALS Consortium
  North East Amyotrophic Lateral Sclerosis Consortium (NEALS)
Faculty Mentoring and Teaching
<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anto Bagić, MD, PhD</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>Marie Baldwin, MD</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Sarah Berman, MD, PhD</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Richard P. Brenner, MD</td>
<td>Clinical Professor</td>
</tr>
<tr>
<td>Edward A. Burton, MD, DPhil, FRCP</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Guodong Cao, PhD</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>Jun Chen, MD</td>
<td>Professor</td>
</tr>
<tr>
<td>Paula R. Clemens, MD</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>John J. Doyle, MD</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>Jan Drappatz, MD</td>
<td>Visiting Associate Professor</td>
</tr>
<tr>
<td>Ahmed El-Dokla, MD</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Kathy Gardner, MD</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Gena Ghearing, MD</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Steven H. Graham, MD, PhD</td>
<td>Professor</td>
</tr>
<tr>
<td>J. Timothy Greenamyre, MD, PhD</td>
<td>Professor</td>
</tr>
<tr>
<td>Maxim Hammer, MD</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Teresa G. Hastings, PhD</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>Hassan Hassouri, MD</td>
<td>Clinical Associate Professor</td>
</tr>
<tr>
<td>Rick Hendrickson, PhD</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Rock A. Heyman, MD</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>David Hinkle, MD, PhD</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Eric Hoffman, PhD</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Milos Ikonomovic, MD</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>Samay Jain, MD</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Tudor Jovin, MD</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>Robert Kaniecki, MD</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Kelly Kay, MD</td>
<td>Clinical Assistant Professor</td>
</tr>
<tr>
<td>Laurie Knepper, MD</td>
<td>Clinical Associate Professor</td>
</tr>
<tr>
<td>Autumn Klein, MD, PhD</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>David Lacomis, MD</td>
<td>Professor</td>
</tr>
<tr>
<td>Frank Lieberman, MD</td>
<td>Professor</td>
</tr>
<tr>
<td>Guillermo Linares, MD</td>
<td>Clinical Instructor</td>
</tr>
<tr>
<td>Anthony Liou, PhD</td>
<td>Research Assistant Professor</td>
</tr>
<tr>
<td>Hao Liu, PhD</td>
<td>Research Assistant Professor</td>
</tr>
<tr>
<td>Oscar L. Lopez, MD</td>
<td>Professor</td>
</tr>
<tr>
<td>Angela Lu, MD</td>
<td>Clinical Assistant Professor</td>
</tr>
<tr>
<td>Eric McDade, DO</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Galen Mitchell, MD</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>Eric Ogren, MD</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Alexandra Popescu, MD</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Vivek Reddy, MD</td>
<td>Assistant Professor</td>
</tr>
</tbody>
</table>
Lisa Roeske-Anderson, MD  Assistant Professor
Judith Saxton, PhD  Professor
Amanda Smith, PhD  Research Assistant Professor
Beth Snitz, PhD  Assistant Professor
Ruth Ann Stetler, PhD  Research Assistant Professor
Dandan Sun, MD, PhD  Visiting Professor
Valerie Suski, DO  Assistant Professor
Anne Van Cott, MD  Associate Professor
Barbara Vogler, MD  Clinical Assistant Professor
Janet Waters, MD, MBA  Clinical Assistant Professor
Lawrence Wechsler, MD  Professor and Chair
Islam Zaydan, MD  Assistant Professor
Feng Zhang, MD  Research Assistant Professor
Michael Zigmond, PhD  Professor
Saša Živković, MD  Associate Professor

New Faculty Members

<table>
<thead>
<tr>
<th>Faculty Member</th>
<th>Previous Appointment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marie Baldwin, MD</td>
<td>Assistant Professor of Neurology Loyola University Medical Center</td>
</tr>
<tr>
<td>Jan Drappatz, MD</td>
<td>Instructor in Neurology Harvard Medical School</td>
</tr>
<tr>
<td>Ahmed El-Dokla, MD</td>
<td>Neuromuscular Medicine Fellow Washington University School of Medicine</td>
</tr>
<tr>
<td>Hassan Hassouri, MD</td>
<td>Private Practice Pittsburgh, PA</td>
</tr>
<tr>
<td>Kelly Kay, DO</td>
<td>Private Practice Washington, PA</td>
</tr>
<tr>
<td>Laurie Knepper, MD</td>
<td>Associate Professor of Clinical Neurology University of Massachusetts</td>
</tr>
<tr>
<td>Autumn Klein, MD, PhD</td>
<td>Associate Neurologist Brigham and Women’s Hospital, Boston</td>
</tr>
<tr>
<td>Guillermo Linares, MD</td>
<td>Assistant in Clinical Neurology New York Neurological Institute</td>
</tr>
<tr>
<td>Dandan Sun, MD</td>
<td>Professor in Department of Neurosurgery University of Wisconsin-Madison</td>
</tr>
</tbody>
</table>

Faculty Departures

<table>
<thead>
<tr>
<th>Faculty Member</th>
<th>New Position and Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingrid Loma, MD</td>
<td>Private Practice</td>
</tr>
<tr>
<td>Clinical Instructor</td>
<td>Newport News, VA</td>
</tr>
</tbody>
</table>
Simin Khavandgar, MD  
Clinical Assistant Professor  
Private Practice  
Crest Hill, IL

Clinical Education 2011-2012

House Officers

<table>
<thead>
<tr>
<th>PGY 4 Co-Chief Residents</th>
<th>Medical Education</th>
</tr>
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<tbody>
<tr>
<td>Josif Stakic, MD</td>
<td>Co-Chief Resident</td>
</tr>
<tr>
<td>Christopher Streib, MD</td>
<td>Co-Chief Resident</td>
</tr>
<tr>
<td>Viktoria Totoraitis, MD</td>
<td>Co-Chief Resident</td>
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<table>
<thead>
<tr>
<th>PGY 4 Residents</th>
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<tbody>
<tr>
<td>William Freiberg, DO</td>
<td>Philadelphia College of Osteopathic Medicine</td>
</tr>
<tr>
<td>Daniel Lai, MD</td>
<td>Ohio State University College of Medicine</td>
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<thead>
<tr>
<th>PGY 3 Residents</th>
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<tbody>
<tr>
<td>Nima Aghaebrahim, MD</td>
<td>University of South Carolina School of Medicine</td>
</tr>
<tr>
<td>Erin Canale, MD</td>
<td>Wayne State University School of Medicine</td>
</tr>
<tr>
<td>Jigyasa Tewari</td>
<td>Dayanand Medical College, India</td>
</tr>
<tr>
<td>Amber Van Laar, MD</td>
<td>University of Pittsburgh School of Medicine</td>
</tr>
<tr>
<td>Nambi uur Vidyashanker, MD</td>
<td>University of Massachusetts Medical School</td>
</tr>
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<tr>
<th>PGY 2 Residents</th>
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<tbody>
<tr>
<td>Edilberto Amorim, MD</td>
<td>Escola de Medicina E Saude Publica</td>
</tr>
<tr>
<td>David Avila, MD</td>
<td>Universidad Catolica de Santiago de Guayaquil</td>
</tr>
<tr>
<td>David Campbell, MD</td>
<td>University of Miami Miller School of Medicine</td>
</tr>
<tr>
<td>Claire Casper, MD</td>
<td>University of Chicago Pritzker School of Medicine</td>
</tr>
<tr>
<td>Stacie Demel, DO</td>
<td>Michigan State University College of Osteopathic Medicine</td>
</tr>
<tr>
<td>Jennifer Han, M.D.</td>
<td>University of Maryland School of Medicine</td>
</tr>
<tr>
<td>Robert Hendry, M.D.</td>
<td>Medical University of South Carolina College of Medicine</td>
</tr>
</tbody>
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<thead>
<tr>
<th>Neurology Fellows</th>
<th>Medical School Attended</th>
<th>Residency Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anat Horev</td>
<td>Semmelweis University, Hungary</td>
<td>Soroka Medical Center, Israel</td>
</tr>
<tr>
<td>Ashutosh Jadhav</td>
<td>Harvard Medical School</td>
<td>Massachusetts General Hospital</td>
</tr>
<tr>
<td>Revital Marcus</td>
<td>Rush University</td>
<td>Allegheny General Hospital</td>
</tr>
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</table>
**Departing House Officers**

<table>
<thead>
<tr>
<th>Residents</th>
<th>New Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>William Freiberg, DO</td>
<td>Clinical Neurophysiology Fellowship</td>
</tr>
<tr>
<td></td>
<td>University of Pittsburgh Medical Center</td>
</tr>
<tr>
<td>Daniel Lai, MD</td>
<td>Clinical Neurophysiology Fellowship</td>
</tr>
<tr>
<td></td>
<td>Stanford University</td>
</tr>
<tr>
<td>Josif Stakic, MD</td>
<td>Headache Fellowship</td>
</tr>
<tr>
<td></td>
<td>University of Pittsburgh Medical Center</td>
</tr>
<tr>
<td>Christopher Streib, MD</td>
<td>One year off followed by a Vascular Neurology Fellowship,</td>
</tr>
<tr>
<td></td>
<td>University of Pittsburgh Medical Center</td>
</tr>
<tr>
<td>Viktoria Totoraitis, MD</td>
<td>Vascular Fellowship</td>
</tr>
<tr>
<td></td>
<td>University of Pittsburgh Medical Center</td>
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<table>
<thead>
<tr>
<th>Fellows</th>
<th>New Position</th>
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</thead>
<tbody>
<tr>
<td>Ashutosh Jadhav, MD</td>
<td>Clinical Assistant Professor</td>
</tr>
<tr>
<td></td>
<td>University of Pittsburgh Medical Center</td>
</tr>
<tr>
<td>Revital Marcus, MD</td>
<td>Private Practice</td>
</tr>
<tr>
<td></td>
<td>Chicago, IL</td>
</tr>
<tr>
<td>Matt Starr, MD</td>
<td>Stroke faculty</td>
</tr>
<tr>
<td></td>
<td>University of New Mexico</td>
</tr>
</tbody>
</table>

**Fellowship Directors**

- Tudor Jovin, MD: Vascular Neurology
- David Lacomis, MD: Clinical Neurophysiology

**Neurology Mentors**

- Tudor Jovin, MD: Anat Horev, MD
- Ashutosh Jadhav, MD
- Matt Starr, MD
- David Lacomis, MD: Revital Marcus, MD
Faculty Teaching and Mentoring Contributions

Junior Faculty Research Mentoring

**Jun Chen, MD**

R Anne Stetler, PhD  
Research Assistant Professor  
Studies cellular & molecular mechanisms of ischemic neuronal injury and novel strategies for neuroprotection.

Anthony Liou, PhD  
Research Assistant Professor  
Studies cellular & molecular mechanisms of dopaminergic neurodegeneration associated with Parkinson’s disease

Feng Zhang, MD, PhD  
Research Assistant Professor  
Studies cellular & molecular mechanisms of ischemic neuronal injury using rodent models of brain ischemia. Supported by AHA SDG award.

**Autumn Klein, MD, PhD**

Stacie Demel, DO, PhD  
Sex Differences in Intra-arterial Stroke Treatment

Drew Thodeson, MD  
Aseptic Meningitis in Pregnancy

Lalit Bansal, MD  
Transition of Care; Pediatric to Adult Neurology

**David Laconis, MD**

Secondary Faculty Mentor for  
Samay Jain, MD

Nicole Fowler, PhD  
KL2 Award, University of Pittsburgh Department of Medicine

**Post Doctoral Research Mentoring**

**Sarah Berman, MD, PhD**

Victor VanLaar, PhD  
The role of parkin in neuronal mitochondrial dynamics

April Dukes, PhD  
Neuroprotectio by selenoproteins against toxin-induced cell death

**Edward Burton, MD, DPhil**

Jason Cannon, PhD  
shRNA targeting of the endogenous α-synuclein gene

Chiara Milanese, PhD  
Molecular and functional analysis of zebra fish synucleins

**Guodong Cao, PhD**

Zheng Jing, PhD  
Department of Neurology, University of Pittsburgh

**Jun Chen, MD**

LiLi Zhang, MD  
Research Associate  
Studies cellular & molecular mechanisms of ischemic neuronal injury and in Parkinson’s disease using various molecular approaches.

Xiaoming Hu, M.D., PhD  
Research Associate  
Studies mechanisms of neuron-glia interactions under conditions of ischemic injury or Parkinson’s disease. Supported by AHA fellowship.
ZhongFang Weng, PhD
Research Associate
Research projects concerning molecular mechanisms of dopaminergic cell death in Parkinson’s disease. Studies the role of mitochondrial damage and programmed cell death in the MPTP and 6-OHD neurotoxicity models.

Peter Vosler, MD, PhD
Postdoctoral Fellow
Studies cellular & molecular mechanisms of ischemic neuronal injury using molecular approaches.

Peiying Li, MD
PhD candidate
Molecular and cellular mechanisms of T-regulatory cell based-neuroprotection in cerebral ischemia.

Paula Clemens, MD
Reiko Shimizu, MD
Clinical research in muscular dystrophy

Steven Graham, MD, PhD
Wen Jin Li, MD
Research on the role of Cyclooxygenase-2 and other genes mediating death in cultured neurons.

Hao Liu, PhD
Research projects that explore the mechanisms of neuronal death in cerebral ischemia, these also include the role of cyclooxygenase-2 activity in neurons.

Tim Greenamyre, MD, PhD
Pier G. Mastroberardino, PhD
Proteomic studies in Parkinson’s and Huntington’s diseases

Jason Cannon, PhD
Models of PD / In vivo gene transfer

Laurie Sanders, PhD
DNA damage in Parkinson’s disease

Roberto DiMaio, PhD
Mechanisms of pilocarpine-induced epilepsy

Terina Martinez, PhD
Mechanisms of inflammation in PD

Victor Tapias, PhD
Neuroprotective strategies in PD

Teresa Hastings, PhD
April A. Dukes, Ph.D.
Neuroprotection by selenoproteins against toxin-induced cell death

David Hinkle, MD, PhD

Milos Ikonomovic, MD
Violette Pivtoraiko, PhD
Postdoctoral fellow
The Role of Truncated and Pyroglutamate Modified Aβ in MCI and early Alzheimer’s Disease

Zhiping Mi, PhD
Postdoctoral fellow
Oxidized Phospholipids and Synaptic changes in Mild Cognitive Impairment

Dandan Sun, MD, PhD
Wen Zhu
Postdoctoral fellow
Study of chloride transporter in GBM tumor cells

Hui Yuan
Postdoctoral fellow
Study of Intracellular Ca^{2+} rise in microglial migration
Gulnaz Begum  
Postdoctoral fellow  
Study DHA-medicated Neuroprotection after traumatic brain injury

Pre-Doctoral Mentoring

Sarah Berman, MD, PhD
Co-mentor for Vivek Patel  
F31 Predoctoral Training grant: Microtubule regulation of nuclear trafficking in oxidatively-stressed neurons

Graduate Student Mentoring and Advising

Sarah Berman, MD, PhD
Erin Cummings  
Physician Scientist Training Program rotation, June 2011-August 2011
Vivek Patel  
Medical Scientist Training Program, July 2010-2012
Kristen Livesey  
Physician Scientist Training Program, July 2010-Present
Ezra Mirvish  
Physician Scientist Training Program, July 2010-Present
Annie Liu  
Medical Scientist Training Program, June 2012-August 2012

Edward Burton, MD, DPhil
Maxx Horowitz  
Co-regulation of α-synuclein and TRF2 in vivo by GATA2.
Mohammad Atif Towheed  
Understanding the pathogenesis of ATP6 mutation in mitochondria

Paula Clemens, MD
Rakshita Charan  
Awarded PhD in December 2011. Studies are focused on upstream modulators of NF-κB activation as a cause of the dystrophic phenotype muscular dystrophy.

Greenamyre Lab
Max Horowitz (MSTP)  
GATA2 as a target in Parkinson disease

Dandan Sun, MD, PhD
Yehie Shi  
Study of roles of Na+/H+ exchanger in microglial activation after ischemia

Undergraduate Mentoring

Sarah Berman, MD, PhD
Aaron Merski  
June 2011-January 2012
Nikita Roy  
June 2010-August 2012
Jessa Tunacao  
June 2012
Julia Gerson  
June 2011-August 2011
Carly Dibas  
June 2012-Present
Edward Burton, MD, Phil, FRCP

Rachel Tang
Student Researcher 2012-present

Teresa Hastings, PhD

Jenny Riecke
Research project: Effect of selenium supplementation on rotenone-induced toxicity

Jessa Tunacaco
Research Project: Role of selenoproteins in models of Parkinson’s disease

Rick Hendrickson, PhD

Sarah Miller
Evaluating medical and psychological variables comparing patients with epilepsy versus nonepileptic behavior spells

David Hinkle, MD, PhD

Michelle Wright
Neuroscience

Milos Ikonomovic, MD

Trisha Ambe
2011 – Carnegie Mellon University/University of Pittsburgh

Dandan Sun, MD, PhD

Doong Kim
Study DHA-mediated neuroprotection after traumatic brain injury

Marie Caldwell
Study DHA-mediated neuroprotection after traumatic brain injury

Amneet Shigh
Study DHA-mediated neuroprotection after traumatic brain injury

Medical Student Mentoring

Edward Burton, MD, DPhil

Ritika Samanth
Scholarly project mentor 2010 -Present

Alexandra Popescu, MD

Ronak Dixit
MS3 University of Pittsburgh; Research Project: Psychopathology and Cognition of Patients with Psychogenic Non-epileptic Spells

Kakut/baksak
OGY5 Pediatric Neurology fellow UPMC Children Hospital Pittsburgh; Time to Diagnosis of Psychogenic Non-epileptic Spells

Faculty Participation in Graduate Level Teaching

Jun Chen, MD
Lecture
Cellular and Molecular Neurobiology

Sarah Berman, MD, PhD
Lecture
Professional Development 2 Course

Lecture
Neurobiology of Disease

Teresa Hastings, PhD
12 Lectures
Cellular and Molecular Neurobiology

Lecture
Neuropharmacology

Rock Heyman, MD
Small group
MS and Other Inflammatory Disorders

David Hinkle, MD, PhD
Small group
Dystonias and their treatment
### Robert Kaniecki, MD
- **Small group**
- **Migraine and headaches**

### Vivek Reddy, MD
- **Small group**
- **Applied Medical Informatics**

### Michael Zigmond, PhD
- **Lecture**
- **Ethics**
- **Small group**
- **Data management**

### Course Director

**Teresa Hastings, PhD**
- **Cellular and Molecular Neurobiology**

### Additional Graduate Student Mentoring and Advising

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
<th>Advisor</th>
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<tbody>
<tr>
<td>Sarah Berman, MD, PhD</td>
<td>MSTP Academic Advisor</td>
<td>Annie Liu</td>
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<tr>
<td></td>
<td>PSTP Academic Advisor</td>
<td>Kristen Livesey</td>
</tr>
<tr>
<td></td>
<td>PSTP 2011 Summer Lab Supervisor</td>
<td>Erin Cummings</td>
</tr>
<tr>
<td>Paula Clemens, MD</td>
<td>PhD Mentor</td>
<td>Rakshita Charan</td>
</tr>
<tr>
<td>Tim Greenamyre, MD, PhD</td>
<td>PhD Mentor</td>
<td>Maxx Horowitz</td>
</tr>
<tr>
<td></td>
<td>MSTP 5015 Summer Lab Supervisor</td>
<td>Michelle Dail</td>
</tr>
<tr>
<td>Teresa Hastings, PhD</td>
<td>MSTP Academic Career Advisor</td>
<td>Daniel Wonjae Chung</td>
</tr>
<tr>
<td></td>
<td>MSTP Academic Career Advisor</td>
<td>Adrienne Taren</td>
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### Committee Memberships

<table>
<thead>
<tr>
<th>Name</th>
<th>Memberships</th>
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<tbody>
<tr>
<td>Sarah Berman, MD, PhD</td>
<td>Member, PSTP Steering Committee</td>
</tr>
<tr>
<td></td>
<td>Member, PSTP Advisory Committee</td>
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<tr>
<td></td>
<td>Member, PST Selection Committee</td>
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<tr>
<td></td>
<td>Member, MSTP Interview Committee</td>
</tr>
<tr>
<td></td>
<td>Member, CNUP/MSTP Recruiting Committee</td>
</tr>
<tr>
<td>Teresa Hastings, PhD</td>
<td>Member, MSTP/CNUP Admissions Committee</td>
</tr>
<tr>
<td></td>
<td>Member, MSTP Steering Committee</td>
</tr>
<tr>
<td></td>
<td>Member, CNUP Steering Committee</td>
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</tbody>
</table>
Thesis and Dissertation Committee Service

Sarah Berman, MD, PhD
- Member, Thesis Committee
- Member, Thesis Committee

Steven Graham, MD, PhD
- Chair, Dissertation Committee
- Member, Thesis Committee

Tim Greenamyre, MD, PhD
- Member, Thesis Committee

Teresa Hastings, PhD
- Member, Dissertation Committee
- Member, Dissertation Committee
- Member, Dissertation Committee
- Chair, Dissertation Committee

David Lacomis, MD
- Head, Thesis Committee

Faculty Participation in Medical School Teaching and Mentorship

Teaching

Anto Bagic, MD, PhD
- Pharmacological Treatment of Epilepsy
- Basic Mechanisms of Epilepsy
- Overview of Seizures
- Anti-epileptic Drugs & Treatment of Epilepsy
- Epilepsy Review & Integration

Edward Burton, MD, DPhil
- Movement
- Clinical Conference 1: Localization of Dysfunction
- Clinical Conference 3: Motor System Degeneration
- Other Movement Disorders: Tics, Ataxias, etc.
- Hyperkinetic Movement Disorders Lecture

Paula Clemens, MD
- Genetic Approaches to the Treatment of MD

John Doyle, MD
- Attentional Systems & Disorders of Consciousness
- Clinical Conference 1: Localization of Dysfunction
- Clinical Conference 2: Brainstem Syndromes
- Clinical Conference 3: Motor System Degeneration
- Clinical Conference 4
- Language and Communication
- Principles of Neurological Localization

Kathy Gardner, MD
- Clinical Conference 2: Brainstem Syndromes
Gena Ghearing, MD
Seizures, 7 lectures
Clinical Neurosciences Clerkship

Steven Graham, MD, PhD
Child Psychiatry Small Group
Clinical Conference 1: Localization of Dysfunction
Clinical Conference 2: Brainstem Syndromes
Clinical Conference 4
Small Group: Depression
Small Group: Suicide
Introduction to Psychiatry
Neuroscience

J. T. Greenamyre, MD, PhD
Parkinson's Disease Lecture
Parkinson's Disease Conference - Patient Presentation
Movement, 2 sessions
Neurobiology of Brain Dysfunctions
Huntington’s disease - pathogenesis & treatment
Neuroscience

Max Hammer, MD
Cerebral Vascular Disorders
Clinical Conference 1: Localization of Dysfunction
Clinical Conference 2: Brainstem Syndromes
Critical Appraisal Session 1: Case of Bell's Palsy
Critical Appraisal Session 2: Case of Ischemic Stroke
Critical Appraisal Session 3: Case of Parkinson’s Disease
Critical Appraisal Session 4: Case of Multiple Sclerosis
PBL 1: Introduction
PBL 2: Introduction
PBL 2: Resolution
Neuroscience
Methods and Logic in Medicine

Rock Heyman, MD
Clinical Conference 1: Localization of Dysfunction
Clinical Conference 2: Brainstem Syndromes
Clinical Conference 3: Motor System Degeneration
Clinical Conference 4
Multiple Sclerosis and Related Diseases
Multiple Sclerosis: Patient Presentation
PBL 1: Introduction
PBL 1: Resolution
PBL 2: Introduction
PBL 2: Resolution
Critical Appraisal Session 1: Case of Bell's Palsy
Critical Appraisal Session 2: Case of Ischemic Stroke
Critical Appraisal Session 3: Case of Parkinson’s Disease
Critical Appraisal Session 4: Case of Multiple Sclerosis
Methods and Logic in Medicine

David Hinkle, MD, PhD
Naurology Dept Resident Movement Disorders lectures
MED 5133
Neuroscience

104
PSYC 5365: Movement Disorders  
Clinical Neurosciences Clerkship

OT 2108: Mastes Occupational Therapy  
Neuroscience

MSNBIO 2614  
Neuropharmacology

MSNBIO 2005: Neurobiology of Brain Disorders  
Neuroscience

**Samay Jain, MD**  
Movement  
Clinical Neurosciences Clerkship

**Robert Kaniecki, MD**  
Clinical Conference 4  
Neuroscience

Headache Management  
Behavioral Medicine

Headache, 6 lectures  
Clinical Neurosciences Clerkship

Headache: Anatomy & Pathophysiology  
Neuroscience

Pharmacology of Headache Pain Management  
Neuroscience

**David Lacomis, MD**  
Clinical Conference 1: Localization of Dysfunction  
Neuroscience

Clinical Conference 4  
Neuroscience

Neuromuscular Junction & Muscle Disorders  
Neuroscience

Patient Presentation  
Neuroscience

Peripheral Nerve & Anterior Horn Cell Disorders  
Neuroscience

**Frank Lieberman, MD**  
Critical Appraisal Session 1: Case of Bell's Palsy  
Methods and Logic in Medicine

Critical Appraisal Session 2: Case of Ischemic Stroke  
Methods and Logic in Medicine

Critical Appraisal Session 3: Case of Parkinson’s Disease  
Methods and Logic in Medicine

Critical Appraisal Session 4: Case of Multiple Sclerosis  
Methods and Logic in Medicine

**Oscar Lopez, MD**  
Dementia, 5 lectures  
Clinical Neurosciences Clerkship

Alzheimer’s Dementia and Other Dementias  
Neuroscience

**Eric McDade, DO**  
Dementia, 3 lectures  
Clinical Neurosciences Clerkship

Alzheimer’s Dementia and Other Dementias  
Neuroscience

Executive Function of the Cerebral Cortex  
Neuroscience

Delirium & Dementia  
Neuroscience

**Galen Mitchell, MD**  
MS3 Neurology Orientation, 10 lectures  
Clinical Neurosciences Clerkship

Multiple Sclerosis, 6 lectures  
Clinical Neurosciences Clerkship

Neurological Emergencies, 6 lectures  
Clinical Neurosciences Clerkship

Neurology Sessions, 3 sessions  
Advanced Physical Examination 1

Neurology Session Orientation  
Clinical Neurosciences Clerkship

**Vivek Reddy, MD**  
Stroke, 6 sessions  
Clinical Neuroscience Clerkship

**Valerie Suski, DO**  
M3: Movement Disorders Conference  
Neuroscience

M2: Neurologic Examination Lecture  
Neuroscience
Anne Van Cott, MD
Case 1: Worth a Pound of Cure, 3 sessions
Case 6: Tough Love, 2 sessions
Case 8: Prime the Pump, 2 sessions
Epilepsy in the Elderly
Case Presentation and Discussion
Integrated Case Studies

Islam Zaydan, MD
Clinical Conference 2: Brainstem Syndromes
Integrated Case Studies

Michael Zigmond, PhD
Case 2: Breathless, 2 sessions
Case 4: Hot Above the Collar, 2 sessions
Case 6: Tough Love, 2 sessions
Integrated Case Studies

Sasa Zivkovic, MD
MS-1: Syndromes involving Brainstem and Cranial Nerves
and Motor Degeneration
MS-3: Outpatient clinic with students
Neuroscience
Clinical Neuroscience Clerkship

Course Directors

Paula Clemens, MD
Integrated Case Studies

Galen Mitchell, MD
Clinical Neurosciences

Medical Student Mentoring

Edward Burton, MD, DPhil - done
Mentored Scholarly Project
FAST Program Advisor
FAST Program Advisor
FAST Program Advisor
FAST Program Advisor
FAST Program Advisor
FAST Program Advisor
Mentored Scholarly Project
Ritika Samant
Daniel Chen
Sarah Cohen
Alexa Sabedra
Luis Calderon
Evan Kingsley
Ronak Dixit
Seth Hepner

Rick Hendrickson, PhD, Co-Mentor
Mentored Scholarly Project
FAST Program Advisor
FAST Program Advisor
FAST Program Advisor
Alexa Sabedra
Peter Kang
Julie Garringer
Seth Hepner

Rock Heyman, MD
Mentored Scholarly Project

Samay Jain, MD
FAST Program Advisor

Alexandra Popescu, MD, Co-Mentor
Mentored Scholarly Project

Committee Service

Edward Burton, MD, DPhil-done
Course Design Group – Neuroscience
Course Design Group - Neurology
<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
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<tbody>
<tr>
<td>John Doyle, MD</td>
<td>Course Design Group - Neuroscience</td>
</tr>
<tr>
<td>Galen Mitchell, MD</td>
<td>Promotions</td>
</tr>
<tr>
<td></td>
<td>Retention Committee MS 3 &amp; 4</td>
</tr>
<tr>
<td></td>
<td>Undergraduate Medical Education Teaching Coordinator</td>
</tr>
<tr>
<td>Anne Van Cott, MD</td>
<td>Course Design Group - Integrated Case Studies</td>
</tr>
</tbody>
</table>
Grand Rounds and Special Lectures
Department of Neurology Grand Rounds 2011-2012

2011

September 7  Daniel Lai, MD
Residents’ CPC Series
“Current Therapies for the Treatment of Leptomeningeal Carcinomatosis”

September 21  J. Timothy Greenamyre, MD, PhD
Professor of Neurology and Chief, Movement Disorders Division
University of Pittsburgh School of Medicine
“What is Parkinson Disease and How Do You Model It?”

September 28  David O. Okonkwo, MD, PhD
Associate Professor of Neurological Surgery, University of Pittsburgh School of Medicine
Clinical Director, Brain Trauma Research Center
“Modern Neuroimaging and Management of Traumatic Brain Injury”

October 5  R. Mark Richardson, MD, PhD
Assistant Professor of Neurological Surgery, University of Pittsburgh School of Medicine
Director, Adult Epilepsy Surgery Program, UPMC
“New Directions in Epilepsy and Functional Neurosurgery at UPMC”

October 12  Amber Van Laar, MD
Resident, UPMC Department of Neurology
“Progressive Dementia and Chorea: What to do when the Huntington’s Test is Negative”

October 19  Autumn Klein, MD, PhD
Assistant Professor of Neurology and Chief, Division of Women’s Neurology
University of Pittsburgh Department of Neurology
“Neurological Issues in Pregnancy”

October 26  “In-Patient and Out-Patient HOT Cases”
Moderated by: John Doyle, MD, Associate Professor
Amber Van Laar, MD & Christopher Streib, MD
University of Pittsburgh Department of Neurology

November 2  Richard Brenner, MD
Clinical Professor of Neurology and Psychiatry, UPMC
“Electroencephalography-Past, Present, Future: An EEGer Reminisces”

November 16  Jigyasa Tewari, MD
Resident, UPMC Department of Neurology
“Review of Rituximab in Neuromuscular DS”

November 30  Islam Zaydan, MD
Assistant Professor, University of Pittsburgh Department of Neurology
“MS vs. The Eye”

December 7  “In-Patient and Out-Patient HOT Cases”
Moderated by: John Doyle, MD, Associate Professor
Amber Van Laar, MD & Ashutosh Jadhav, MD
“Lazy Tongue and Floating Jaw” and “Acute Onset of Facial Diplegia with Ophthalmoplegia”

December 14  Nima Aghaebrahim, MD
Resident, UPMC Department of Neurology
“Time vs. Space in Acute Stroke: Beyond the ‘Time is Brain’ Paradigm”
December 21
James T. Becker, Ph.D.
Professor of Psychiatry, Neurology and Psychology
University of Pittsburgh School of Medicine
“Preventing the Dementia of the Alzheimer’s Type”

2012

January 11
Christopher Streib, MD
Resident, UPMC Department of Neurology
“The Overlap Between Pathways of Metastasis and Thrombosis: Implications for Stroke Prevention in Cancer Patients”

January 18
Jan Drappatz, MD
Visiting Associate Professor of Neurology and Adult Neurooncology
University of Pittsburgh School of Medicine
“Update on CNS Lymphoma”

January 25
Anthony Amato, MD
Professor and Vice-Chairman, Department of Neurology
Harvard Medical School
“Idiopathic Inflammatory Myopathies”

February 1
Rock Heyman, MD
Associate Professor of Neurology and Chief, Neuroimmunology/MS
“Safety and Performance Improvement with Lumbar Puncture”

February 8
William Freiberg, MD
Resident, UPMC Department of Neurology
“Taking Care of Business”

February 15
Hideho Okada, MD, PhD
Associate Professor of Neurological Surgery, Surgery and Immunology
University of Pittsburgh School of Medicine; Co-Leader, UPCI Brain Tumor Program
“Type-I Polarizing Vaccines for Adult and Pediatric Patients with Gliomas”

February 22
David N. Finegold, MD
Pediatric Medical Genetics; Children’s Hospital of Pittsburgh/UPMC
“Parkinson’s and the Neurological Manifestations of Gaucher Disease”

February 29
John A. Horton, MD
Assistant Professor, Department of Physical Medicine and Rehabilitation; Assistant Director, UPP Spinal Cord Injury Program
“Strategies and Methodology for Mobility Improvement in Patients with CNS Impairment”

March 14
Viktoria Totoraitis, MD
Resident, UPMC Department of Neurology
“Stroke and Pregnancy”

March 21
John Doyle, MD
Associate Professor of Neurology
Chief, Division of General Neurology
University of Pittsburgh Department of Neurology
“Encephalopathy Update”
March 28  Michael J. Aminoff, M.D., D.Sc.
Distinguished Professor and Executive Vice Chair, Department of Neurology
University of California, San Francisco
“Brown-Sequard: the Man and His Syndrome”

April 4  Kees H. Polderman, MD, PhD
Medical Director, Neurocritical Care Services
Clinical Research, Investigation, and Systems Modeling of Acute Illness Laboratory
Department of Critical Care Medicine
“Maintaining Homeostasis in Brain-Injured Patients”

April 11  Kevin E. Crutchfield, MD
Director of Comprehensive Sports Concussion Program; Director of Non-invasive Vascular
Laboratories; The Sandra and Malcolm Berman Brain & Spine Institute, Sinai Hospital of
Baltimore
“Neurology of Concussion”

May 9  Peter A. Calabresi, MD
Professor of Neurology
Director, Johns Hopkins Multiple Sclerosis Center
Director, Division of Neuroimmunology and Neuroinfectious Diseases
“Neuroprotection through enhancing endogenous remyelination in multiple sclerosis”

May 23  S. Morgan Jeffries, MD
Clinical Assistant Professor of Neurology, University of Pittsburgh Medical Center
“Brain-Controlled Prosthetics for the Real World”

May 30  Josif Stakic, MD
Resident, UPMC Department of Neurology
“Horton’s Disease: An Overview of Clinical Presentation, Diagnosis and Treatment”

June 6  Ahmed El-Dokla, MD
Assistant Professor of Neurology
University of Pittsburgh School of Medicine
“Update on Myasthenia Gravis”

June 13  Erin Canale, MD
Resident, UPMC Department of Neurology
“Neurologic Disorders and Driving”

June 20  Mike Modo, PhD
Associate Professor of Radiology
University of Pittsburgh School of Medicine
“Defining the Neurological Substrate of Behavioral Impairment in Animal Models of
Neurological Conditions”

Joint Neurology-Neurosurgery Conferences

September 14  “Unrelenting Neck Pain”
- Douglas Kondziolka MD, MS, FRCS(C)
- David Hinkle MD, PhD, Donald Crammond, PhD

November 9  “Epilepsy Surgery: Who Should Be Considered? How Will They Do?”
- Alexandra Popescu, MD, Assistant Professor of Neurology
- Gena Ghearing, MD, Assistant Professor of Neurology
• R. Mark Richardson, MD, PhD, Assistant Professor of Neurological Surgery and Director, Adult Epilepsy Surgery

January 4
"Resection of Cavernous Malformations from Eloquent Areas"
• Robert M. Friedlander, MD, MA, Professor and Chair, Department of Neurological Surgery, University of Pittsburgh School of Medicine
• Juan C. Fernandez-Miranda, MD, Assistant Professor, Department of Neurological Surgery, University of Pittsburgh School of Medicine

March 7
"New Treatment Approaches in Neuro-Oncology: A Series of Case Studies"
• Jan Drappatz, MD
  Visiting Associate Professor of Neurology, University of Pittsburgh School of Medicine; Associate Director, Adult Neuro-Oncology UPMC

May 2
“Clinical Pathological Correlation Conference: An 84-Year Old Woman with Acute Painful Monoparesis?"
• Peter C. Gerszten, M.D., M.P.H., F.A.C.S.
  Peter E. Sheptak Professor of Neurological Surgery, University of Pittsburgh School of Medicine; Director, Percutaneous Spine Service
• David Lacomis, MD, Professor of Neurology, University of Pittsburgh School of Medicine

Pittsburgh Institute for Neurodegenerative Diseases Special Event

December 6
Michele Simonato, MD
Associate Professor, Department of Clinical and Experimental Medicine, School of Medicine, University of Ferrara, Ferrara, Italy
"Gene Therapy for Epilepsy: Ready to Move Into the Clinics?"

Special Presentations

November 21
Kartik Sivaraaman, MD
Fellow, Comprehensive Epilepsy Center
Department of Neurology
Thomas Jefferson University Hospital
"Metabolic Effects of Antiepileptic Drugs"

November 29
Children’s Hospital of Pittsburgh/UPMC
Video Conference on Molecular Medicine
Steven A Goldman, MD, PhD
Edward and Alma Vollertsen Rykenboer Professor of Neurology
Chairman, Department of Neurology
University of Rochester School of Medicine
"Stem and Progenitor-Cell Based Treatment and Modeling of the Myelin Disorders"

June 6
Mary Ganguli MD, MPH
Professor of Psychiatry, Neurology, and Epidemiology
University of Pittsburgh School of Medicine and Graduate School of Public Health
"Epidemiology and the Aging Brain"
Faculty Bibliography


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Beth Snitz, PhD


Judith Saxton, PhD, Professor


Epilepsy Division

Anto Bagić, MD, PhD, Associate Professor and Chief, Epilepsy Division


Gena Ghearing, MD, Assistant Professor

Liang VY, Ghearing GR, Zivković SA. Carpal tunnel syndrome after ciprofloxacin-induced tendonitis; J Clin Neuromuscul Dis. 2010; 11(3);165-6.


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Anne Van Cott, MD, Associate Professor


Headache Division

Robert Kaniecki, MD, Assistant Professor and Chief, Headache Division


Kathy Gardner, MD, Assistant Professor


Movement Disorders Division

Sarah Berman, MD, PhD, Assistant Professor


**Edward A. Burton, MD, DPhil, Assistant Professor**


Bai, Q., Sun, M., Stolz, D. B., Burton, E. A. (2011). The major isoform of zebrafish P0 is a 23.5kDa myelin glycoprotein expressed in selected white matter tracts of the central nervous system. Journal of Comparative Neurology. 519(8), 1580-96

**J. Timothy Greenamyre, MD, PhD, Professor and Chief, Movement Disorders**


David Hinkle, MD, PhD, Assistant Professor


Samay Jain, MD, Assistant Professor


Neuromuscular Diseases Division

David Lacomis, MD, Professor and Chief, Neuromuscular Diseases


Saša Živković, MD, Associate Professor


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Frank Lieberman, MD, Associate Professor


Research Division

Guodong Cao, PhD, Associate Professor


Jun Chen, MD, Professor


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**Paula Clemens, MD, Associate Professor and Chief of Service, VAMC**


Steven Graham, MD, PhD, Professor and Vice Chair for Research and Chief, Research Division


Teresa Hastings, PhD, Associate Professor

Milos Ikonomovic, MD, Associate Professor

Amanda Smith, PhD, Research Assistant Professor

Feng Zhang, PhD, Research Assistant Professor

Michael Zigmond, PhD, Professor
Vascular Neurology

**Tudor Jovin, MD, Associate Professor and Chief, Stroke Division**


Nogueira RG, Gupta R, Liebeskind DS, Rymer MM, Barreto AD, Levy EI, Zaidat OO, Rai A, Baxter B, Jovin T. Neither Time to Treatment Nor the Use of Adjunctive Intra-arterial Thrombolytics Increase the Risk for Symptomatic Intracranial Hemorrhage After Endovascular Treatment of CT Perfusion or MRI-selected Stroke Patients Treated at Late Time Windows: Analysis of the Pre-DAWN Dataset. Stroke 2010 Apr; 41(4); 227.


Max Hammer, MD, Assistant Professor


Barber PA, Wechsler LR. The ischemic penumbra: From celestial body to imaging technology. Neurol 2010; 75:844-845.


Women's Neurology

Autumn Klein, MD, PhD, Assistant Professor


