Annual Report for the Period July 1, 2013 through June 30, 2014

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Department Overview, Mission and Activities

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, 2013 through June 30, 2014, there were 66 faculty members with primary appointments in Neurology and we expect additional faculty to join us next year. The Department welcomed Dr. Franca Cambi, Dr. Joseph Diamond, Dr. Joanna Fong, Dr. Adnan Mahmood, Dr. Lazarus Mayoglou, Dr. Ruta Totoraitis, Dr. Arun Antony, Dr. Edward Mistler, Dr. Stuart Silverman and Dr. Araya Puawnant with a variety of specialties in General Neurology, Epilepsy, and Neuromuscular. Secondary appointments are held by Bing Wang, MD, PhD, Mary Ganguli, MD, William Klunk, MD, PhD, Robert Sweet, MD, Cheryl Bernstein, MD, James Becker, PhD, Nancy Minshew, MD, and Charles Reynolds, 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. 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 2013-2014 featured 36 lectures, four of whom were Visiting Professors from other institutions. We also had three Neurology & Neurosurgery Combined Grand Rounds, 14 Resident Presentations, eight In-House presentations and seven presentations from other departments at UPMC. 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. 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. 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 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 is the 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 Alexander, 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 FY 2014 the department received $11,595,280 in Extramural Research Grant Support and $576,811 in Industry Clinical Trial Support.

Basic Research

The Department of Neurology has a strong basic science research program that aims to understand the molecular mechanisms of neurological diseases and develop new treatment strategies for these disorders. The department’s basic research program includes the Pittsburgh Institute for Neurodegenerative Disorders, the Alzheimer’s Disease Research Center and the Geriatric Research Education and Clinical Center. Other areas of focus include neuromuscular disorders, traumatic brain injury and epilepsy.

Neurology faculty secured funding for a number of new research projects in FY14, including:

- **Dr. Dandan Sun** received funding for a new RO1 award from the National Institute of Neurological Diseases and Stroke (NINDS) to investigate the release of Zinc from neurons after ischemia and develop new treatments that prevent neuronal cell death. She also received notice that two new RO1 awards from NINDS will be funded next fiscal year. One award addresses whether the Na-K-Cl cotransports, an ion channel found in neurons, is a therapeutic target for treatment of stroke. A second newly funded RO1 addresses abnormal metabolism of damaged proteins after traumatic brain injury and treatment with DHA, a component of fish oil.

- **Dr. Ed Burton** received funding from the NIH for two major new awards. He received funding for a R01 award that addresses the interactions of environmental toxins and genetics in the pathogenesis of Parkinson’s disease. He also received funding for a new R21 award to develop a new model in zebrafish where tau, a protein associated with Alzheimer’s Disease and other neurodegenerative diseases, is abnormally expressed. This model will be useful in understanding the mechanisms by which tau produces neurodegeneration and may be used to screen drugs for use in these disorders.

- **Dr. Guadong Cao** received a new R01 award from the NINDS to examine the role of the Nicotinamide phosphoribosyltransferase, an important enzyme involved in energy metabolism, in protection of axons in white matter after stroke.

- **Dr. Julie Pan** received notice that two major grants from the NINDS of the NIH to study epilepsy will be funded next fiscal year. A new R01 grant explores the use of MR Spectroscopic imaging in patients with epilepsy. A second new R01 will explore the sensitivity of MR spectroscopy in detecting neuronal loss in hippocampus and temporal lobe in animals with chronic seizures.

- **Dr. Timothy Greenamyre** received an award from the Michael J Fox Foundation to screening assay to identify proteins involved in Parkison’s disease based upon mitochondrial DNA damage.

- **Dr. Milos Ikonomovic** received funding for a project in a P01 award by the National Institute of Aging to study neuropathological changes associated with Alzheimer’s disease. The study uses a cohort of nuns who have been followed for decades with neuropsychological testing, genetics, imaging who have donated their brains for pathological examination at death.

- **Dr. Amber VanLaar** in Dr. Tim Greenamyre’s laboratory received a fellowship award from the American Brain Foundation to investigate the efficacy of administering the protein Parkin to prevent progression of Parkinson’s Disease.
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. The clinical research program includes two major research centers: The UPMC Stroke Institute and the NIA-funded Alzheimer’s Disease Research Center (ADRC). Other areas of clinical research concentration include epilepsy, multiple sclerosis, headache and neuromuscular disorders.

- **Lawrence Wechsler and Paula Clemens** are the Directors 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 and Stroke Net.
- **Galen Mitchell** received an extension phase from Novartis looking at the safety and tolerability of Fingolimod. This study is evaluating and looking at Primary Progressive Multiple Sclerosis in patients.
- **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 is also the project leader on a PiB PET imaging Program Project Grant. In FY 14, he began a new trial (Cytox) comparing the functional integrity of the mTOR pathway with the PET scan amyloid status (positive or negative) in subjects with a diagnosis of MCI. Several pharmaceutical trials to improve function in patients with AD are being conducted. New studies will be initiated in FY 15 with Lundbeck, Avid, and studies conducted under the NIA-funded Alzheimer’s Disease Cooperative Study.
- **Eric McDade** continued his research with support from the Pittsburgh Foundation, the Brown Foundation, and a pilot study in the Alzheimer Disease Research Center to examine cerebrovascular reactivity in cognitively normal and mild cognitive impairment. He is the site project director for the Dominantly-Inherited Alzheimer’s Network (DIAN) NIA grant and will be site project director for the first DIAN treatment trial in FY 15. He also began a Grifols multicenter, randomized, controlled study to evaluate the efficacy and safety of short-term plasma exchange followed by long-term plasmapheresis with infusion of human albumin combined with intravenous immunoglobin in patients with mild-moderate Alzheimer’s disease.
- **Paula Clemens** 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. New funding from the CINRG was received to conduct trials in muscular dystrophies, including FSH.
- **Valeria Suski**, received a new trial from TEVA. The primary objective of this study is to assess the efficacy of pridopidine on motor impairment in patients with HD after 26 weeks of treatment using the Unified Huntington’s Disease Rating Scale/Total Motor Score. The secondary objective of this study is to assess the effect of 26 weeks of treatment with pridopidine on the Physical Performance Test.

Training Grants

- **Dr. Zigmond** received an award from the National Science Foundation to implement instruction in scientific ethics at universities and professional societies.
Extramural Funding FY 13

- R Awards: 43%
- Program Projects: 19%
- Center: 14%
- Training: 1%
- Fellowships: 2%
- VA/Other Federal: 1%
- DoD: 3%
- Foundation: 10%
- Industry: 5%
Educational Activities

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-eight 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. Resident trainees receive detailed instruction and practical daily experience in the technique of the neurological examination, localization of abnormalities in the nervous system, differential diagnosis, and neurological investigation and 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 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, activities which begin to prepare them for careers in academic neurology, which most pursue. The vast majority of the graduating residents pursue fellowship training.

Neurology Boot Camp: Incoming residents are greeted by an innovative and unique method of introducing trainees to the rapidly growing field of neurology. This experience, 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 2013-2014 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. Dr. Robert Kaniecki, Director of the UPMC Headache Center, serves as Assistant Program Director.

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 select either an EEG-epilepsy or EMG-neuromuscular track, but have broader exposure to clinical neurophysiology. There are two funded positions, but the program is accredited for up to four fellows.

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, telestroke, and clinical trial participation addressing all facets of stroke diagnosis and management. 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, stroke intervention, extra and intracranial stenting, aneurysm coiling a.m.a-v fistula embolization and spinal diagnostic angiography and interventions. Fellows are trained by an interventional team comprised by two neurologists and two neurosurgeons. Considerable experience is obtained from an extremely active acute stroke service and a busy vascular neurosurgery practice. One fellowship is 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 Medicine fellowship is a 1-year UCNS accredited fellowship which accepts one applicant each year. Headache fellows are exposed to the spectrum of headache conditions with intense clinical training under the supervision of 4 faculty members. Outpatient and inpatient management of headache is emphasized, with additional training in botulinum toxin injections and pericranial nerve blockade provided. Opportunities exist for elective time in neuro-otology, neuro-ophthalmology, pain, pediatrics, and head trauma/concussion subspecialties.

Epilepsy Fellowship Program provides supplementary advanced subspecialty training in epilepsy and electroencephalography (EEG) building on what is provided in a one year EEG-Epilepsy focused Clinical Neurophysiology Fellowship. The Epilepsy Fellowship provides one year of balanced educational and clinical experience in diagnosing and treating the most complex forms of epilepsy, including expertise in presurgical evaluation and treatment of the most challenging cases, along with the use of VNS, RNS and diets. In short, the Program is focused on the training of academic epileptologists and includes the amount of clinical research that may be escalated commensurate with the candidates' aspirations.

Neurology Medical Student Curriculum

Dr. Galen Mitchell and Dr. Laurie Knepper are Co-directors of medical student education in the third year clerkship and Sam Essa is the student coordinator/administrator. The required Neurology clinical rotation is
currently scheduled with Psychiatry in the 8 week Neuroscience Course block in the third year of medical school curriculum. Since the start of the 2014 School of Medicine academic year Neurology is now a separate clerkship from Psychiatry with its own final grade. Students are scheduled according to preference in five locations that include the inpatient ward service, the inpatient consult service, outpatient clinics, the VA medical center, Shadyside hospital and the Pediatric neurology service at Children’s Hospital. Students who are on the inpatient service are also scheduled one half day weekly in the outpatient clinic and students on the pediatric service are scheduled one half day weekly in the adult outpatient clinic. On Wednesdays, students receive nine hour long, case based didactic lectures. These include Neuroradiology, Peripheral Nerve Diseases, Stroke, Dementia/Delirium, Movement Disorders, and Seizures, Headache, Multiple Sclerosis and a NBME board examination review hour. Additional mandatory lectures include pediatric Neurology at 8 am on Tuesdays and a Patient Case Presentation from Pediatric Neurology at Children’s Hospital via teleconference at 1 pm on Tuesdays. Students all perform an OSCE neurologic exam the first week with feedback as a formative exercise. They also attend a two hour Neuropathology small group session which includes gross sections of brain and review of Neuropathology. If elected they can also observe Neurosurgical procedures. Students maintain a learning log online that is reviewed weekly by the course directors.

A syllabus is provided. It is also on the online University of Pittsburgh School of Medicine (UPSM) Navigator System. It outlines the Neurology Clerkship goals and objectives and how these are assessed. It outlines the neurologic history and examination. This is also demonstrated at orientation. It also outlines Neurologic Disorders as a study guide and includes a list of suggested Neurology texts available electronically in the Health Science Library. A mid clerkship evaluation is done by faculty and residents and includes feedback to the student. A complete history, physical and case formulation is now observed by faculty or residents, a form is completed for this which includes assessment of professionalism and is signed by students and faculty and returned at the end of the clerkship. The standard University of Pittsburgh School of Medicine Evaluation of Required Clerkships is completed by faculty and residents for the student. This evaluation encompasses clinical knowledge, clinical skills and data reporting - oral and written, clinical reasoning, problem solving and differential diagnosis and five questions about professionalism and communication. Grading includes: the UPSOM clinical evaluation forms: 55%, the NBME exam: 30%, the observed patient evaluation: 10%, professionalism: 5%. An end of clerkship evaluation is completed by students.

Course directors attend the UPSOM curriculum committee, retention committee and promotion committee meetings.

**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 MyUPMC access to include electronic registration and Care Anywhere 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 has 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.
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 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 has expanded with the addition of a Director of Inpatient Services to lead a neurohospitalist division. 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 2013-2014 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, and Vascular 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. The Monroeville-Oxford Drive and UPMC Shadyside, and UPMC Passavant offices offer general neurology and sleep 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 Northshore Neurology practice encompasses a vast array of outpatient services including general neurology, EEG, EMG, and acupuncture. The department recently expanded services to St. Margaret’s, McKeesport and West Mifflin which provides patient access to general neurology, EMG and Botox therapy to patients located in these communities.

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 led an NIH-funded study examining predictors of Alzheimer’s disease in mild cognitive impairment (MCI) until April 2013. 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. Lopez has published, as first author or co-author, 23 peer-reviewed manuscripts in the year 2013. The Division of Cognitive and Behavioral Neurology has a paper published or accepted for publication every two weeks.

Eric McDade, DO, joined the division in 2010. Dr. McDade is Associate Director of the Clinical Core 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. Dr. McDade has published, as first author or co-author, 7 peer-reviewed manuscripts and 1 invited papers in the year 2013 as well as ongoing authorship in UpToDate. He serves as the Dementia section Editor for Current Treatment Options in Neurology.

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. He is also the site PI for the DIAN-Trial, a first of its kind trial for people with familial AD.

Dr. McDade’s current research is focused on exploring the relationship between cerebrovascular health and the brain changes associated with Alzheimer’s disease prior to the onset of memory loss. His current grants are allowing him to use advanced MRI blood flow studies as a non-invasive way of predicting cognitive decline in the elderly. Dr. McDade is co-investigator on industry sponsored therapeutic drug trials for Alzheimer dementia and the site PI for the AMBAR trial. He has been the recipient of a Pittsburgh Foundation Award and has received funds to conduct an ADRC Pilot Project. These studies will examine the role of cerebrovascular reactivity in relationship to cerebral amyloid deposition in subjects with normal cognition and mild cognitive impairment.
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 and mentoring of Neurology residents and medical students.

**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. Dr. Snitz has published, as first author or co-author, 9 peer-reviewed manuscripts in 2012.

This past year she continued work on her 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 will also investigate 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 is leader of the Clinical Core of the NIA-funded program project grant ‘In Vivo PiB PET Amyloid Imaging: Normals, MCI & Dementia’ (Klunk, PI). She is a clinical neuropsychologist at the Alzheimer’s Disease Research Center and co-investigator on ‘Mild Cognitive Impairment: A prospective community study’ (Ganguli, PI), a population study of predictors and outcomes of MCI in small-town Southwestern Pennsylvania. She collaborates closely with colleagues Drs. Ganguli, Klunk, and Lopez on epidemiologic and clinical studies of cognitive aging, MCI and PiB-PET imaging, including 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**

During the 2013-2014 academic year, Epilepsy Division staff included: **Anto Bagić, MD, PhD** (Associate Professor of Neurology and Neurosurgery, the Division Chief, and Director of Epilepsy Center, EMU and MEG Epilepsy Program), **Arun Antony, MD** (Assistant Professor of Neurology), **Maria Baldwin, MD** (Assistant Professor of Neurology; Director, Continuous EEG Program), **Gena Ghearing, MD** (Assistant Professor of Neurology; Director, EEG Laboratory), **Rick Hendrickson, PhD** (Assistant Professor of Neurology, Neuropsychologist), **Julie W. Pan, MD, PhD** (Professor of Neurology), and **Alexandra Popescu, MD** (Assistant Professor of Neurology, Medical Director, Epilepsy Surgery Program). **Anne C. Van Cott, MD** (Associate Professor of Neurology, Neurology Service/VA Pittsburgh Healthcare System) is an academic member of Epilepsy Division. Additional clinical care has been provided by **Jill Bischoff, CRNP**. Our staff specializes in the comprehensive evaluation and treatment of patients with all forms of epilepsy including those that are very difficult to diagnose or manage.

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 a Level 4 National Association of Epilepsy Centers (NAEC) Epilepsy Center that provides state-of-the-art diagnostic and treatment services to adults and children with epileptic seizures and related paroxysmal disorders. It is a joint program combining the resources of the University of Pittsburgh School of Medicine, the University of Pittsburgh Medical Center (UPMC), Presbyterian University Hospital (PUH) and Children's Hospital of Pittsburgh (CHP). Established in 1986, it provides regional referral and consultation services to Pennsylvania, Ohio, West Virginia, and beyond.
**A Cardinal Clinical Milestone:** Our center remained at the forefront of medical technology, with the most modern digital video-EEG equipment, latest imaging capabilities (PET, SPECT, MRI, fMRI, and PET-MRI), including a state-of-the-art magnetoencephalography (MEG) facility, and the EMU equipped with automatic remotely-controlled SPECT injectors we improved further by upgrading one more room with new equipment for invasive monitoring. These most advanced diagnostic capabilities, coupled with sustained and comprehensive efforts on providing the optimal care for the hardest-to-treat epilepsy patients with medically uncontrolled seizures, in concert with Adult Epilepsy Surgery Program, resulted in a steep increase in our surgical volume. In fact, in 2013, we reached a record number of EMU admissions (420) and attained a cardinal clinical milestone – 51 operated epilepsy patients annually. This places the UPCEC currently among the top Epilepsy Centers in the Country (Figure 1).

![Figure 1](image)

**Figure 1.** A bar graph of distribution of the NAEC (National Association of Epilepsy Centers) member centers (N=190) according to the number of operated epilepsy patients reported to the Association for 2012, with a standing of the UPCEC indicated by the vertical purple arrow and its logo.

**New Diagnostic Options for Surgical Candidates:** Stereo EEG (SEEG) evaluation is a novel technique adopted by UPMC in 2013 for localization of seizure onset and analysis of seizure spread. Although a widely used method in Europe, only a few centers in the United States have the capability of performing this complicated procedure. SEEG evaluation samples the brain in the 3D space by placing electrodes stereotactically in the desired locations even when the regions are deep inside the brain (Figure 2). In addition to sampling of the structures deep inside the brain (i.e. insula, interhemispheric region, orbitofrontal region, operculum, hippocampus) SEEG evaluation is indicated in patients with multiple seizure foci in both cerebral hemispheres, patients with a network involvement and those who failed a previous evaluation using subdural grids. After electrode placement in the brain, cutting edge software allows co-registration of the electrode positions on to the patient’s MRI to pinpoint the location of abnormal wave forms in all planes of intracranial space. Further analysis of the waveforms during and in between seizures aims to determine the “epileptogenic zone”, which is the smallest region of the brain that should be resected to render the patient seizure free. Electrical stimulation of the electrode contacts in the brain is performed to map cortical functions and to induce seizures for analysis. SEEG evaluation avoids the need for craniotomy, which is necessary in a subdural grid evaluation, thereby decreasing pain while offering better aesthetic appeal.
Dr. Arun Antony trained in the use of this technique during his fellowship at Cleveland Clinic and is championing its implementation at UPMC.

![Image of brain and stereo EEG electrodes]

**Figure 2.**
The trajectory of the stereo EEG (SEEG) electrodes is determined prior to the surgery (A). SEEG electrodes are placed without craniotomy in the operating room (B). Reconstruction and co-registration of the SEEG electrodes with the patient’s MRI to determine the position of each electrode contact precisely in 3D space (C, D).

**New Therapeutic Options for Patients with Pharmacoresistant Epilepsy:** The UPMC UPCEC will be among the first institutions in the Country to offer the newly-approved neuromodulation treatment option – Responsive Neurostimulation (RNS). The RNS® System is an adjunctive treatment for adult patients with focal pharmacoresistant epilepsy with up to two independent seizure foci that can’t be surgically removed. We are very enthusiastic to broaden our therapeutic armamentarium in order to optimize care and decrease suffering of our deserving patients. Our initial cohort will include five patients with bilateral temporal seizure foci.

**Leading the System-Wide Optimization of Clinical Care:** In an attempt to optimize the patient care for epilepsy patients, the UPMC established Epilepsy Task Force charged with defining Pathways of Optimized Care in inpatient and outpatient settings. Epilepsy Division has been represented by Dr. Bagić (focused on Outpatient Pathway and EMU Pathway) and Dr. Baldwin (focused on acute aspect of Inpatient Pathway). Through sustained Epilepsy Task Force group efforts led by Dr. Baldwin, Acute Seizures-Status Epilepticus Pathway was defined and tuned up based on a broad feedback of related clinicians. This evidence-based set of guidelines was implemented in the form of Power Plan currently available in Presbyterian University Hospital (PUH). It is expected that this will lead not only to standardization but also optimization of care in terms of timeliness, medication choices, utilization of expertise and resources, and ultimately translate into better outcomes. As the implementation of Acute Seizures-Status Epilepticus Power Plan continues, its various relevant variables will be evaluated through ongoing quality improvement projects.

During the last year, out of our central UPMC PUH EEG Laboratory and Neurodiagnostic Testing Center (8th Floor, PUH), we have continued to offer a spectrum of EEG services, including further development of the Continuous EEG Service at Presbyterian University Hospital (PUH), and establish the foundation of similar services at the nearby UPMC hospitals: Shadyside Hospital and Magee-Women’s Hospital. Overall, this has
allowed us to expand the EEG service in more ICUs, provide advanced neurological and epilepsy care to many critically ill patients, and lay the foundation for the future participation in clinical trials involving traumatic brain injury and post cardiac arrest patients.

In summary, clinical 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 the most complex surgeries, a Vagal Nerve Stimulator (VNS) and RNS 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.

Research conducted at the UPCEC has contributed to the introduction of seven new antiepileptic drugs over the past decades. Currently, in addition to multiple smaller studies, the major ongoing multicenter trails include: The ROSE (Radiosurgery vs Lobectomy for Temporal Lobe Epilepsy) Trail (NIH-funded), VNS Therapy Automatic Magnet Mode Outcomes Study in Epilepsy Patients Exhibiting Ictal Tachycardia Trial (industry-funded), MONEAD (Maternal Outcomes and Neurodevelopmental Effects of Antiepileptic Drugs) study (NIH-funded), and WEPOD (Women and Epilepsy: Pregnancy outcomes and Deliveries) study (NIH-funded).

New Line of Research at UPMC: Since joining the University of Pittsburgh April 2013, the laboratory of Jullie W. Pan, MD, PhD has focused on studying and identifying the metabolic dysfunction that is commonly seen in medically intractable epilepsy. As many of their projects are highly translational, they use and develop advanced imaging methods including MR spectroscopic imaging (MRSI) to achieve this. The group has identified networks of brain dysfunction in epilepsy and has found that outcomes of localization-related epilepsy (temporal and extra-temporal) patients are significantly related to concordance between MRSI abnormalities with surgical resection. Currently, as a part of their NIH-supported project (R01 EB-011639), the group is collaborating with NYU (New York University) to further develop and evaluate the role of MR spectroscopic imaging in surgical epilepsy. An example of this work acquired at University of Pittsburgh is shown below (Figure 3), indicating the identification of a metabolically abnormal region (asterisks) that in this case did not show abnormalities in the hippocampus, which can be commonly involved in seizure onset. Other work is being developed to evaluate quantitative EEG and imaging data to better understand the physiological relationship between EEG, metabolic function and resting connectivity.

![Figure 3](image)

**Figure 3.** MR spectroscopic imaging data from a 29-years-old epilepsy patient with a left temporal lobe cavernoma. The inset is a scout image showing the region of spectroscopic study. The spectroscopic data shows that the abnormality over the cavernoma does not extend into the hippocampus, an otherwise common region of seizure onset.
Several ongoing research projects in collaboration with other UPMC research groups continue, and new projects are in development that will involve more epilepsy fellows, neurology residents and undergraduate students.

General Neurology Division

Currently, physicians from the Division of General Neurology see outpatients at the Kaufmann Building in Oakland, UPMC Monroeville, UPMC Passavant and at a satellite site in Mount Lebanon. Members of the division see inpatients at UPMC Presbyterian, Magee Woman’s Hospital, and at UPMC Passavant. The Division Chief is John Doyle, MD who is also director of the residency program in neurology. Other members of the division are Dr. Angela Lu, Dr. Simin Khavandgar, Dr. Janet Waters, Dr. Kelly Kay, Dr. Erek Lam, and Dr. Barbara Swenson.

Dr. Doyle sees general neurology outpatients in Oakland and at the department’s South Hills satellite in Mount Lebanon; he attends on the Presbyterian Hospital inpatient consult service. Dr. Lu sees outpatients in Oakland and will begin EMG services at UPMC Passavant. Dr. Lu will also begin EEG interpretation services at UPMC Presbyterian. Dr. Kelly Kay conducts a general neurology clinic and electrodiagnostic (EMG) testing at the Monroeville satellite offices. Dr. Simin Khavandgar sees general neurology patients and patients with sleep disorders at UPMC Monroeville, and performs EMG studies at that site. Dr. Janet Waters sees general neurology patients in Oakland, and attends daily on inpatients at UPMC Magee. Dr. Erek Lam and Dr. Barbara Swenson see outpatients and inpatients at UPMC Passavant; Dr. Lam also sees patients with sleep disorders at UPMC Monroeville.

The General Neurology Division is integral to the training of both medical students and neurology residents. Several members work closely with medical students during required neurology rotations. Dr. Doyle directs the neurology continuity clinics for neurology residents, and is assisted by Dr. Angela Lu and Dr. Janet Waters. During all 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 three-year period. The outpatient clinics prepare residents for clinical practice at the completion of their training.

Headache Division

Drs. Robert Kaniecki, Laurie Knepper, Barbara Vogler, Josif Stakic, as well as physician assistant Kimberly McGonigle continue to provide outpatient clinical services at the Headache Center situated in central Oakland, while Dr. Kaniecki and Ms. McGonigle also staff a weekly satellite clinic in Wexford. Annual clinical volumes at the Headache Center continue to expand to approximately 10,000 visits per year. 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, Dr. Vogler spends time on the Neurology Consult service and Drs. Kaniecki and Knepper on the Neurology Inpatient service at Presbyterian University Hospital; residents and medical students are supervised on both services. Dr. Stakic attends at Shadyside Hospital. 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. Drs. Knepper and Stakic also lecture to the medical students. Drs. Kaniecki and Knepper supervise resident and medical student rotations though the Headache Center. Drs. Knepper and Kaniecki serve on the Neurology Clerkship Curriculum Committee, and DR Knepper is now serving as Co-Director of the Neurology Clerkship. 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, the compensation committee, and the executive committee for the Department of Neurology.
In 2012 Dr. Kaniecki was named Director of the Headache Fellowship program, and in 2013 Co-director of the Neurology Residency program. Dr. Kaniecki continues to conduct clinical research and publish in the field of Headache, and mentors student and resident research projects resulting in poster presentations at scientific meetings. Drs. Kaniecki, Vogler, and Knepper have all received board certification in Headache Medicine from the United Council for Neurological Subspecialties; Dr. Stakic is board-eligible and plans to take the exams in October 2014. Dr. Kaniecki remains on the editorial board and acts as co-editor of the Abstracts and Citations section for the journal *Headache*. In 2012 the Headache Division’s fellowship program in Headache Medicine was accredited by the United Council for Neurological Subspecialties and in June 2014 received notice of 5-year accreditation status. The Headache Center is planning to continue the expansion of clinical and research services and its educational programs for medical students, Neurology residents, and Headache fellows.

**Movement Disorders Division**

The Movement Disorders Division is directed by J. Timothy Greenamyre, M.D., Ph.D. and includes Drs. Sarah Berman, Ed Burton, Houman Homayoun, Samay Jain, Valerie Suski and Amber Van Laar. 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 a Center for Advanced Research, one of only 9 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, fellows 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.

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.

**Neurocritical Care Division**

The Neurocritical Care (NCC) Division of the Department of Neurology was established in July 2012 in a collaborative effort with the Department of Critical Care Medicine (CCM). The past year has seen the addition of new NCC faculty, a growth in NCC related research activities, strengthening of the NCC Fellowship, and development of NCC rotations for the Neurology residents.

Currently the clinical focus of NCC is on the 20 bed Neurovascular and 10 bed Neurotrauma ICU at UPMC Presbyterian hospital. Unit based, disease specific patient management protocols are under development to
optimize the basic foundation of clinical care. In addition, efforts are underway to design hospital based, multidisciplinary performance improvement projects with other members of the NCC team (advanced practice providers, nurses, pharmacists and therapists).

Faculty updates include the appointment of **Lori Shutter, MD** as Vice-Chair of Education for the Department of Critical Care Medicine and Professor, Departments of Critical Care Medicine, Neurology and Neurosurgery. She also serves as Program Director for the Neurocritical Care Fellowship, and Medical Director of the Neurovascular/Neurotrauma ICUs. Her research focus is the area of traumatic brain injury and advanced monitoring in neurocritical care. **Bradley Molyneaux, MD, PhD** has been a great addition to the division in July 2013 as an Assistant Professor, Departments of Neurology, Critical Care Medicine and Neurosurgery. He assists with the fellowship program, is introducing multiple new clinical management protocols, and establishing his research lab. His research interests include mechanisms of injury and repair of the cerebral cortex, to identify new mechanisms of neuroprotection and plasticity after injury. Recruited faculty joining the division in 2014 include Ruchira Jha, MD as a T32 scholar and Clinical Instructor in Critical Care Medicine and Sherry Chou, MD as Associate Professor, Critical Care Medicine, Neurology and Neurosurgery. Dr. Jha will be collaborating with Neurosurgery and the Safar Center on research involving the SUR-1 receptor and brain edema after brain trauma. Dr. Chou will be collaborating with Neurosurgery on neuro-monitoring and biomarkers in subarachnoid hemorrhage.

The educational mission of the division has undergone significant expansion. At the resident level a required 4 week NCC resident rotation during PGY-2 or 3 has been added to the curriculum. In addition two elective rotation opportunities have been developed that focus on Basic ICU activities for PGY-1 neurology residents or Advanced NCC for PGY-4 residents. The Advanced NCC rotation is part of our established mentorship program for residents interested in the field of NCC. In addition, the NCC fellowship remains accredited by the United Council of Neurological Subspecialties (UCNS) and continues to accept one fellow a year into the 2 year training program, which is part of the Multidisciplinary Critical Care Training Program of the Department of Critical Care Medicine. Now in its second year, the program has had two successful fellow matches with **Deepa Malaiyandi, MD** from the Medical College of Wisconsin joining in July 2014 and **Josh Keegan, MD** from Yale to start in July 2015.

Research activities for the Division of NCC focus on efforts to understand the pathophysiology of neurological injury and clinical management of critically ill neurology patients. Ongoing clinical trials with NCC faculty in leadership roles include SHINE to evaluate glucose control methods after stroke, GAMES-RP and InTRUST Glyburide which assess the role of glyburide in managing malignant edema after ischemic stroke and traumatic brain injury respectively, and ATACH-II to evaluate systolic blood pressure targets after hemorrhagic stroke. Finally, a study looking at goal-directed management of neurocardiac injury after subarachnoid hemorrhage will be starting this year.

In summary, the Division of Neurocritical Care continues to show successful growth in all aspects of the academic, clinical, educational, and research missions.

**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. Clinical Supervisor **Margie O’Leary** 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. Clinical nurses include
Margie O’Leary and Rita Capriotti. 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 daclizumab, BG00012, ocrelizumab and botulinum toxin (neurogenic bladder). Other research projects regarding MS and gastrointestinal dysfunction as well MS and bariatric surgery are underway. The research coordinator, Kerry Oddis, and assistant, Darlene Punjack, provide organization and support for these trials. Kaylee Klingensmith manages our Registry for MS and Related Disorders, which has been supported by the Ethel Vincent Charitable Trust. The registry aids in recruitment for 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. 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, Ahmed El-Dokla MD, Araya Puwanant 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, and Dr. Puwanant also treats patients at UPMC-Shadyside.

The division trains fellows in clinical neurophysiology and provides electrodiagnostic services (electromyography and autonomic testing) at UPMC-Presbyterian. Dr. El-Dokla also performs EMG studies in the Monroeville office as well as single fiber EMG at UPMC-Presbyterian for evaluation of patients with possible seronegative myasthenia gravis. Dr. Puwanant joined the division in 2014 and also performs single fiber and routine EMG at UPMC-Presbyterian as well as at UPMC-Shadyside. 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.

Dr. Clemens conducts an active research program that includes both basic and clinical studies. 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 (funded by a VA merit review award). 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 was awarded 2 NIH grants; she is co-director of a Center of Research Translation for Systemic Exon Skipping (funded by NIAMS) and she is co-director of the University of Pittsburgh NeuroNEXT clinical study site (funded by NINDS). She and Dr. Zivkovic completed a book chapter on Muscular Dystrophies to be published in Neurobiology of Brain Disorders.
The other major area of research involves ALS including clinical drug trials (memantine and recently completed tirasemtiv), diaphragm pacing, serial magnetic resonance high field fiber tract imaging, (Drs. Lacomis and El-Dokla with Drs. Abhinav, Fernandez-Miranda, Ferrante and Friedlander from Neurosurgery), serial biomarkers (Lacomis with NEALS investigators), induced skin pluripotent stem cell research (Lacomis with Drs. Carlisle and Friedlander). Dr. Lacomis mentored a Human Genetics graduate student, Kristin Qutub, and their work on caregiver burden in ALS was published in *ALS and Frontotemporal Degeneration*.

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 site-investigator for the International Study of Guillain-Barre syndrome outcomes (IGOS).

Drs. El-Dokla and Lacomis are section editors for the *Journal of Clinical Neuromuscular Disease* and write a quarterly literature review called “What’s in the Literature.” They also completed a project on Hypopathic Dermatomyositis with Drs. Oddis and Aggarwal from Rheumatology.

In addition to the above, research initiatives for 2014-15 include participation in an NIH-sponsored multicenter study of rituximab in myasthenia gravis (Drs. Puwanant and Clemens). 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. Dr. Clemens takes an active role in CINRG, as Medical Director, chair of the Publications Subcommittee, and study chair for 2 multi-center protocols.

**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. **Dr. Jan Drappatz** serves as Associate Director of the Adult Neurooncology Program and is Associate Professor of Neurology and Medical Oncology. The Adult Neurooncology program is committed to expanding access of brain tumor patients to promising phase 1 and 2 clinical trials of novel anticancer agents, molecularly targeted drug therapies for malignant and low grade gliomas, for patients with intracranial and spinal ependymomas, and primary central nervous system lymphoma. The faculty of the Neuro-oncology Program provides the neurologic neurooncology expertise for the Neuro-oncology Specialty Care Center within the UPMC Hillman Cancer Center on the Shadyside campus. The SCC is comprised of neurology, neurosurgery, and radiation oncology faculty, all combining to provide coordinated multispecialty care to patients with primary and metastatic brain, skull base, and spinal tumors. The Neuro-oncology Program faculty also provide expert consultation and management of non-metastatic neurologic complications of cancer, including management of seizure disorders, cancer related pain syndromes, neurologic side effects of chemotherapy and radiation therapy, and paraneoplastic neurologic disorders. Neuro-oncology 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 neuro-oncology program participates in a number of varied studies:

- The translational brain clinical trials program focuses on molecularly targeted drug trials of novel agents for malignant gliomas. With the reconfiguration of the national cancer clinical trial consortia, Dr. Lieberman has maintained a leadership role in Adult Brain Tumor Consortium and the NRG Consortium CNS Tumor Committee and in the Experimental Imaging and Biomarker committees of ECOG-ACRIN. Dr. Drappatz is a member of the CNS Tumor Committee for the newly formed Alliance for Clinical Trials in Oncology consortium.

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Through our participation in the ABTC, the Neuro-oncology Program provides patients with access to clinical trials focused on novel molecularly targeted drugs in phase 1 development. The Alliance, ECOG, and NRG Consortia will be focusing on phase 2 and 3 clinical trials. The range of options for patients therefore spans novel drugs in early phase development to more mature therapeutics being compared to current standards in terms of efficacy.

The Alliance is the new NCI sponsored clinical trials network formed by the merger of three cooperative groups: the American College of Surgeons Oncology Group (ACOSOG), Cancer and Leukemia Group B (CALGB)

- As part of the new collaboration, we are complementing the existing trial portfolio for newly diagnosed and recurrent brain tumors.
- CALGB51101 - A randomized phase II trial of myeloablative versus non-myeloablative Consolidation chemotherapy for newly diagnosed primary CNS B-cell lymphoma (fully implemented)
- To be opened in the near future: NCCTG N1174 Phase I Comparative Randomized Phase II Trial of TRC105 plus Bevacizumab Versus Bevacizumab in Bevacizumab-naïve Patients with Recurrent Glioblastoma Multiforme

A Phase II Randomized Trial Comparing the Efficacy of Heat Shock Protein-Peptide Complex-96 (HSPPC-96) (NSC #725085, Alliance IND #15380) Vaccine Given with Bevacizumab Versus Bevacizumab Alone in the Treatment of Surgically Resectable Recurrent Glioblastoma Multiforme (GBM)

- In collaboration with Ajay Naranjan and Dade Lunsford in the Department of Neurosurgery, the Neuro-oncology Program will be conducting an industry sponsored trial evaluating gamma knife radiosurgery combined with bevacizumab treatment in patients with recurrent glioblastoma. This study will open for accrual in August 2014. UPMC Cancer Center will be the coordinating site for this multicenter Gamma Knife Consortium trial, opening in summer 2013.
- The Adult Neuro-oncology 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. Dr. Hoby Hetherington, Professor of Radiology, is leading a project imaging tumor metabolites using 7T MRI. 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 pseudo progression 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.

Dr. Nduka Amankulor, Assistant Professor of Neurosurgery, is investigating the interactions between different mutational profiles in glioblastomas and the immune response. Dr. Amankulor is developing models for elucidating the mechanisms through which IDH1 mutations in human gliomas affect gliomagenesis and provide targets for molecular therapy.

In collaboration with Colin Champ, Assistant Professor of Radiation Oncology, we are planning a phase 1 clinical trial to address safety and dose-finding for 2-deoxyglucose in conjunction with a restricted ketogenic diet for patients with newly diagnosed GBM. This is the first step in evaluated this metabolic therapy in patients with malignant gliomas.

Dr. Lieberman is currently serving as a member of the Biomarker Committee of the ECOG-ACRIN consortium, which is tasked with developing the clinical trial infrastructure to evaluate advanced quantitative imaging technologies to the evaluation of tumor treatment response in clinical trials. In this capacity, he is the liaison to the ECOG-ACRIN group representing the Quantitative Imaging Network investigators.
• From 2012-2013, Dr. Lieberman chaired the Clinical Trial Design Working Group of the Quantitative Imaging Network, following a year as co-chair with Brenda Kurland, now a faculty member in the Department of Biostatistics in UPGSPH. Dr. Lieberman is a member of the QIN team working with the the NCTN collaborative groups to test innovative imaging strategies for assessing tumor response in clinical trials.

• The Adult Neuro-oncology 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.

• Despite the departure of Dr. Hideho Okada, Professor of Neurosurgery, we are continuing an active immunotherapy clinical trials program for high and low grade gliomas. Dr. Lieberman is the national study chair for a clinical trial testing the peptide based dendritic cell vaccine developed by Dr. Okada for the treatment of patients with recurrent glioblastoma. In addition our program is participating in an Alliance trial testing heat shock protein vaccine. Vaccine trials for patients with low grade gliomas are ongoing. We are actively enrolling patients in the Phase 3 trial of rindopepimut in patients with surgically resected epidermal growth factor variant III (EGFRv111)-positive glioblastoma, the “ACT IV Study” at UPMC (Industry sponsored, Celldex).

• In collaboration with Dr. Lieberman, Marina Nikoforova and Ronald Hamilton in the Department of Pathology are using micro-dissection based genetic analysis of brain tumor specimens removed at surgery to better characterize molecular subgroups of glioblastoma, oligodendroglioma, anaplastic astrocyoma, and low grade astrocytoma’s with different prognosis and response to therapy. Dr. Nikoforova is applying genome wide SNIP analysis to paraffin embedded specimens. The molecular neuropathology program at UPMC is one of the few centers in the world with CLIA certified deep sequencing technology and the neuro-oncology program is currently participating in the development of a genetic profiling data base in which the genetic profiling information obtained during clinical diagnostic testing can be used to provide patients with specific tumor genetic profiles access to clinical trials with molecularly targeted agents aimed at the relevant genetic abnormalities.

• The development of more effective therapies for patients with skull base and spinal tumors continues to be a major focus of the Adult Neuro-oncology Program. In collaboration with Neurosurgery faculty Jonathan Engh, Paul Gardner, and head and neck surgeon Carl Snyderman, Drs. Lieberman and Drappatz and Hussein Tawbi (Division of Hematology/Oncology) care for patients with complex skull base meningioma’s, and skull base and spinal chordomas.

• In collaboration with Paula Sherwood (School of Nursing) the neurooncology program is participating in studies of caregiver stress in families of brain tumor patients.

• A new initiative, begun in 2013, and headed by John Schmidt, Assistant Professor of Psychiatry, addresses the neurocognitive toxicities of cancer therapy. The group consists of faculty from the departments of Neurology, Psychiatry, Radiology, Medicine (medical oncology), and the behavioral medicine program in UPMC Cancer Center.

• We are also active in clinical trials for patients with brain metastasis. Implementation of two parallel trials of GRN 1005, a brain penetrating taxane derivative for recurrent breast and lung brain metastases in collaboration with Drs. Brufsky and Socinski (Industry sponsored, Geron).

Quality Improvement:
- Neuro-Onc Task Force Initiative: development of hospital system wide multidisciplinary care guidelines to optimize care of high-grade glioma patients.

Clinical Operations:
- Implementation of the Glio-Pilot project, a clinical pathway for neuro-oncology patients utilizing patient navigators to improve patient experience and optimize utilization of support services
The Adult Neuro-oncology 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.

### 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 are supported by the patient registry, data, biological materials, or expert consultation from the ADRC.

Consistent with the mission of the ADCs, we have maximized collaborations with other ADC researchers and extend the power of the ADCs by collaborations. The PITT-ADRC collaborates with researchers at 42 U.S. institutions and 12 international institutions, including Argentina, Spain, Chile, Japan and Germany. We participate in several national consortia including the Alzheimer’s Disease Cooperative Study (ADCS), Alzheimer’s Disease Neuroimaging Initiative (ADNI), the Alzheimer’s Disease Genetics Initiative (ADGI), and the National Alzheimer’s Collaborative Center (NACC) and the Dominantly Inherited Alzheimer Network (DIAN).

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
- Learning new fact knowledge through a basal ganglia reinforcement-learning system
- The exploration of cerebrovascular dynamics in the presence of cerebral amyloid.
- The relationship between vascular amyloid accumulation and tissue oxygen delivery
- The analysis of synapse loss in AD using a novel Beta Amyloid peptide sensor.

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.
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 largest grassroots Parkinson’s organization and has been providing patient and caregiver support, free educational materials and scientific research support for 45 years. As an Advanced Center, Pitt is part of a network of nine APDA centers at major universities and healthcare centers across the country. Dr. Tim Greenamyre, the Love Family 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 leadership role in collaboration with colleagues in Neurosurgery (Dr. Robert Friedlander), Neurology and Neuropathology. Dr. Julia Kofler is Assistant Director and maintains the ALS Tissue Bank. 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. 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 over time. In conjunction with Eleanor Feingold, PhD and Steve Albert, PhD from the School of Public Health, graduate student Kristen Qutub completed her masters degree thesis and published her study of caregiver stress and depressive symptoms. The Center is participating in a phase II study of memantine and in a study of diaphragm pacing. A phase IIb trial of tirasemtiv was completed in 2014.

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 inappropriate prescribing and 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, to determine the degree that hearing impairment contributes to cognitive dysfunction in the elderly, to develop a quality-of-life instrument for stroke survivors, and to address pain assessment and treatment in the elderly. The GRECC faculty expended over $7.5M in direct costs from federally funded research during the fiscal year in addition to the GRECC’s $1.3M 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 Telemedicine Clinic has been developed that provides comprehensive geriatric, neurological, psychiatric and social work services for Veterans with dementia including telehealth services for patients at regional VA Medical Centers and Community Based Outpatient Clinics. These clinical demonstration projects are intended to pilot novel ways of delivering care to elderly veterans.

**Dr. Steven Graham**, Professor and Vice chair 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, Guodong Cao, PhD, and Dandan Sun MD**. Faculty from the Department of Medicine, Divisions of Geriatric Medicine and General Internal Medicine, Neurological Surgery 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.

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 a Center for Advanced Research. The PIND is directed by Dr. Tim Greenamyre, who is the Love Family Professor and Vice-Chair of Neurology, 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 and achieved Comprehensive Stroke Center designation in 2013. The Stroke Institute continues to lead as a major referral center, provider of high quality acute stroke management, and contributes to the advancement in the field by participating in and leading enrollment to the most pertinent clinical research trials for the field. 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. Tudor Jovin, MD is the Director of the UPMC Stroke Institute.

The Stroke Institute is comprised of a cerebrovascular specific clinical service that provides in person coverage at three hospitals (UPMC Presbyterian, UPMC Mercy, and UPMC Shadyside) resulting in over 2000 cerebrovascular inpatients seen annually. In addition, an extensive telestroke network is in place providing remote stroke care at 21 hospital facilities throughout Western Pennsylvania and 1 site in Maryland. The outpatient Stroke clinic is staffed by the stroke specialists, fellows, and 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 accommodates 3 stroke fellows yearly. In addition, an interventional neurology fellowship is fully integrated within the Stroke Institute. 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.

Our faculty, Drs. Maxim Hammer, Vivek Reddy, Ashutosh Jadhav, Matt Starr, Ruta V. Totoraitis, Tudor Jovin and Lawrence Wechsler all neurologists with additional training in vascular neurology provide patient care and support the fellows, residents and medical students during their medical training while actively involved in research either through participation in multicenter clinical trials or through pursuit of internal research projects. Dr. Hammer has assumed leadership of stroke services at the UPMC Mercy campus and continues to staff the outpatient stroke office there. Dr. Tudor Jovin and Ashutosh Jadhav continue to expand the scope of the neuro-interventional practice through the clinical services they provide in addition to research. In addition to patient care, Dr. Reddy’s responsibilities include 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 offered 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 9th annual all day nursing conference with continuing education credits focusing on stroke was provided this year. The Institute supports community programs and provides stroke education 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. In addition, Stroke Institute faculty occupy leadership position as Principal Investigators or steering committee members on several national and international trials pertaining to the field of acute stroke.
The ongoing commitment to research by Stroke Institute faculty and fellows has materialized into over 15 stroke institute initiated study papers presented at major national or international meetings as well authorship in over 20 peer-reviewed papers. The unique UPMC hospital system allows the faculty and staff to work with all 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, Meritus Hospital in Hagerstown, MD, The Washington Hospital, Washington, PA, Jameson Hospital, and Heritage Valley Medical Center – Beaver Valley campus, Uniontown Hospital, and Armstrong County Memorial Hospital. Preparations are underway for 3 additional of a 3 hospital system that will be added in 2014. Since implementation of telemedicine within UPMC, over 1700 urgent stroke consults have been conducted via telemedicine and over 500 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 consult and out-patient service within the Medical 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 dystonia’s and there is a TOUCH program for natalizumab infusions.

The clinical services of VAPHS include out-patient clinics at University Drive and Heinz VAMC facilities, in-patient consultations at the University Drive and Heinz VAMC facilities and an EEG Laboratory at the University Drive VAMC facility. The VAPHS is a referral center for VAMC facilities in Erie, Butler, and Altoona, PA and Clarksburg, WV. We also provide electronic consults as part of an expanding telemedicine program at VAPHS. 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. Dr. David Hinkle left our department and Pittsburgh in August 2013. At that time he transferred responsibility to direct our local movement disorders center, which participates in the central VA Parkinson's Disease, Research, Education and Clinical Center (PADRECC) to Dr. Edward Burton. Dr. Burton is a movement disorders specialist in the VA Neurology Service. He was joined in March 2014 by Dr. Houman Homayoun. 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. Dr. Anne Van Cott directs the VAPHS epilepsy services and participates in the VA Epilepsy Centers of Excellence.

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 filled by a senior resident doing an out-patient clinic rotation. 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. 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 is significant components for most of the neurologists on the VA service. Several VA neurologists (Drs. Ed Burton, Kathy Gardner, Clemens, and Graham) held VA research grants during the year as described in their individual faculty descriptions.

The VA Neurology Faculty for 2013-2014 was comprised of Dr. Paula Clemens, Chief of Service and Drs. Ed Burton, Kathy Gardner, Steven Graham, David Hinkle (finished August 2013), Houman Homayoun (started March 2014), 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 2 NIH-funded grants, and he is co-investigator in other 4 NIH-funded projects.

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 and his group have examined for the first time the relationship between β-amyloid (Aβ) deposition in the brain and systolic blood pressure (SBP), mean arterial pressure (MAP), and arterial stiffness by pulse wave velocity (PWV) in the central (e.g., heart-femoral PWV), peripheral (e.g., femoral-ankle PWV), and mixed (e.g., brachial-ankle PWV (baPWV)) vascular beds, using a noninvasive and automated waveform analyzer. Aβ deposition was associated with mixed PWV, systolic BP and MAP. One standard deviation increase in baPWV resulted in a 2-fold increase in the odds of being Aβ-positive (p=0.007) (see Figure 1).

High white matter hyperintensity (WMH) burden was associated with increased central PWV, SBP and MAP (see Figure 2). Compared to Aβ-negative individuals with low WMH burden, each SD increase in PWV was associated with a 2-4 fold increase in the odds of being both Aβ-positive and having high WML. This study showed that arterial stiffness was associated with Aβ plaque deposition in the brain, independent of BP and
APOE-4 allele. The associations differed by type of brain abnormality and vascular bed measured (e.g. WMLs with central stiffness and Aβ deposition and mixed stiffness). Arterial stiffness was highest in individuals with both high Aβ deposition and WML, which has been suggested to be a “double-hit” contributing to the development of symptomatic dementia.

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. Dr Lopez was co-author of the first extended meta-analysis of 74,046 individuals that identified 11 new susceptibility loci for Alzheimer’s disease published in *Nature Genetics*.

Dr. Lopez reported a critical, longitudinal observational study of 957 Probable AD patients, 241 (25%) of whom were treated with antipsychotic medications during their illness. In a multivariate model controlled for age, gender, education, dementia severity, hypertension, diabetes mellitus, heart disease, extrapyramidal signs, depression, psychosis, aggression, agitation, and dementia medication use, we found the use of antipsychotic medications, both conventional and atypical, was not associated with either time to nursing home admission or time to death after inclusion of covariates (see Figure 3). Instead, it was the presence of psychiatric symptoms, psychosis and agitation, alone that were linked to these adverse outcomes after adjustment for exposure to antipsychotics. These findings regarding mortality stand in contrast to RCT data, obtained in highly selected institutionalized subjects, which have found increased mortality due to antipsychotic treatment.
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 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.

Dr. McDade’s current research is focused on exploring the relationship between cerebrovascular health and the brain changes associated with Alzheimer’s disease prior to the onset of memory loss. His current grants are allowing him to use advanced MRI blood flow studies as a non-invasive way of predicting cognitive decline in the elderly.

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 and the site Principle Investigator for DIAN Trial. He is currently the site PI for other therapeutic trials in the Alzheimer’s Disease Research Center including the AMBAR study.
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. 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 investigates the role of personality and mood in the measurement of subjective complaints in aging and their relationship to beta-amyloid deposition and functional changes in task-related and resting state MRI. This study provides the foundation for a research program investigating boundaries between normal and pathological cognitive aging.

Dr. Snitz is leader of the Clinical Core of the NIA-funded program project grant ‘In Vivo PiB PET Amyloid Imaging: Normals, MCI & Dementia’ (Klunk, PI). She is a clinical neuropsychologist at the Alzheimer’s Disease Research Center and co-investigator on ‘Mild Cognitive Impairment: A prospective community study’ (Ganguli, PI), a population study of predictors and outcomes of MCI in small-town Southwestern Pennsylvania. She collaborates closely with colleagues Drs. Ganguli, Klunk, and Lopez on epidemiologic and clinical studies of cognitive aging, MCI and PiB-PET imaging, including 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, MSc, PhD  
Associate Professor of Neurology and Neurosurgery  
Chief, Epilepsy Division  
Director, UPMC MEG Epilepsy Program and Epilepsy Monitoring Unit (ECU)  
Chief Scientific Advisor, MEG research  
Director, UPMC MEG Epilepsy Program  
Director, University of Pittsburgh Comprehensive Epilepsy Center (UPCEC)  
Founding Director, Center for Advanced Brain Magnetic Source Imaging (CABMSI; 2005-2009)  
President, American Clinical MEG Society (ACMEGS), 2012 - Current

Dr. Bagić conducted an Outpatient Epilepsy Clinic, had major attending responsibilities in the EMU, continued to solely provide interpretations of MEG-EEG studies of epilepsy patients and maintained a monthly Vagal Nerve Stimulator (VNS) Clinic. Under his direction, the EMU was further advanced with an upgrade of one more room with new equipment for invasive monitoring, the EMU reached a record number of admissions (420), the MEG Epilepsy Program attained its record annual volume of 50 MEG-EEG epilepsy studies, while sustained Epilepsy Division team efforts in concert with Adult Epilepsy Surgery Program and Children’s Hospital of Pittsburgh Pediatric Epilepsy Program resulted in a record annual surgical volume of 51 operated patients placing the UPCEC currently among the top Epilepsy Centers in the Country. Dr. Bagić’s continued responsibility is to further expand the Epilepsy Program that has already grown to include six sub-specialized adult epileptologists while continuing to direct and further develop the UPMC MEG Epilepsy Program. He continued to foster a wide network of local, national and international collaborations focused on clinical and research applications of MEG that resulted in diverse MEG research collaborations that range from internal pilot studies to the NIH-funded R01.
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 routine clinical use. Since 2012, Dr. Bagić serves as the President of the ACMEGS. From December 2011 American Epilepsy Society (AES) annual meeting, he became 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 inaugurated in 2013.

Internationally, Dr. Bagić is a member of the Executive Committee, 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 been working on joint grants submissions. It is increasingly more evident that this consortium may become the skeleton of the similar consortium focused on traumatic brain injury and other high-yield areas of MEGF research.

During the past academic year, Dr. Bagić presented on a few major international meetings, chaired various sessions on two, published several articles in major journals, and has a few related articles in review and several in preparation. His recent editorial and review of the new aspect of clinical MEG practice appeared in Clinical Neurophysiology.

Dr. Bagić’s research is focused on applications of MEG in studying epilepsy, language, cognition and brain plasticity. Dr. Bagić is a co-investigator or consultant on multiple MEG-based studies ongoing at UPMC, including NIH-funded R01 grants. Additionally, he is a site Principal Investigator on four multicenter clinical studies: The ROSE (Radiosurgery vs Lobectomy for Temporal Lobe Epilepsy) (NIH-funded), VNS Therapy Automatic Magnet Mode Outcomes Study in Epilepsy Patients Exhibiting Ictal Tachycardia Trial (industry-funded), MONED (Maternal Outcomes and Neurodevelopmental Effects of Antiepileptic Drugs) study (NIH-funded), and WEPOD (Women and Epilepsy: Pregnancy outcomes and Deliveries) study (NIH-funded). Currently, the most active MEG research efforts are on studying dementia, music and brain plasticity. Over the last few years, in the context of EMU and Surgical Epilepsy Program, research interactions with the Brain Modulation Laboratory (Department of Neurosurgery, directed by R. Mark Richardson, MD, PhD) intensified, yielded a few upcoming publications, and laid the foundation for an upcoming major collaboration with the world-renowned Finnish MEG research group led by Riitta Hari, MD, PhD (Aalto University, Helsinki, Finland).

During the next year, Dr. Bagić will focus on advancing and/or finalizing some of his ongoing studies, as well as initiating a major cognitive study of invasively-monitored epilepsy patients, starting new epilepsy projects that involve connectivity analyses and 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 roles within the Residency Program, Epilepsy Fellowship, Clinical Neurophysiology Fellowship, MS1 Neuroscience Course, MS4 Clinical Pharmacology, and Epidemiology Course. Some of Dr. Bagić’s short-term goals are: advancing organization of Epilepsy Fellowship leading to its accreditation, ensuring sustained recruitment of fellows for 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 EMU, fostering the growth of the 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 all physician members entire Epilepsy Division in various epilepsy advocacy activities.
Arun Antony, MD
Assistant Professor of Neurology

In this academic year Dr. Antony became board certified in both Clinical Neurophysiology and in Epilepsy in addition to Neurology and Psychiatry (ABPN). He helped to initiate a stereo EEG (SEEG) program with the Neurosurgery team at UPMC, specifically to design an implantation schema and to provide a frame work for wave form analysis in SEEG. In the next year, Dr. Antony intends to streamline the work flow of SEEG evaluation and get more staff in the Epilepsy division to obtain training by attending stereo EEG workshops.

He was able to improve the reporting process of reporting Ambulatory EEG studies and decrease the time technicians spent in starting the studies by introducing a shorter tech sheet. The patient form was also edited to improve event reporting by the patient. Dr. Antony also intends to decrease the ‘order to report’ time of Ambulatory EEG studies performed at UPMC in the near future.

Maria Baldwin, MD
Assistant Professor of Neurology

Dr. Baldwin joined the Department of Neurology in July 2011 and came to us from the Loyola University Medical Center where she was an Assistant Professor of Neurology in the Epilepsy Division. Her focus is the medical management and surgical evaluation of patients with seizures and epilepsy. She is particularly interested in the management of status epilepticus and EEG in the ICU setting.

Dr. Baldwin received her MD in 2000 from the Medical College of Virginia and completed her neurology residency at the University of Chicago Hospitals in 2004. Following her epilepsy fellowship training at University of Chicago, she joined the clinical faculty in 2005. She has been a member of the faculty at both the University of Chicago and Loyola University Schools of Medicine.

Dr. Baldwin’s publications can be reviewed through the National Library of Medicine's publication database.

Dr. Baldwin is involved in the treatment of patients with seizure disorders and epilepsy in both the inpatient and outpatient setting. She is also part of the epilepsy surgical program and is an attending in the epilepsy monitoring unit (EMU) at Presbyterian Hospital. She is director of the continuous EEG monitoring service which provides extended and continuous EEG recording of inpatients at Presbyterian Hospital and other UPMC facilities.

Dr. Baldwin is actively involved in a number of research and scholarly activities focusing in the area of status epilepticus, non convulsive seizures and continuous EEG monitoring. She is currently involved in the development of a power plan and guidelines involving in hospital treatment for status epilepticus for Presbyterian Hospital. She is also involved in studies looking at the role of continuous EEG monitoring in the setting of post cardiac arrest patients.

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 one surgery each week. 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 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 perform upper and lower extremity evoked potentials, brainstem auditory evoked responses, and visual evoked potentials. The video continuous ICU services perform 180-190 of studies each month at Presbyterian and Montefiore hospitals. 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 a paper that he co-authored on patients with epilepsy and non-epileptic behavioral spells. In addition, he recently submitted another paper that he authored differentiating patients with epilepsy and non-epileptic spells. He continued to provide neuropsychological services for a collaborative study of Neurosurgery and Neurology for patients with temporal lobe epilepsy. Dr. Hendrickson is also a co-investigator on Dr. Popescu’s studies of cognitive and psychological functioning of patients with epilepsy and non-epileptic seizures.

During the next year, he plans to continue the research study of radiosurgery versus lobectomy for temporal lobe epilepsy, providing neuropsychological testing. He will continue to assist with the supervision of a resident in the analysis of psychological variables on the above studies with Dr. Popescu. He also plans to analyze an already collected database of psychological variables for an additional paper of patients with epilepsy and non-epileptic behavioral spells. In addition, Dr. Hendrickson is a co-author on a paper of neuropsychological functioning of patients with epilepsy following resective surgery that is in process. He will again provide neuropsychological services with his primary clinical responsibilities addressing the needs of the Epilepsy Center, mostly performing inpatient assessments.
Dr. Pan’s laboratory focuses on brain metabolism, bioenergetics and the use of ultra-high field (7T and 3T) magnetic resonance (MR) imaging for its assessment, with applications in epilepsy and other neurological disorders. Projects in the laboratory have included the non-invasive MR-based assessments of human cerebral ketone body physiology, mitochondrial energetics, and currently focus on implementing ultra-high field metabolic imaging to help localize and lateralize seizure onset in patients suffering from partial onset epilepsy. This NIH supported work (R01 EB011369) pulls together multiple engineering issues in high field MR to target its assessment in challenging cases of localization related epilepsy (see Figure). Currently we are collaborating with NYU (New York University) in this effort. An example of this work acquired at University of Pittsburgh is shown below, indicating the identification of a metabolically abnormal region (asterisks) that in this case did not show abnormalities in the hippocampus, which can be commonly involved in seizure onset. Other work is being developed to evaluate quantitative EEG and imaging data to better understand the physiological relationship between EEG, metabolic function and resting connectivity.

With R21 support NIH NS083035, the laboratory is also collaborating with the Pittsburgh NMR Center at Carnegie Mellon University to study a rat model of epilepsy to understand how and to what extent metabolic dysfunction is seen in early epileptogenesis. Using the Hellier-Dudek status epilepticus model (an incremented kainic acid dosing protocol), the figure below shows data acquired from the hippocampus 3 days post status. The scout identifies the location of spectral acquisition, and in panel B, the positions of several compounds are identified: NAA N-acetyl aspartate, GLU glutamate, GLN glutamine, tCr total creatine, Cho choline and mI myo-inositol are shown. Spectra are shown from (B) control, (C) kainate treated rats. With the KA-treated animals post-status, changes in myo-inositol, glutamine, choline (all increased) and NAA (small decrease) are identified and are consistent with astrocytic activation or injury in conjunction with a possibly milder neuronal injury. We are also evaluating the effect of methylene blue (an FDA-approved oxidative phosphorylation agent) administered after status. Methylene blue is also being tested in this study given its potential effect in ameliorating mitochondrial injury; with a limited group thus far (panel D), it is showing milder changes in myo-inositol and glutamine in comparison to kainate-acid alone.
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 was appointed this year as Medical Director of Adult Surgical Epilepsy Program. She evaluates patients for epilepsy surgery, is involved in intraoperative electrocorticography recording, brain mapping, and is organizing 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 laboratory. She is part of the continuous EEG service, monitoring for seizure in the ICU comatose patients. 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 2013-2014 Dr. Popescu continued her work with the post cardiac arrest team assessing patients and using continuous EEG monitoring during therapeutic hypothermia. Dr. Amorim, mentored by Dr. Popescu, presented their work in a platform presentation at the 66th American Academy of Neurology annual conference entitled “Prognostic value of post-anoxic myoclonus and malignant EEG patterns in comatose cardiac arrest survivors treated with hypothermia (S11.004)”.

Anne C. Van Cott, MD, FAAN  
Neurology Service/ VA Pittsburgh Healthcare System  
Associate Professor of Neurology

In the past academic year, Dr. Van Cott has continued her clinical and research work in 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. Other current research endeavors are focusing on prescribing patterns for veterans with epilepsy. 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.
Dr. Van Cott is now collaborating with a University of Pittsburgh colleague on a project examining traumatic brain injury in veterans. She is the principal investigator at the VA for Dr. Hetherington’s (Director of the Magnetic Resonance Research Center) NIH funded study to assess metabolic changes in veterans exposed to blast injury using Multiplexed Multiband 7T MR technology.

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 frequently lectures on the treatment of epilepsy, most recently at a national ASET Neurodiagnostic Society’s Educational Seminar. 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. She has joined the Neurology department’s Medical Student Curriculum Committee and serves at this education coordinator at the VA.

Dr. Van Cott also is an active member in several national organizations. She is an active member of the VA Epilepsy Center of Excellences (ECoE), serves on the Southeast ECoE Steering Committee.

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General Neurology Division

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

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 directs the course entitled “An introduction to clinical neurology” (“boot camp”) each year for PGY-2 residents as they start 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. 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 to offer 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 20 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 six weeks per year. On average, more than 60 consultations are seen each week.

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Dr. Doyle is also involved didactic medical student education. To this end, he participated in four 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”, “Language and its Disorders” and “Principles of Neurologic Localization”. Dr Doyle has been appointed co-director of the PMS-1 neuroscience course.

Dr. Doyle has received three Neurology Resident Teaching Awards, a “Preceptor of the Year Award” from third-year medical students, and an award for “Excellence in Neurologic Education”s from the American Academy of Neurology.

Dr. Doyle is board certified in Neurology and Electrodiagnostic Medicine

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**Neil A. Busis, MD, FAAN**  
Clinical Professor of Neurology  
Director, Community Neurology  
Chief, UPP Department of Neurology - Shadyside

Dr. Busis provided leadership for the UPP Neurology Service at UPMC Shadyside. He directed an outpatient and consultation service with other neurologists, two physician assistants, and internal medicine and family practice resident physicians. The active teaching service also included third and fourth year medical students. As Director of the Neurodiagnostic Laboratory at UPMC Shadyside Dr. Busis worked with administration, staff and other providers to ensure that high quality outpatient and inpatient EEGs and EMGs were provided in a timely fashion. He coordinated routine, STAT and continuous EEG reading at UPMC Shadyside and UPMC Passavant with the EEG specialists at UPMC Presbyterian-Shadyside and coordinated EMG services with physicians from the Department of Physical Medicine & Rehabilitation. He coordinated general neurology activities at UPMC Shadyside with the UPMC Stroke and Neuro-Oncology Services.

Dr. Busis was again named among the Top Doctors by Pittsburgh Magazine and in Best Doctors and Top Doctors nationally.

Dr. Busis currently serves on the Board of Directors of the American Academy of Neurology. He has been deeply involved in neurological practice management issues including coding, billing, payment, regulation and the move from fee-for-service to value based reimbursement. He published a paper on state neurologic societies and the American Academy of Neurology this past academic year.

He lectured on a variety of topics locally, regionally, and nationally including coding, billing, reimbursement and health information technology. He was a contributor to the UPMC EMG course, speaking about coding and billing for electrodiagnostic procedures. He gave neurology grand rounds on the move from volume to value in health care, two lectures to neurology residents on coding and billing, and a lecture to the epilepsy group on coding and billing. He educated a Neurology Department member who had not submitted bills in a timely manner on how best to code and document patient encounters in the electronic medical record.

Dr. Busis participated in the UPMC Shadyside Total Quality Council, helping to develop and present quality programs in stroke, EMG, and EEG. Plans are underway to enhance neurology practice at UPMC by introducing more accurate documentation templates and clinically relevant quality measures. Alternative neurology care delivery models are being explored.
Joseph Diamond, MD
Clinical Assistant Professor of Neurology

This year was beneficial in starting a more formalized education process to the neurology residents in the field of sleep medicine. Dr. Diamond hopes to continue to improve upon this in the future and stimulate neurologists’ interest in this subspecialty. He will continue his research efforts in Sleep Medicine and further enhance his teaching skills.

Joanna Fong, MD
Clinical Assistant Professor of Neurology

Dr. Fong joined the Department of Neurology in September 2013 and came to us from Cleveland Clinic where she was a clinical assistant professor in Department of Neurology in the Epilepsy and Sleep Medicine Division. Dr. Fong received her MD in 2005 from Ohio State University Medical Center and completed her neurology residency, epilepsy fellowship, and sleep medicine fellowship at Cleveland Clinic in 2011. Her main focus is the medical management of patients with epilepsy, sleep apnea, insomnia, sleep related movement disorders, hypersomnia and headache.

Dr. Fong’s activities this year included serving as attending on the neurology consult service at UPMC Shadyside hospital. She works with internal medicine and family medicine residents, as well as medical students on the consult service. Dr. Fong also presented multiple didactic lectures to family residents, sleep medicine residents and fellows in the past year.

Dr. Fong has been actively participating in EEG reading at various hospitals, including UPMC Shadyside, Passavant, Presbyterian, Magee, and Mercy hospital. She also reads polysomnograms from UPMC Montefiore and Monroeville sleep lab. Started July this year, she has started to perform onabotulinumtoxin A treatment for chronic migraine at the Shadyside neurology clinic.

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.

Simin Khavandgar, MD
Clinical Assistant Professor of Neurology

Dr. Khavandgar is primarily focused on outpatient clinical neurology and sleep medicine practice. She sees patients in the neurology and sleep medicine clinics at UPMC Monroeville center. She has a special interest in the interface of neurology and sleep medicine, including diagnosis and treatment of sleep disorders associated with movement disorders such as Parkinson’s disease, cerebrovascular disorders, and multiple sclerosis as well as other sleep
disorders including sleep disordered breathing. In addition, she has subspecialty training in clinical neurophysiology and performs diagnostic electromyography for patients with a range of neuromuscular disorders. Dr. Khavandgar also participates in a range of educational activities including didactic lectures for medical students and residents, and precepting rotating neurology residents and neurophysiology fellows. She continues to expand the scope of her educational activities at various levels, especially as it pertains to sleep neurology. She is also looking forward to participate in clinical research opportunities on sleep disorders in neurological disorders.

Erek Lam, MD
Clinical Assistant Professor of Neurology

Dr. Lam joined the department in August 2012 and continues expand his neurologic practice at UPMC Passavant. Dr. Lam is now board certified in sleep medicine and he has transitioned his sleep neurology practice to UPMC Passavant from Monroeville over the past year. He is now seeing sleep patients and interpreting sleep studies at UPMC Passavant. He continues to see general neurology patients in the outpatient and inpatient setting at UPMC Passavant. He has instructed rotating neurology residents and fellows in his sleep clinic, and has given neurology grand rounds on sleep disorders in neurology. Dr. Lam has also given lectures to neurology residents on sleep disorders and lead small group sessions at the University of Pittsburgh medical school. He also continues to give lectures on Parkinson’s disease and other neurology topics to the North Hills community through the UPMC Passavant Educational Foundation. He has published several papers pertaining to sleep medicine and neurology.

Angela Lu, MD
Clinical Assistant Professor of Neurology

Dr. Lu is a general neurologist who focuses on out patient clinical care. Her practice has moved from a satellite location to the primary office in Oakland. 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 UPMC Passavant, and also interpreting EEG studies at multiple UPMC hospitals.

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 lectures to medical students on peripheral neuropathy and leads small group clinical neuroscience sessions. She also teaches neurology residents and fellows in EEG interpretation.

Barbara McManus, MD
Clinical Assistant Professor of Neurology

Barbara McManus (Swenson) earned her medical degree from the University of North Dakota School of Medicine and Health Sciences. She completed her neurology residency at the University of Minnesota. Additionally, she completed a fellowship in epilepsy with Minnesota Epilepsy Group in St. Paul, MN. She is board certified in neurology. Her clinical interests include adult general neurology and epilepsy.
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.

Janet Waters, MD  
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. She has an interest in the treatment of Neurologic disease in the pregnant patient and has established a weekly clinic for Obstetric Neurology patients. 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  
Founder and Director, The Headache Center, University of Pittsburgh  
Director, Headache Fellowship

During the academic year 2013-2014 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 10,000 outpatient visits per year. It is staffed by 4 physicians and 1 physician assistant at a state-of-the-art 3700 square-foot outpatient facility. The Center continues to provide an assortment of medical options for the management of headache, as well as interventional procedures of neural blockade and botulinum toxin delivery. Dr. Kaniecki also oversees the 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. He sits on the Editorial Board for the journal Headache and since 2008 he has served as Abstracts Editor for the journal.
Dr. Kaniecki founded and acts as the Director of the Headache fellowship program which began with the 2012-2013 academic year. In 2013 he was named Co-director of the Neurology Residency program. He serves on the residency selection committee, the compensation committee, the medical student clerkship committee, and the executive committee for the Department of Neurology. Dr. Kaniecki 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 2012-2013 academic year. He acted as a key contributor to recent editions of the MKSAP (Internal Medicine) and Continuum (Neurology) continuing education programs.

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 a major multi-center clinical trial are also in progress, and he will continue to participate in single institutional clinical studies involving the diagnosis and treatment of patients with headache. He mentored medical student, neurology resident, and headache fellow research projects which generated poster presentations at the International Headache Congress in June, 2013.

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. 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 is Co-Director of the Children’s Hospital Neurofibromatosis Clinic.

Laurie Knepper, MD
Clinical Associate Professor of Neurology

In the past year Dr. Knepper has continued to be busy with 7 to 8 half days of outpatient clinic each week and 8 weeks on the inpatient ward. She have been actively involved in resident teaching. She worked with residents and students while on the inpatient ward service. Ddr. Knepper also continued to precept two Neurology Residents in their continuity of care clinic every week. She has participated in resident morning report and given resident noon conferences. She is now co-director of the third year UPSOM Neurology Clerkship. In the past year we have significantly revised the 3rd year rotation. Now there are 8 standard lectures on Wednesdays and Dr. Knepper gives the 9th lecture as a neurology exam review. She also attends and moderates the teleconference pediatric Neurology conference every Tuesday. After discussion with Pediatric Neurology the Tuesday morning conferences were moved to Wednesday morning when all students can be present. There are now 4 residents on the Medical student committee who are helping with the student clerkship and recording brief podcasts to be included on the Navigator website about Neurology topics is planned for the future. A fourth year
UPSOM student, who is applying to Neurology residencies, has joined the committee, and will provide input as to how the clerkship can be improved. The third year students are now assigned to on call from 6 pm to 11 pm once during the rotation so that they can see emergency neurology including stroke. In the past 2 years the several members of the clinical faculty have contributed to a syllabus for the medical students. This will be given to the students and also posted on the Navigator website. The hope is that the students can review this prior to lecture times which can then be primarily case based to illustrate the Neurology topics. There is also a plan to incorporate virtual patient simulation cases on the Navigator website. During the past academic year, Dr. Knepper met with and wrote recommendation letters for four different fourth year medical students who applied and were accept to Neurology residencies including Stanford, Duke, and Beth Israel Deaconess in Boston.

Dr. Knepper has also been part of the Women in Neurology planning committee. Several events were sponsored including an evening informal event to discuss academic promotion and a formal lecture on the Affordable Care Act. Both of these were very informative. Also Dr. Knepper helped to organize a picnic for faculty, residents and fellows in July that was well attended and provided an opportunity to meet families of all. We continue to revise a welcome packet with information for all new clinical faculty and have periodic lunch meetings to discuss topics for upcoming events.

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.

Movement Disorders Division

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

Dr. Greenamyre is Chief of the Movement Disorders Division, Love Family Professor and Vice-Chair of Neurology. Dr. Greenamyre 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. Since 2009, Dr. Greenamyre has been 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 Science 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 serves on several PhD thesis committees and as the primary mentor on K-awards for junior faculty, and he is the supervisor of several 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 MedLink Neurology 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 dystonia. 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. This year, Dr. Berman has five-year funding from the NIH National Institute of Neurologic Disorders and Stroke and 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.

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 both an undergraduate and medical student.
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. This past year, she worked with the Foundation to establish the monthly presence of the Foundation’s outreach director in the Movement Disorders clinic, in order to provide information about available services and programs to any interested patients with PD. She has also continued to serve on the United Mitochondrial Disease Foundation grant review committee as well.

Over the course of the 2014-2015 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
Associate Professor of Neurology
Associate 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. Dr. Burton’s group identified and characterized the zebrafish homologues of human synucleins and torsins implicated in PD and dystonia. The Burton lab has developed transgenic and knockout zebrafish models that replicate many of the biochemical and pathological features of PD, PSP, MSA and DYT1 dystonia, and high-throughput neurobehavioral assays suitable for drug discovery applications in these models. 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.

2. The Burton lab has developed recombinant viral vectors that target the α-synuclein gene implicated in Parkinson’s disease. These vectors knock down α-synuclein expression in the mammalian brain in vivo after intra cerebral inoculation. In collaboration with J. Timothy Greenamyre MD, PhD, Dr. Burton’s group is now testing these vectors for therapeutic efficacy in rat models of Parkinson’s disease caused by exposure to an agricultural pesticide implicated in the etiology of sporadic PD, or by expression of a human protein implicated in familial PD.
Eric K. Hoffmann, PhD
Research Assistant Professor of Neurology
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. 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.

Houman Homayoun, MD
Assistant Professor of Neurology

Dr. Homayoun is interested in clinical aspects of various movement disorders. His primary interest is in chronic management of patients with Parkinson’s disease, atypical parkinsonism, essential tremor, dystonia, tic disorders and Tourette Syndrome, Huntington’s disease, medication-induced dyskinesia, myoclonus, blepharospasm, hemifacial spasm, cerebellar ataxia, as well as uncommon movement disorders. He has a special interest in the surgical treatment of movement disorders through deep brain stimulation. Dr. Homayoun is part of the team that works closely with neurosurgery department at University of Pittsburgh Medical Center to provide deep brain stimulation therapy for selected patients with Parkinson’s disease, Essential tremor, and dystonia. In this regard, his main role is in patient selection and post-surgical programming of deep brain stimulation. This area is also a focus of his clinical research interests as well. In addition, Dr. Homayoun is participating in the treatment of patients with different movement disorders, primarily dystonia, with Botulinum Toxin injection. When needed, he uses electromyogram (EMG) guidance for botulinum toxin injection into limbs and neck. Along with his clinical duties, Dr. Homayoun also has a great interest in teaching neurology to residents and medical students in both outpatient and inpatient settings and participate in didactic courses for neurology residents.

Samay Jain, MD
Assistant Professor of Neurology
Clinical Director, Movement Disorders Division

Dr. Jain is 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 in New
York City. 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.

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 from the National Institutes of Health. This project aims to improve diagnosis and treatment of Parkinson disease with assessments of non-motor features using clinical and physiologic measures. He is also site investigator for a trial of exercise in Parkinson disease patients. Dr. Jain is also coordinating studies about Parkinson disease with the Department of Epidemiology in the University of Pittsburgh Graduate School of Public Health. He has received funding for his work from the NIH, Michael J. Fox Foundation, National Science Foundation, Tourette Syndrome Association, and pharmaceutical companies.

Dr. Jain has also 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, helping establish a collaborative and educational environment for patient care and education. Dr. Jain also regularly teaches medical students, and helps coordinate a rotation for residents in the Movement disorders division. Dr. Jain is director of the University of Pittsburgh Movement Fellowship.

In 2014, Dr. Jain lead team SPark which won the Pitt Innovation Challenge. SPark is a smartphone / smartwatch for Parkinson disease. SPark uses motion sensors in smartphones and smartwatches, to detect and predict motor problems and their relation to medication dose. It then optimizes medication schedules, which can be reviewed by clinicians and sent to patients for real-time monitoring and efficient, easy communication.

Valerie Renee Suski, DO
Clinical Assistant Professor of Neurology

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 2013-2014 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.

Neurocritical Care

Lori Shutter, MD, FCCM, FNCS
Professor, Critical Care Medicine, Neurology and Neurosurgery
Vice Chair of Education, Department of Critical Care Medicine
Director, Neurocritical Care Fellowship Program
Medical Director, Neurovascular & Neurotrauma ICUs

Dr. Shutter joined the Departments of Critical Care Medicine (CCM), Neurology and Neurosurgery in July 2012 to lead the development of the Neurocritical Care (NCC) Program. Her clinical work is primarily in the Neurovascular and Neurotrauma ICUs where she cares for patients with stroke, subarachnoid hemorrhage, status epilepticus, and traumatic brain injury.

In 2013 Dr. Shutter became a Fellow in the American College of Critical Care Medicine (FCCM), as well as one of the first Fellows in the Neurocritical Care Society (FNCS). In 2013 she was also appointed as the Medical Director of the Neurovascular and Neurotrauma ICUs. In January of 2014, Dr. Shutter was named Vice Chair of Education in the Department of Critical Care Medicine.

She has lead efforts to strengthen collaborative relationships between critical care and the neurosciences through educational activities, creation of clinical practice guidelines, and facilitating quality improvement and research activities. The first CCM Neurocritical Care fellow will graduate in June 2014. Dr. Shutter continues her work with the Neurology Residency Curriculum Committee, as well as the educational training and rotations in NCC for the Neurology Residency Training Program. She continues to actively mentor neurology residents who are interested in NCC fellowship training.

NCC research activities occur both on an individual level and through collaborations with Neurosurgery, Neurology and Emergency Medicine. Current projects in which Dr. Shutter has a leadership role include SHINE to evaluate glucose control methods after stroke, InTRUST Glyburide to assess the role of glyburide in managing brain edema after traumatic brain injury respectively, and a newly funded study looking at goal-directed management of neurocardiac injury after subarachnoid hemorrhage.

Bradley Molyneaux, MD, PhD
Assistant Professor of Neurology

Dr. Molyneaux has been a member of the neurology faculty since 2013. He completed neurology residency and neurocritical care fellowship at Massachusetts General Hospital and Brigham and Woman’s Hospital at Harvard University. He shares an appointment in the Department of Critical Care Medicine and is an attending neurointensivist in the Neurovascular and Neurotrauma Intensive Care Units, where the patients he cares for include
those with stroke, subarachnoid hemorrhage, status epilepticus, and traumatic brain injury. He is also a member of the Post Cardiac Arrest Service, providing consultative neurocritical care to patients after cardiac arrest.

Dr. Molyneaux is the site principal investigator for several multicenter clinical trials initiated during the past year, including ATACH-II, which is testing whether early, intensive antihypertensive treatment is beneficial in intracerebral hemorrhage, and GAMES-RP, which is testing whether glyburide can ameliorate malignant edema after large ischemic strokes. As a member of the Post Cardiac Arrest Service, he is engaged in collaborative research focused on optimizing the management of patients after cardiac arrest to improve outcome.

As a principal investigator in the Pittsburgh Institute for Neuurodegenerative Diseases (PIND), Dr. Molyneaux’s laboratory is investigating mechanisms of injury and repair of the cerebral cortex. By purifying individual subtypes of projection neurons from the developing neocortex and sequencing their transcriptomes, he has identified transcription factors that play critical roles in cortical projection neuron development, discovered novel noncoding RNA's that are unique to individual subtypes of neurons, and gained new insight into the complexity of the cortical transcriptome. He is applying similar methods to identify new mechanisms of neuroprotection and plasticity after injury.

Dr. Molyneaux teaches medical students, residents, and fellows who rotate in the neurocritical care units at the University of Pittsburgh Medical Center. He is also the faculty advisor for the weekly Neurovascular and Neurocritical Care lecture series, teaches in the medical student first year basic neuroscience course, and gives lectures as part of the Critical Care Medicine Fellowship core lecture series.

In the coming year, Dr. Molyneaux will continue to care for patients in the Neurovascular and Neurotrauma Intensive Care Units and teach medical students, residents and fellows. He will continue developing his basic and clinical research program investigating mechanisms of neuroprotection and repair in the setting of stroke and traumatic brain injury.

**Neuroimmunology/Multiple Sclerosis**

**Rock Heyman, M.D.**
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 Chairman (Chairman), and Task Forces regarding the relationship of the NMSS with the Pharmaceutical Industry and with the Comprehensive Care Center Affiliation process. 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 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 supports research activities related to MS and Neuroimmunology in the department of Genetics (leukodystrophy) as well as with the Alzheimer’s Disease Research Center and Children’s Hospital White Matter Disorders program. 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 group is studying 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 group is also studying a new medication which is the extended release form of Bacofen, a medication used for spasticity from central nervous system damage. This medication is called Arbaclofen. The trial is a randomized, double-blinded, parallel group study comparing increasing doses of Arbaclofen to placebo and to baclofen tablets, with regard to safety and how well the medication works for spasticity.

Patients are also being enrolled in a trial 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.

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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 and to safety.

The research group is continuing to study the new medication, FTY-720 (Gilenya), 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. They are continuing to follow patients previously enrolled in both the trials for Primary Progressive MS and Relapsing Remitting MS.

Another trial follows patients who had been enrolled in the BG00012 (Tecfidera) research study. Although its exact mechanism of action of the drug 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 groups were evaluated for efficacy and safety in patients with Relapsing-Remitting Multiple Sclerosis when compared to placebo and an active reference (Glatiramer Acetate). While the medication appeared to be effective, it usefulness and safety are still being evaluated in the long term, follow up study.

We are enrolling patients in “A Randomized, Double-Blind, Placebo-Controlled Study to Evaluate the Safety, Tolerability and Activity of Ibudilast (MN-166) in Subjects with Progressive Multiple Sclerosis.” Ibudilast is a small molecule macrophage migration inhibitory factor (MIF)- and PDE-4, 10-inhibitor drug. It has been shown to be neuroprotective and also decreases glial cell activation, thus influencing inflammation. This trial is 2 years in duration and we are entering patients with both primary and secondary multiple sclerosis. The oral medication will be taken twice each day and comparisons will be made as to as to efficacy, tolerability and safety, between patients on or off of Ibudilast while taking no other medication or interferon-beta or glatiramer acetate.

Finally, Dr. Mitchell is a co-investigator in a study of patients who suffer from their 1st attack of optic neuritis. These patients will be studied via high definition fiber tractography to see through this new imaging technique, the location and extent of the demyelinating process, between the retina and the occipital cortex.

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. That course is currently being revised with hope of enhancing the learning experience. This should entail increasing the time the student spends in Neurology with more lectures given, increased evaluations and feedback and new online materials. 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 4 years following his training. Dr. Zayda 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 Neurophysiology Fellowship Program

Dr. Lacomis is the director of the Muscular Dystrophy Association Clinic and MDA-ALS Center, specializing in amyotrophic lateral sclerosis (ALS), myasthenia gravis, and muscle diseases. He is also the co-director of the EMG Laboratory at UPMC Presbyterian and the director of the Autonomics Laboratory. This was the last year of Dr. Lacomis’ tenure as the Director of the Clinical Neurophysiology Fellowship Program. His role will be changing to co-director in charge of the EMG component. 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 two neuropathology fellows in nerve and muscle pathology. Dr. Lacomis was again named among the Top Doctors by Pittsburgh Magazine and in Best Doctors and Top Doctors nationally.

Dr. Lacomis has been involved in a number of major research projects in the past year. He was the site principal investigator (PI) for a Phase IIb multi-center study of tirasemtiv in patients with ALS as well as the principal investigator in ongoing a multi-center study for the discovery and validation of ALS biomarkers obtained by serial assays. He recently initiated participation in a multi-center randomized, controlled study of diaphragm pacing in ALS versus best medical care. Last, he will be the site PI in a multi-center study of namenda. Along with collaborators from the Center for ALS Research, projects in serial high field MRI fiber track imaging and in induced pluripotent skin stem cells are ongoing. Results from the ALS caregiver burden and depression study in which Dr. Lacomis mentored Human Genetics Masters Degree student, Kristen Qutub, were published. Dr. Lacomis continues to collaborate with Drs. Chester Oddis and Rohit Aggarwal from the division of Rheumatology in studying necrotizing and other autoimmune myopathies.

Dr. Lacomis also worked with Dr. El-Dokla as well as Drs. Oddis and Aggarwal in identifying abnormal expression of major histocompatibility complex I in muscle tissue from patients with “amyopathic” dermatomyositis. This study was presented at the annual AANEM meeting.
Previous work with Steve Meriney, PhD from the Department of Neuroscience regarding calcium channel agonists as therapeutic agents in Lambert-Eaton Myasthenic Syndrome has been published, and an additional publication is under review.

Dr. Lacomis presented a lecture on “Diagnosis and Treatment of Inflammatory Myopathies” at the AANEM annual meeting in San Antonio, Texas in October 2013.

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 also co-authors, along with Dr. El-Dokla and collaborators from SUNY Buffalo, a section on “What’s in the Literature” for each edition of the Journal of Clinical Neuromuscular Disease. He is on the Clinical Neurophysiology Examination Committee for the American Board of Psychiatry and Neurology.

Ahmed El-Dokla, MD
Assistant Professor of Neurology

Dr. El-Dokla provides clinical service to neuromuscular patients and importantly added single fiber EMG to our services for evaluation of patients with myasthenia gravis. His clinical focus is on the diagnosis and management of disorders of nerve, muscle, and neuromuscular junction, including amyotrophic lateral sclerosis, peripheral neuropathies (e.g. diabetic and immune mediated neuropathies), various muscular dystrophies, congenital and acquired myopathies, inflammatory myopathies (e.g. polymyositis, inclusion body myositis), and neuromuscular transmission disorders (e.g. myasthenia gravis, Lambert-Eaton myasthenic syndrome). Dr. El-Dokla trains fellows in clinical neurophysiology and provides electrodiagnostic services (electromyography and autonomic testing) at UPMC-Presbyterian. He also perform EMG studies in the Monroeville office. He is expanding his scholarly activities to include study of scleroderma myopathy, amyopathic dermatomyositis, and Guillain-Barre. Dr. El-Dokla is a section editor for a quarterly review of the literature for a clinical neuromuscular journal.

Araya Puwanant, MD
Assistant Professor of Neurology

Dr. Puwanant recently joined the Department of Neurology in March 2014. During the academic year from July 1, 2013 to June 30, 2014, Dr. Puwanant provided leadership for the Neuromuscular Service at the UPMC Shadyside Hospital. She works on an outpatient and consultation service with 3 full-time neurologists at UPMC Shadyside. The active teaching service also comprised second and third year medical students, internal medicine residents, and family medicine residents. In addition, Dr. Puwanant provided electromyography (EMG) service at UPMC Presbyterian and Shadyside. She also worked on an outpatient service for the Neuromuscular Clinic and ALS Multidisciplinary Clinic at the Kaufman Medical Building.

Dr. Puwanant pursues clinical research focused on autosomal dominant forms of muscular dystrophy and neurologic channelopathies. The genetics, pathophysiology, and developing new approaches to treatment of myotonic disorders are her primary area of interest. This includes investigations of biomarkers as well as optimal outcome measures. She was a past recipient of the Muscular Dystrophy Association Clinical Research Training Grant.
Dr. Puwanant is currently a site Principal Investigator (PI) for the NN103: Phase II Trial of Rituximab in Myasthenia Gravis, the NINDS-funded NeuroNEXT study. NeuroNEXT is a nationwide clinical trials network established to conduct neuroscience clinical trials. This is one of the University of Pittsburgh NeuroNEXT site ongoing clinical trials.

In the coming year, Dr. Puwanant will develop her clinical research program in the outcome measures of neuromuscular diseases, focusing on the myotonic disorders, and the treatment of neuromuscular channelopathies. She will continue being a site PI for the Rituximab in Myasthenia Gravis Study and collaborating with other centers for clinical research in neuromuscular diseases. She will continue her clinical activities as a neuromuscular and EMG specialists and provide a needle muscle biopsy service at the UPMC Presbyterian.

Saša Živković, MD, PhD
Associate Professor of Neurology

In the academic year July 1, 2013 through June 30, 2014, 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. In 2012, Dr Zivkovic has initiated multidisciplinary clinic for veterans with ALS at VA Pittsburgh. He also performs electrodiagnostic testing in UPMC 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. In collaboration with Dr Strotmeyer, he has co-authored a study on revaluation of neuromuscular function in elderly in Clinical Neurophysiology. 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 monoclonal gammopathy in collaboration with Dr. Suzanne Lentzsch from Columbia University and Dr Ahmed El-Dokla from our department, 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 at VA Pittsburgh. Additionally, he continued to serve as an editorial consultant for the online database PIER for the chapter on “Myasthenia gravis”. 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 BMC Research Notes, Clinical Neurology and Neurosurgery, and Journal of Neurology, Neurosurgery and Psychiatry.

In academic year 2013-2014, Dr. Zivkovic will participate in clinical treatment trials of ALS at UPMC with Dr. David Lacomis, and will continue clinical research on neurologic complications of monoclonal gammopathy, and on decline of peripheral nerve function in elderly. He will remain site PI for a Pittsburgh site of worldwide study on Guillain-Barre syndrome outcomes IGOS. He will also continue clinical research on neurologic complications of organ transplantation.
Dr. Lieberman is director of the adult neuro-oncology program at UPMC Cancer Centers. His clinical and research efforts 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 committees for the NRG, and ECOG-ACRIN oncology clinical trials consortia. He serves on the Experimental Imaging and Biomarkers committees for ECOG-ACRIN and is the former chair of the Clinical Trials Design and Development committee for the Quantitative Imaging Network and currently serves as liaison between the QIN and the experimental imaging committees of the NCI collaborative clinical trials groups.

In collaboration with Jan Drappatz (co-director Neurooncology Program), Ron Hamilton, and Marina Nikaforovna, Dr. Lieberman is applying Next Generation Sequencing techniques to the development of individualized molecular therapies for patients with malignant gliomas. UPMC is one of an elite group of cancer centers with CLIA approved NGS for use in patients undergoing resection for cancer. Drs. Lieberman and Drappatz are the neurooncology program investigators in UPCI’s molecular pathology database program in which patients whose tumors are analyzed by NGS participate in a database associated with the UPCI Phase 1 Trials Center. This allows for identification of potential subjects for molecularly targeted therapeutic clinical trials across tumor types.

Dr. Lieberman has a national leadership role in the development of vaccines for treatment of gliomas. He is currently the national study chair for a multicenter trial evaluating the glioma peptide based dendritic cell vaccine developed by Hideho Okada in patients with recurrent glioblastoma and is the principal investigator for a similar trial in patients with low grade gliomas. Despite the relocation of Dr. Okada to University of California, San Francisco, Drs. Lieberman and Okada will be continuing their 15 year collaboration in ongoing and developing immunotherapy trials.

Dr. Lieberman is coinvestigator in the UPCI institutional Quantitative Imaging Network Program project: Novel Imaging Markers of Tumor Treatment Response, led by James Mountz. This study is investigating a novel PET tracer and high field strength MRI techniques to differentiate radiation induced changes from tumor progression in patients with newly diagnosed glioblastoma and pseudoprogression from true tumor response in patients with malignant gliomas being treated with antiangiogenic therapies. He is also a coinvestigator in an NCI funded project, led by Paula Sherwood, addressing caregiver stress in families of patients with primary brain tumors.

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 house staff morning report. He provides neuro-oncology consultation service for UPMC Presbyterian, Magee, and Shadyside hospitals. 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 the Neurooncology Section of the American Academy of Neurology. He currently serves on the committee administering the subspecialty neurooncology board examination for the United Council of Neurologic Specialties. He is a member of the American Association of Cancer Researchers, American Society of Clinical Oncology.

Jan Drappatz, MD
Associate Professor of Neurology
Associate Director, Adult Neurooncology Program

Dr. Drappatz is a leading expert in brain cancer treatment and research. As a board-certified neurologist specializing in the field of neuro-oncology, his primary areas of research involve the development of novel agents for the treatment of glioblastoma, central nervous system lymphoma, and other primary and metastatic brain tumors. He has served as the principal investigator of numerous clinical trials to identify effective therapies for patients with brain tumors and other neurological ailments associated with cancer.

Dr. Drappatz received his medical degree from the Johannes Gutenberg University School of Medicine. He completed residency training in neurology at the Partners Neurology Residency Program at Massachusetts General Hospital and Brigham and Women’s Hospital, Harvard Medical School, and completed his fellowship training in neuro-oncology at Dana-Farber Cancer Institute.

He is a member of several professional organizations, including the American Association for Cancer Research, American Society of Clinical Oncology, the Society for Neuro-Oncology, and the “Alliance for Clinical Trials in Oncology” brain tumor committee.

Research Division

Guodong Cao, PhD
Associate Professor of Neurology

Dr. Cao’s first ROI titled “White matter protection in cerebral ischemia” was funded (7/1/2013–6/30/2018). This grant will investigate the protective effect of Nicotinamide phosphoribosyltransferase (NAMPT) on white matter injury after cerebral ischemia, an area that remains relatively understudied and poorly understood. He also obtained a VA merit review grant (BLR&D) which study the angiogenesis and neurogenesis effect of NAMPT in cerebral ischemia (4/1/2014–3/20/2018).

In professional service, Dr. Cao continues serving in American Heart Association/Brain study section and serves on Editorial Board for four Journals including Journal of Cerebral Blood Flow and Metabolism. He also participated in teaching graduate class and supervising postdoc/visiting scholars.

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 current focus of my laboratory is
two-fold. The first focus is to determine the role & mechanism of cell-cell interactions (microglia-neurons, microglia-endothelia, endothelia-circulation immune cells) in the pathogenesis of neurovascular dysfunction after stroke. The second focus is to develop strategies (such as viral vectors or protein transduction domains) by which molecular therapeutics can be delivered into the brain to ameliorate neurovascular injury and neurodegeneration.

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). He has been a PhD advisor of the neuroscience program at Fudan University since 2004.

Dr. Chen has continued to serve at national and international levels. He is a member of study sections NIH, AHA, and VA, and also serves as a reviewer or consul member for various international science foundations. He is the current Treasurer of the International Society of Cerebral Blood Flow and Metabolism. He serves as an editorial board member for 9 professional journals, including *Journal of Neuroscience, Journal of Cerebral Blood Flow and Metabolism, Stroke, Neurobiology of Disease, and Progress in Neurobiology*, etc.

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

During the academic year from July 1, 2013 to June 30, 2014, Dr. Clemens provided leadership for the Neurology Service at the VA Pittsburgh Healthcare System (VAPHS) and served as a Vice Chair for the Department of Neurology. She directed an out-patient and consultation service with 8 part-or full-time neurologists and 3 neurology resident physician positions at VAPHS. 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. 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 is the Medical Director and chairs the Publications Subcommittee for CINRG.

Dr. Clemens 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 to conduct neuroscience clinical trials. The University of Pittsburgh NeuroNEXT site is participating in 3 of the 4 ongoing trials. She also leads a Department of Defense-funded clinical treatment trial in muscular dystrophy. In total, Dr. Clemens’ research group currently participates in 7 clinical trials or natural history studies.

As a significant new initiative this year, Dr. Clemens is collaborating with a new faculty member at the University of Pittsburgh, Roxanna Bendixen, PhD, Assistant Professor of Occupational Therapy. Dr. Clemens is working with Dr. Bendixen to pursue research that aims to advance quality of life for neuromuscular disease patients. This work has contributions from a medical student pursing his scholarly project and other collaborators at Carnegie Mellon University and Children’s National Medical Center.
Dr. Clemens worked with Dr. Zivkovic to author a book chapter on Muscular Dystrophy to be published in *Neurobiology of Brain Disorders* (eds. Zigmond MT, Coyle JT, Rowland LP, Fischer BA).

Dr. Clemens precepts third and fourth year medical students at the VAMC. She is mentoring 3 medical students for their scholarly projects. She is a career advisor for students in the Medical Scientist Training Program (MSTP) and the Physician Scientist Training Program (PSTP).

In the coming year, Dr. Clemens will continue her basic and clinical research program in the treatment of neuromuscular disease. 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 the protein, UCH-L1 also known as Parkin 5 in stroke and neurodegeneration. 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 of the Department of Neurology 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.

**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 8 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 two...
postdoctoral fellows and one undergraduate student in the laboratory, and serves as the career advisor for two MSTP students. She serves as training faculty on two institutional training grants including “NIH Medical Scientist Training Program (R. Steinman, Director) and “NIH Predoctoral Training in Basic Neuroscience” (A.F. Sved, Director). Dr. Hastings is also the Director of the new Honors College Health Sciences Undergraduate Summer Research Program.

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.

Xiaoming Hu, MD
Research Assistant Professor of Neurology

Dr. Hu’s research focuses on studying how neuroinflammation contributes to the development of neurological disorders and how to modulate the cerebral inflammatory response. Last year, her main research directions were on 1) exploring the dynamic equilibrium between “good” and “bad” microglia after ischemic stroke and elucidate the mechanisms of microglial polarization, and 2) developing therapeutic strategies to beneficially modulate glial responses after ischemic injury.

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). Dr. Ikonomovic is Principal Investigator on a new 5-year grant funded by the Department of Veterans Affairs’ RR&D, to examine AD related pathology changes during chronic periods after blast injury in transgenic PSEN1dE9 and wild type C57B1/6 mice and how these changes are associated with axonal pathology imaged in vivo. This study is a collaborative project with investigators from VA Iowa City Medical Center. Dr. Ikonomovic is also Principal Investigator on his ongoing VA MERIT Review Award examining whether chronic memantine therapy can improve histological and neurological outcomes in rats subject to TBI. New results from both studies were presented at the 2014 conference of the National Neurotrauma Society. Dr. Ikonomovic 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 is Principal Investigator on a project within the NIA-funded PPG “Neurobiology of Mild Cognitive Impairment” (led by Dr. Elliott Mufson from Barrow Neurological Institute, Phoenix AZ) which has been renewed for another 5-year period starting in January 2014; Dr. Ikonomovic’s project examines alterations in Aβ metabolism, synaptic integrity and cholinergic function in subjects with mild cognitive impairment (MCI) and early AD. New results from his laboratory demonstrated that novel forms of truncated and pyroglutamate-modified Aβ peptides correlate strongly with clinical function and neuropathology measures in the posterior cingulate cortex from MCI and early AD cases. These findings have important implications for developing novel therapies and biomarkers for AD; they were published in June 2014 issue of Neurobiology of Aging, and a related study was
published in August 2014 in *Journal of Alzheimer’s Disease*. Dr. Ikonomovic is also 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. New findings from his laboratory include strong correlations between higher levels of in vivo PiB PET retention and greater load of amyloid-β quantified postmortem measures in the same neocortical regions; these results were presented at the 2014 Alzheimer’s Association International Conference.

Dr. Ikonomovic continued to work as Co-Investigator on several 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. New results were presented at the 2014 Human Amyloid Imaging conference. Dr. Ikonomovic 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 projects funded by the Pittsburgh Foundation and the Michael J. Fox Foundation, seeking to design, test, and develop compounds that will bind selectively to vascular Aβ deposits in cerebral amyloid angiopathy, and novel PET radiotracers for in vivo detection of pathological tau and alpha-synuclein aggregates.

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 provides consultant services to GE Healthcare and Neuropathology Core of 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 NIH and VA Scientific Review.

**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 MPP7 and 6-OHDA in dopaminergic cells and subsequently examine the extent of protection by regulating these proteins in cellular and rodent Parkinson’s disease models. Currently, he is actively involved in identifying common proteins that can modulate degeneration in different PD models. Also, he is keen in characterizing the mechanisms involving these proteins in effecting cell fate. From them, novel therapeutic strategies are to be developed to preserve dopaminergic cell viability both in *in-vitro* and *in-vivo* models 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 and modifications have been linked to many neurodegenerative diseases such as Parkinson’s disease. Dr. Liu’s other ongoing projects address the role of UCH-L1 in neuronal cell survival and axonal repair under a variety of pathological conditions, including hypoxia and neurotoxins insults. To facilitate their research, two knock-in transgenic mice lines carrying mutations on UCH-L1 gene have been made. 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 research focuses on how lifestyle experiences can alter the vulnerability of the brain to disease. Specifically, the lab studies how exercise and dietary supplementation with polyphenol-rich foods can alter the vulnerability of dopamine (DA) cells in the substantia nigra in an animal model of Parkinson’s disease (PD) and whether the benefits of such therapy diminish with age. We have observed that the therapeutic benefits of exercise extends to young and old animals and that this effect can be augmented with concurrent treatment with polyphenol-rich blueberry juice. These results suggest that lifestyle changes can reduce the vulnerability of the dopaminergic nigrostriatal pathway to oxidative stress and that this pathway in older animals remains responsive to non-pharmacological intervention.

In collaboration with Dr. Timothy Greenamyre, Dr. Smith examines the protective effects of astrocytic expression of DJ1 in the MPTP mouse model of PD. Mutations in DJ1 cause an early onset autosomal recessive form of PD.

Ruth Stetler, PhD  
Research Assistant Professor of Neurology

Dr. Stetler’s research has been focused on mechanisms supporting neuroprotection against cerebral ischemia. She would like to further develop a project based on mitochondrial turnover and dynamics, and has a continuing interest in white matter recovery following ischemic injury. She is the first author on the following publications:


**Dandan Sun, MD, PhD**  
**Professor, Endowed Chair Professor of Bain Disorder Diseases, Dept. 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 ion cotransporters function in regulating tumor tissue microenvironment and cell volume. These proteins may be potential "targets" for therapeutic intervention.

During the academic year July 2013 – June 2014, Dr. Sun’s laboratory made major research progress and published the following scientific papers:

- Begum G, Harvey L, Dixon CE, **Dandan Sun**. ER stress and effects of DHA as an ER stress inhibitor. Transl Stroke Res. 4(6):635-42. 2013, PMID PMID:24323417

**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 a number of journals, including Neurobiology of Disease, CNS Neuroscience & Therapeutics, Vascular Health and Risk Management, Brain Research, Translational Stroke Research and Mini-review of Medical Chemistry, Plos One and Journal of Visualized Experiments.
Over the past year 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. 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 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 – can make rats 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.” Indeed, exercise may reflect a type of in vivo preconditioning by virtue of the mild increase in cellular stress that it provokes.

In the coming year, Dr. Zigmond and his team will continue to focus on the mechanisms underlying the exercise-induced alteration in the vulnerability of dopamine neurons to cellular 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 individuals at the University of Pittsburgh and at other institutions (see table).

In addition to his work with animal and cellular models, he will also continue to serve as the Editor-in-chief for Progress in Neurobiology, is the senior editor of a textbook on the neurobiology of brain dysfunctions that will be available in mid-2014, and of a collection of essays on ethics education that will be available in December 2014. He is also beginning a monograph on the influence of life style on brain health and will continue to be involved in several national and international training programs on professional skills, research integrity, and bioethics.

Vascular Neurology

Dr. Jovin is Associate Professor of Neurology and Neurosurgery. His leadership experience in the subspecialty of vascular and interventional neurology includes his positions as Director of the UPMC Stroke Institute and Director of the UPMC Center for Neuroendovascular Therapy, Dr. Jovin serves as President of the SVIN (Society of Vascular and Interventional Neurology) in addition to serving on several other committees or boards of national and international societies (American Academy of Neurology, American Society of Neuroimaging, Society of Neurointerventional Surgery) and editorial boards of medical journals within his area of expertise (Stroke, Journal of Neuroimaging, Journal Of Interventional Neurology).
Dr. Jovin’s clinical and research activities are focused on the care of patients with cerebrovascular disorders. He has published over 100 articles in peer-reviewed journals or book chapters. With over two thousand annual ischemic and hemorrhagic stroke admissions the UPMC Stroke Institute is one of the highest volume centers in the country. Dr. Jovin’s over 10 years’ experience as a cerebrovascular neurologist and 10 years’ experience performing neuro-interventional vascular procedures confers him expertise in interventionial and non-interventional treatments for the entire spectrum of cerebrovascular disorders. This includes ischemic stroke of all subtypes (large vessel atherosclerotic, cardioembolic, small vessel and stroke of various other less common etiologies such as dissection, vasculitis, moyamoya syndrome, hypercoagulable states etc.) and hemorrhagic stroke (parenchymal intracerebral hemorrhages such as those caused by hypertension, amyloid angiopathy, hemorrhagic infarcts, trauma, AVM’s, dural A-V fistulas, vasculitis, drug related etc. and subarachnoid hemorrhages including those caused by ruptured intracranial aneurysms).

Dr. Jovin serves as Principal Investigator for the ongoing REVASCAT study, a randomized trial of endovascular therapy versus medical therapy for stroke due to large artery occlusion within 8 hours taking place in Spain and also serves as Principal Investigator for DAWN, a multicenter, international, randomized trial of endovascular therapy versus medical therapy in the beyond 8 hour time window that is currently in advanced planning stages. In this capacity and also in his capacity as executive/steering committee member for several multicenter national and international trials (IMS-3, SWIFT, SWIFT PRIME, ESCPE) or site Principal Investigator/Co-investigator on several local or multi-center clinical trials, he brings the experience to successfully design and carry out clinical studies.

As the former UPMC Stroke Fellowship Program Director and UPMC Neurointerventional Fellowship Program Director, positions he has held for over 5 years, Dr. Jovin has significant experience in mentoring young neurologists or neurosurgeons who in addition to acquiring the necessary clinical and procedural skills for successful clinical practice have authored numerous publications in leading peer-reviewed cerebrovascular disease journals.

Maxim Hammer, MD
Associate Professor of Neurology
Director, Inpatient Neurology
Director, Vascular Neurology Fellowship Program
Director, Neurosonology Laboratory
UPMC Presbyterian Hospital
Staff Stroke Neurologist, The Stroke Institute
UPMC Mercy Hospital
Director, Stroke Services

Dr. Hammer did his Neurology Residency at the Cleveland Clinic, then his Vascular Neurology Fellowship at UPMC under Dr. James Gebel. He then joined the Neurology faculty in 2003. He is Board certified in Neurology as well as in Vascular Neurology and is interested in clinical practice, clinical research and teaching.

Dr. Hammer has been the Director of Stroke services at UPMC Mercy Hospital since 2008, where he has overseen the development of a busy inpatient stroke practice. The Stroke Program at Mercy has been given multiple awards by the AHA during the time of his directorship. He has also has helped develop the department’s Stroke Clinic at UPMC Mercy. He founded and directs the department’s Neurosonology lab, which provides outpatient services as well as inpatient services to UPMC Mercy and Presbyterian hospitals. Dr. Hammer continues to attend hospital service at UPMC Presbyterian, Shadyside and Mercy, and contributes to providing telemedicine stroke services to multiple hospitals in and out of the UPMC system.
Dr. Hammer’s research interests lie predominantly in novel approaches acute stroke, and he has contributed to national clinical research studies including SENTIS, for example, and has participated in multiple other industry sponsored as well as NIH sponsored clinical trials. Dr. Hammer enjoys mentoring medical students in their research endeavors, usually focused on quality improvement, and many of these projects have blossomed into significant publications.

Dr. Hammer has been involved with teaching since joining the department, beginning with didactic and bedside teaching of residents and fellows. Since 2009, he has been involved with teaching at the Medical School’s Neuroscience course both as lecturer and preceptor and in 2013 was asked to join the course’s curriculum development committee. Dr. Hammer has been part of the Neurology Residency Curriculum Development committee since 2006. Dr. Hammer helped develop a Neurocritical Care Fellowship program. He has been the director of the department’s Vascular Neurology Fellowship program since 2012.

Ashutosh Jadhav, MD, PhD
Assistant Professor of Neurology
UPMC Stroke Institute
UPMC Center for Neuro–endovascular Therapy
Director, Stroke Services, University of Pittsburgh Medical Center, Shadyside Campus

Dr. Jadhav is Assistant Professor of Neurology. He completed his undergraduate and graduate studies at Harvard University. Additionally, he completed his medical studies at Harvard Medical School. He is dually trained in the medical and endovascular care of stroke patients. He is a member of the UPMC Stroke Institute and Center for Neuro–endovascular Therapy where he has performed over 2000 neuro-interventional procedures. He also services as director of stroke services at UPMC–Shadyside campus. He actively participates in resident and fellow education with weekly lectures. His teaching efforts have been recognized twice with the Neurology resident Faculty Teaching Award. Additionally, he services on the curriculum committee for the Neurology residency and Vascular Neurology fellowship. He actively participates in nursing and EMS education with monthly lectures. He recently served on the UPMC Stroke Institute CME course planning committee. Dr. Jadhav is an active member of several societies, including the American Stroke Association where he serves as an abstract grader for the annual International Stroke Conference. As a member of the Society of Vascular and Interventional Neurology, Dr. Jadhav is an associate editor of the quarterly newsletter. Additionally, Dr. Jadhav serves as a review for the Journal of Neuroimaging. He has published over 30 articles in peer-reviewed journals or back chapters. He serves as sub-investigator on over a dozen clinical trials and serves as local principal investigator on two global clinical trials (DAWN, REVASCAT). His research interests focus on the natural history and management of cerebrovascular occlusive disease and endovascular approaches to acute ischemic 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 Chief Medical Information Officer, Physician and Hospital Services. 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.

Matthew Starr, MD  
Assistant Professor of Neurology

Dr. Starr created and maintains the database of basilar artery occlusion patients treated with intraarterial therapy. Next year he plans to publish outcomes from this series of patients. He will also be working with Dr. Schwartzman in department of Cardiology on some projects dealing with cardioembolic stroke, paroxysmal atrial fibrillation and left atrial appendage morphology. Dr. Starr is the PI of the PRISMS trial looking at IV TPA for minor strokes. He is a sub-I on a multiple stroke clinical trials.

Viktoria Totoraitis, MD  
Assistant Professor of Neurology

Dr. Totoraitis completed her undergraduate degree at the University of Missouri – Columbia. She then obtained her Masters in Public Health at Yale University followed by medical school at the University of Vermont College of Medicine in Burlington, Vermont. Her neurology residency and vascular neurology fellowship were both completed at UPMC. She then joined the UPMC Stroke Institute as Assistant Professor of Neurology.

Dr. Totoraitis is involved in a variety of clinical and educational activities as part of the department of neurology. Her clinical work involves both outpatient and inpatient care of patients with cerebrovascular disease. She has a strong interest in women’s neurology and gender differences in stroke care and outcomes.

She provides educational supervision to residents from the neurology, physical medicine and rehabilitation and internal medicine residency programs. She gives numerous lectures to residents and medical students about vascular neurology throughout the academic year.

Lawrence R. Wechsler, MD  
Chair, Department of Neurology  
Henry B. Higman Professor of Neurology / Neurosurgery

Lawrence Wechsler, MD, Professor of Neurology at the University of Pittsburgh School of Medicine is Henry B. Higman Professor and 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 is a leader in the field of vascular neurology and has participated on steering committees, advisory boards, or as a DSMB member for numerous national and international clinical trials that have impacted practice and improved outcomes for stroke survivors. Dr. Wechsler along with Dr. Kondziolka of the Department of Neurosurgery spearheaded the first clinical trials of cellular therapy for treatment of stroke. 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 past Chair of the Stroke Systems Work Group at the American Academy of Neurology and past 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. He was an early proponent of telestroke program development, and currently oversees a network of 21 hospitals in the western Pennsylvania area. Since the inception of the Telestroke service at UPMC, over 2,013 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 to 35 specialty services lines across multiple locations and has active Teleconsult centers across 3 locations in Western Pennsylvania where patients can be scheduled to have a virtual visit with a specialist from Pittsburgh.

**St. Margaret/McKeesport**

**Stuart Silverman, MS, MD, FAAN**

**Clinical Associate Professor of Neurology**

Stuart Silverman, MS, MD, FAAN, is board-certified in neurology and a Fellow of the American Academy of Neurology. He has special interests and more than 25 years of experience in multiple sclerosis, spinal diseases, and neuroimaging. He sees inpatients and outpatients for all adult clinical neurology.

Dr. Silverman received his medical degree from Georgetown University School of Medicine in Washington, D.C. He then completed his neurology residency at Georgetown University Hospital.

**Edward Mistler, MD**

**Clinical Assistant Professor of Neurology**

Dr. Edward Mistler joined the Department of Neurology on January 1, 2014. Prior to joining, he was in private practice for 10 years in Pittsburgh. He is primarily a clinical neurologist who sees patients at 3 offices throughout Allegheny County; West Mifflin, McKeesport and Aspinwall.

Dr. Mistler has a special interest in NCS/EMG and botulinum toxin administration which he performs at all offices.

He is also responsible for all neurology consults at UPMC-McKeesport Hospital and is the Stroke Medical Director for UPMC McKeesport. Duties as Stroke Director include a monthly meeting with the interdisciplinary team, and weekly meeting with the clinical coordinator. We had a mid-cycle review this year with JACHO and achieved recertification as a Stroke Center. Dr. Mistler also gave a presentation to the UPMC Mercy Stroke survivors group this summer about spasticity management.

Dr. Mistler is responsible for neurological education for the medicine and family practice residents at Mckeesport Hospital, and serves as the Neurologic Education director. This involves a 5 lecture series for the residents and 1 grand rounds per year of didactic lectures. There are also small group sessions at least once per month and at least one resident from each specialty is on the Neurology team each month and is directly supervised by Dr. Mistler.
In addition to his outpatient duties and UPMC McKeesport Hospital coverage, Dr. Mistler provides inpatient care to patients at UPMC St. Margarets Hospital at least once per week. He covers both hospitals one week per month on call.

Northshore – Hamot Erie

James DeMatteis, MD  
Division Chief of Neurology - Hamot  
Medical Director Stroke Center - Hamot

Dr. DeMatteis specializes in stroke and neurovascular disease, Parkinson's disease, and neurological rehabilitation. He is presently the Division Chief of Neurology at the University of Pittsburgh Medical Center Hamot. He is also the medical director for the Stroke Center. He is very actively involved in education and patient care. He has won several awards, the one most cherished is the best teacher award. He is also very actively involved in education. He is the annual course director for Hamot Neurosciences and a co-director for Healthsouth Nerve Rehabilitation Spring Conferences. He has several board certifications in Neurology, Internal Medicine, Neurological Rehabilitation, EMG, and Neurovascular Disease.

He has been on the medical staff at UPMC Hamot (formerly known as Hamot Medical Center) since July 1994. In the past, he has been involved in several phase 3 drug studies. To name a few, these have been Avail, Capture 2, Optima, Atlantis stroke study, and ProFESS study.

Jeffrey J. Esper, DO, MS (Med Ed)  
Professor of Internal Medicine/Neurology, LECOM  
UPMC Hamot Neurology Residency Program Director  
UPMC Hamot Osteopathic Director of Medical Education

Dr. Esper is the neurology residency director at UPMC Hamot where he supervises 9 neurology residents and serves as an instructor for the residents of emergency medicine at UPMC Hamot and for the psychiatry, internal medicine and ophthalmology residents from Millcreek Community Hospital. He is also the director of the EMG laboratory at UPMC Hamot. He also serves as the director of the Muscular Dystrophy Clinic in Erie, Pa. Dr. Esper also is clinical course director for the neurosensory system at LECOM. This system runs from March until May each year where Dr. Esper gives 18 lecture hours each year to the medical students. This duty also requires writing new test questions for the each lecture. Dr. Esper also develops 16-18 case scenarios for the students to present as small groups (10-11 students/group). This exercise allows the students to begin to incorporate their new knowledge into a case format and start to develop their clinical investigative skills and their oral presentation skills that will serve them through their clinical years. Dr. Esper teaches medical students in the classroom setting and in the clinical setting, both office and hospital settings. Dr Esper continues to serve as LECOM curriculum committee chairman. Dr. Esper also is an active participant and examiner in the ACONP oral board certifying examinations each spring.

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Erica Grazioli, DO, M.S. Med Ed  
Neurologist  
Director, UPMC Hamot MS Fellowship Program  
Director, UPMC Hamot MS Center of Excellence  
Medical Director UPMC Hamot Infusion Center

Dr. Grazioli served as is involved clinically in the care of patients with multiple sclerosis and sleep disorders and is the director of the UPMC Hamot Multiple Sclerosis Center. The UPMC Hamot Multiple Sclerosis Center is recognized as a Comprehensive Care Center by the National Multiple Sclerosis Society and, as part of this relationship, a weekly multidisciplinary shared clinic is conducted at UPMC Northshore Neurology with representation from the local National Multiple Sclerosis Society. She continued participation in several ongoing multiple sclerosis clinical trials including STRATIFY and TYGRIS. Dr. Grazioli also completed invited revisions for a book chapter on the clinical course of multiple sclerosis for the updated edition of Primer on Multiple Sclerosis, Oxford University Press.

Dr. Grazioli is active in medical education. She serves as director of the Northshore Neurology Multiple Sclerosis Fellowship. The program’s first multiple sclerosis fellow completed her training in December 2013. Dr. Grazioli continues to regularly precept medical students during their neurology rotations and supervises neurology residents during a one month multiple sclerosis rotation during the fourth postgraduate year. She is active in resident didactics, lecturing monthly on sleep medicine and multiple sclerosis topics. She is also a lecturer on multiple sclerosis for the Lake Erie College of Osteopathic Medicine.

Daniel Kinem, DO  
Neurohospitalist  
Medical Director of Neuroscience Development

Dr. Kinem serves as a neurohospitalist and as the Medical Director of Neuroscience Development at UPMC Hamot. His duties include the development and improvement of the acute stroke program, the care of the hospitalized neurological patient, and the development of the Neurology service at UPMC Hamot. As lead neurohospitalist, Dr. Kinem is charged with scheduling and coordinating hospital coverage.

Very active in teaching, Dr. Kinem directly mentors medical students, ED, IM, and psychology residents. In addition, he has significant training and educational responsibilities for the UPMC Hamot Neurology Residency Program. Dr. Kinem is also active in stroke rehabilitation as an admitting and consulting physician at Health South Rehabilitation Hospital. He serves on the Medical Executive Committee at Health South as well.

Adnan Mahmood, DO  
Clinical Assistant Professor of Neurology

I plan to develop a general neurology lecture series for the residents and medical students to include topics such as EEG, headache and peripheral neuropathy.
Jingzi Shang, MD
Neurologist
Director UPMC Sleep Disorder Center

Dr. Shang’s practice is primarily focused on caring for patients with sleep disorders. In addition she cares for patients with headaches and general neurological problems and is the main EEG reader at Hamot – Erie.

Michelle Stevens, DO
Neurologist
Co-Director, MDA Clinic of Northwest PA Northshore Practices

Dr. Stevens is co-director of the Muscular Dystrophy Association Clinic and specializes in Neuromuscular disorders. She primarily sees patients with myasthenia gravis, muscle diseases, and peripheral nerve disorders. She also has an interest in headache and epilepsy management. She performs EMG studies in the UPMC Hamot EMG Laboratory. Dr. Stevens is active in Neurology resident and LECOM medical student education, mentoring students on a nearly daily basis in the clinic and EMG lab.
Study Sections and Advisory Committee Memberships

Maria Baldwin, MD

Advisory Committee
- Epilepsy Task Force (UPMC) – committee member assisting in development of status guidelines for the hospital

Sarah B. Berman, MD, PhD

Study Section/Grant review
- National Institutes of Health, Special Emphasis Panel “Substance Use Disorders and Molecular Regulation of Brain Energy Utilization” (2013)
- National Institutes of Health, Exceptional Unconventional Research Enabling Knowledge Acceleration (EUREKA) for Neuroscience and Disorders of the Nervous System (2013)
- United Mitochondrial Disease Foundation

Grant Reader:
- United Mitochondrial Disease Foundation, Research Grants (2014)

Advisory Committees
- Member, Board of Directors, National Parkinson Foundation Greater Pittsburgh Chapter
- Member, Scientific Advisory Board, National Parkinson Foundation Greater Pittsburgh Chapter
- Member, Outreach Program Committee, Parkinson Foundation of Western PA
- Member, Steering Committee, Physician Scientist Training Program, University of Pittsburgh School of Medicine
- Member, Steering Committee, Neuroscience Area of Concentration, University of Pittsburgh School of Medicine

Edward Burton, MD, DPhil

Study Section
- Ad Hoc member of NIH ZES1 LWJ-K ® study section March 2014

Neil Busis, MD

Advisory Committees
- Department of Neurology
  - Chair, Value-Based Reimbursement Committee
  - Director, Neurodiagnostic Laboratory, UPMC Shadyside
  - Chief, Section of Neurology, Division of Medicine, UPMC Shadyside
  - Executive Committee, UPP Department of Neurology and Department of Neurology
  - Neurology Medical Home Project, UPP Department of Neurology and UPMC Health Plan
  - UPMC eRecord Physician Advisory Council, University of Pittsburgh Medical Center
  - Transitional Year Coordinating Committee, UPMC Shadyside
  - Ethics Committee, UPMC Presbyterian, Shadyside
  - Total Quality and Patient Safety Committee, UPMC Presbyterian, Shadyside

Guodong Cao, PhD

Study Sections
- American Heart Association study section – Brain3/stroke Basic Science
Jun Chen, MD

Study Sections
- Ad hoc, NIH/NINDS Special Emphasis Review Panel
- Ad hoc, NIH/NINDS Program Project Special Review Panels
- Ad hoc, VA Merit Review

Advisory Committees
- Member, 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
- Steering Committee, National Heart Association Stroke Consul

Paula R. Clemens, MD

Study Sections
- Muscular Dystrophy Association Medical Advisory Committee
- VA VISN 4 Competitive Pilot Project Fund (CPPF) grant review

Advisory Committees
- External
- Member, Scientific Advisory Committee, NIH-sponsored National Registry for Myotonic Dystrophy and Facioscapulohumeral Muscular Dystrophy Patients and Family Members
- Chair, CINRG Publications Committee
- Medical Director, Cooperative International Neuromuscular Research Group (CINRG)
- Publications Committee; Member, Executive Committee; Medical Director
- Member, External Training Committee for the Ohio State University Muscle Group Training Program
- Consultant, Reveragen
- Speaker’s Bureau, Genzyme
- American Academy of Neurology Muscular Dystrophy Measure Work Group
- Steering Committee member, Update of DMD Care Considerations, The Rare Disorders and Health Outcomes Team (RDHO) in the National Center on Birth Defects and Developmental Disabilities (NCBDDDD), Centers for Disease Control (CDC)
- Member, Sarepta Advisory Board
- Member, Scientific Advisory Board for U01: Development of Novel Upper Extremity Outcome Measures Using 3D-Vision Technology; PI: Jay Han, University of California Davis

University of Pittsburgh School of Medicine
- Member, Biochemistry and Molecular Genetics Graduate Training Program
- Member, MSTP and PSTP Student Advisory Committee, University of Pittsburgh

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
John Doyle, MD

Advisory Committees
Chairman, Curriculum Committee, University of Pittsburgh Department of Neurology

Jan Drappatz, MD

Study Section
Neuro-Oncology Section
Alliance for Clinical Trials in Oncology
Development of Neuro-Oncology Pathways for high grade Glioma patients at UPMC

Advisory Committee
University of Pittsburgh
Committee Member, Neuro-Oncology Task Force, University of Pittsburgh
Internal Review Board, University of Pittsburgh
Data Safety Management Committee, University of Pittsburgh
Institutional Review Board

Jeffrey Esper, DO, MS (Med Ed)

Advisory Committee
AOA Curriculum Self Study Committee – Lake Erie College of Osteopathic Medicine
Committee on Medicine-Neurology, Bureau of Osteopathic Medicine and Surgery for POMA

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
REiNS (Response evaluation in neurofibromatosis and schwannomatosis) PRO Committee memeber

Gena Ghearing, MD

Advisory Committees
Clinical Neurophysiology Fellowship Committee
Neurology Residency Selection Committee
Residency Curriculum Committee
Clinical Competency Committee
Medical Student Curriculum Committee
Women in Neurology, University of Pittsburgh
Neurocritical Care Fellowship Selection Committee
American Clinical Neurophysiology Society Resident and Fellow Education

Steven H. Graham, MD, PhD

Study Sections
NIH CSR Brain Injury and Neurovascular Pathology Review Committee

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Advisory Committees

University of Pittsburgh School of Medicine
- Chair, Promotions Committee, Department of Neurology
- Executive Committee, Neurology Department
- Center for Military Medicine, Advisory Board
- Internal Advisory Committee, NINDS P01 “Mitochondrial Proteins in Parkinson’s Disease

Department of Veterans Affairs
- Chair, Stroke Committee, VA Pittsburgh Healthcare System
- Dementia Committee, VA Pittsburgh Healthcare System
- VA Pittsburgh Healthcare System, Medical Executive Board
- Advisory Board, VA Center for Health Equity Research and Promotion
- GRECC Director’s Association
- VA VISN 4 Research Roundtable
- Research and Development, Scientific Review Committee, VA Pittsburgh Healthcare System

Erica Grazioli, DO

Advisory Committees
- Clinical Advisory Committee, National MS Society, Allegheny Chapter

J. Timothy Greenamyre, MD, PhD

Study Sections
- Chair, NOMD Study Section

Advisory Boards
- National Advisory Boards
  - Member, Scientific Advisory Board, Parkinson’s Action Network
  - Member, Scientific Advisory Board, Cure Parkinson’s Foundation
  - Member, Scientific Advisory Board, Parkinson’s Disease Foundation
  - Executive Advisory Committee, Parkinson’s Disease Foundation
  - Member, Advisory Board, C. Mondino Institute of Neurology, Pavia, Italy
  - Member, Scientific Advisory Board, Michael J. Fox Foundation
- Member, NOMD Study Section
- Member, Executive SAB, Michael J. Fox Foundation

University of Pittsburgh
- School of Medicine MSTP Steering Committee
- School of Medicine Committee for Tenured Faculty Promotions and Appointments (TFPA)
- School of Medicine Health Sciences Research Advisory Committee
- Department of Neurology, Executive Committee
- Department of Neurology, Promotions Committee
- Department of Neurology, Recruitment Committee

Clinical Trials
- Steering Committee, “A Multi-Center, Double Blind, Randomized, Parallel Group, Placebo-Controlled Trial of Ethyl-EPA in Subjects with Mild to Moderate Huntington’s Disease (TREND-HD)

Max Hammer, MD

Advisory Committees
- Member, Vascular Neurology Residency Program Interview Committee, Department of Neurology
- Member, Residency Task Force Committee, Department of Neurology
- Member, Professional Practice Evaluation Committee, Mercy Hospital
Member, Telestroke Executive Council
Member, Stroke Task Force Committee
Director, UPP Neurology Inpatient Services
Director of Stroke Services, UPMC Mercy Hospital and Shadyside Hospital
Director of Neurosonology Laboratory, Department of Neurology

Teresa Hastings, PhD

Study Sections
CMRF grant review committee, April 2014

Advisory Committees
University of Pittsburgh
  MSTP Steering Committee
  MSTP/CNUP Admissions/Recruitment Committees
  CNUP, Graduate Student Recruitment Activities
  Seed Money Program Committee PIND
  CMRF Standing Review Committee
  Faculty Recruiting – Department of Neurology
  Promotions Committee - Department of Neurology
  Tenure Stream Review Committee - Department of Neurology
  Steering Committee, NIH/NIMH Institutional Predoctoral Training Grant
  Executive Committee for PIND

Rock Heyman, MD

Advisory Committees
National Committees
  National Multiple Sclerosis Society
    Council of Clinical Advisory Chairman
    Medical Advisory Board, Executive Committee
    Task Force Regarding Comprehensive Care Center Affiliations
  Consortium of Multiple Sclerosis Centers
    Education Committee – Chairman
    Abstract Review Group - Chairman
Regional Committees
  National Multiple Sclerosis Society
    Allegheny District Chapter Board of Trustees, executive committee
    Chairman, Regional Clinical Advisory Committee
    Regional Research Advocate
University and School of Medicine Committees
  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
Ashutosh Jadhav, MD, PhD

Advisory Committees
Chairman, Vascular Neurology Fellowship Clinical Competency Committee
Member, University of Pittsburgh Neurology Residency Curriculum Committee
Member, Neurovascular & Neurocritical Care Conference Planning Committee

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

Tudor Jovin, MD

Study Sections & Advisory Committees
Board of Directors member, American Society of Neuroimaging
Executive Committee, IMS 3
Executive Committee RETRIEVE Trail
Executive Committee and Project Work Group Leader, American Academy of Neurology, Interventional
   Neurology section
   Member, SWIFT PRIME, Steering Committee
   Member, ESCAPE, Steering Committee
   Member, MR RESCUE, Steering Committee
   Member, Covidien Vascular, Global Advisory Board
   Member, Solitaire Flow Restoration in Acute Stroke Trial, Steering Committee

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, Department of Neurology Residency Curriculum Committee
   Member, Neurology Clerkship Medical Student Curriculum Committee
   Member, Department of Neurology Compensation Committee
   Member, Neurology Value-Based Reimbursement Committee
Daniel Kinem, DO

Advisory Committees
University of Pittsburgh Medical Center Hamot
    Member, Stroke Process Committee
    Member, Ethics Committee
Health South Rehabilitation Hospital Erie
    Member, Executive Committee

Laurie Knepper, MD

Advisory Committees
    National
        American Board of Psychiatry and Neurology Examiner, Part II Examination
    University of Pittsburgh and Medical School
        Medical Student Curriculum Committee, Department of Neurology
        Co-Director, Neurology Medical Student Clerkship
        Women in Neurology Core Group, Department of Neurology, University of Pittsburgh
        Curriculum Committee, University of Pittsburgh School of Medicine
        3rd/4th year Retention Committee, University of Pittsburgh School of Medicine
        Promotions Committee, University of Pittsburgh School of Medicine

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, International Myositis Assessment and Clinical Studies Group (IMACS)
        Member, American ALS Research Group
    University of Pittsburgh Physicians
        Member, Epicare Oversight Committee, Neurology Department
        Member, Incentive Committee, Neurology Department
        Member, Patient Access Committee, Neurology Department
        Member, Risk Management Review Committee, Neurology Department
    University of Pittsburgh School of Medicine
        Member, Promotions Committee, Neurology Department
        Member, Executive Committee, Neurology Department

Erek Lam, MD

Advisory Committees
    Value Based Reimbursement Committee, UPMC
    Stroke Certification Physician Liaison, UPMC Passavant

Frank Lieberman, MD

Advisory Committees
    Scientific Advisory Borads: Roche Pharmaceuticals, Novacure
    Vice Chair, IRB (Oncology/Neuroscience)
Member, Clinical Trials Development for the National Neurofibromatosis Foundation
Member, Medical Advisory Board, International Chordoma Foundation
University of Pittsburgh School of Medicine
  Member, Bioethics Committee, UPMC Shadyside
  Member, Protocol Initiation Committee, Scientific Review Committee (SRC) for Neuro-Radiology,
  Member, Institution Review Board (IRB)
  Member, Oncology Quality Improvement Council, University of Pittsburgh Cancer Institute

Oscar Lopez, MD

Study Sections
  NIH, National Institute of Neurological Disorders and Stroke Special Emphasis Panel: ZNS1-SRB-G(68)

Advisory Committees
  University of Pittsburgh School of Medicine
    Department of Neurology Scientific Committee
    Department of Psychiatry Scientific Committee
    UPPA Credentialing Committee
  Lewy Body Dementia Association, Scientific Advisory Committee
  Working Group for the American Academy of Neurology Guidelines for the Diagnosis of
    Mild Cognitive Impairment
  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
  Cardiovascular Health Study Publications & Presentations Committee. National Heart, Lung and Blood
    Institute (NHLBI).

Angela Lu, MD

Advisory Committee
  Medical Student (Neurology) Curriculum Revision Committee

Eric McDade, DO

Advisory Committees
  Therapeutic Trial Unit – Dominantly Inherited Alzheimer Network
    Associate Director, Clinical Core, Alzheimer Disease Research Center, University of Pittsburgh
  Steering Committee Member – Dominantly Inherited Alzheimer Network
  American Academy of Neurology Cognitive Neurology Subcommittee

Galen Mitchell, MD

Advisory Committees
  University of Pittsburgh School of Medicine
    Director of Medical Student Education, Department of Neurology
    Co-Director, 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
    Member, Curriculum Committee, UPMC
Bradley Molyneaux, MD, PhD

Advisory Committees
Critical Care Medicine Fellowship selection interviews, University of Pittsburgh
Stroke Fellowship selection interviews, University of Pittsburgh Department of Neurology

Jullie Pan, MD, PhD

Study Sections
NIH CSR Chartered member, Medical Imaging Study Section 2012-2016

Lori Shutter, MD, FCCM, FNCS

Study Section
NIH SBIR Review Panel

Advisory Committee Membership
University of Pittsburgh Medical Center: Hospital
GME Committee
Special Institutional Education Programs Committee (SIEP)
University of Pittsburgh Medical Center: Department
CCM Fellowship Program Directors Committee
CCM Education Committee
Safer Symposium Annual Program Committee
Neurology Executive Committee, UPMC
Neurology Residency Curriculum Committee
Neurology Epilepsy Task Force
Internal Medicine Neurology Rotation Task Force
UPSOM Non-Tenured Faculty Promotions nad Appointments Committee

Stuart Silverman, MS, MD, FAAN

Advisory Committee Membership
Medical Director, Multiple Sclerosis Service Society (MSSS) Tri-State Region
Director, MS Service Society Tristate
Member MS Consortium Centers

Amanda Smith, PhD

Study Section and Advisory Committee Memberships
Chronic Dysfunction and Integrative Neurodegeneration
VA IACUC Member
VA IACUC Chair
VA Research and Development Committee

Beth Snitz, PhD

Study Section and Advisory Committee Memberships
Reviewer, Western Psychiatric Institute and Clinic Research Committee
Ruth Anne Stetler, PhD
Curriculum Committee, Pittsburgh Public Schools

Dandan Sun, MD, PhD

Study Sections
- Ad Hoc Reviewer of NIH Study Section NOMD
- Ad Hoc Reviewer of NIH Study Section CMBG
- Ad Hoc Reviewer of National Science Foundation grants

Advisory Committees
- Chair of American Heart Association Study Group Brain 3
- American Neurological Surgery Society Resident Research Fellowship Review Committee (Regular Member)

Viktoria Totoraitis, MD

Advisory Committees
- Neurovascular/Neurocritical Care Conference, Planning Committee
- Vascular Neurology Fellowship Committee, UPMC
- Women in Neurology (WIN), UPMC

Anne Van Cott, MD

Advisory Committees
- National
  - Member of VA/DoD Quality Indicators for Epilepsy Treatment in the VA (QUIET-VA) Expert Panel
- University and Medical School
  - Neurology Medical Student Curriculum Committee
  - Neurology Research Review Committee
  - ACGME Quality Assurance Committee
- VA Professional Committees
  - VA Epilepsy Consortium
  - Treatment In Geriatric Epilepsy Research (TIGER) VA Project
  - VAPH Medical and Surgical Clinic Expansion Committee
  - VAPH Clinical Systems Improvement Task Committee
- VA Research Committee
  - Member of VA Southeast Epilepsy Center of Excellence Steering
Local
- Professional Advisory Board of the Epilepsy Foundation of Western/Central PA, Member

Lawrence Wechsler, MD

Advisory Committees
- National
  - Chair, Telemedicine Committee, American Stroke Association
  - Chair, American Society of Neuroimaging Foundation Board
  - Chair, Neuroimaging Section American Academy of Neurology
  - Chair, American Academy of Neurology, Stroke Systems Work Group
  - Chair, American Heart Association Telemedicine Committee on Stroke
- Member, DSMB, DIAS 3/4
Member, American Stroke Association Leadership Committee
Member, Board of Directors, American Society of Neuroimaging
Member, Scientific Sessions Program Committee, American Stroke Association
Member, Stroke Episode of Care Work Group, American Academy of Neurology
Member, Telemedicine Work Group, American Academy of Neurology
Member, Neurosonology Committee, American Society of Neuroimaging
Member, MRI Examination Committee, American Society of Neuroimaging
Member, Practice Committee, American Academy of Neurology
Member, McKinney Award Committee, American Society of Neuroimaging
Steering Committee, CLOSURE Trial
Executive Committee, StrokeNet Trial
Steering Committee, StrokeNet Trial

University of Pittsburgh
Vice President for Telehealth, Physician Services Division, UPMC
Member, Department of Neurology Executive Committee
Member, Department of Neurology Promotions Committee

University of Pittsburgh Physicians
Member, UPP Clinical Operations Committee

Islam Zaydan, MD

Study Section
High definition Fiber Tractography in Optic Neuritis and Clinically Isolated Syndrome

Michael J. Zigmond, PhD

Advisory Committees
National Advisory Boards:
Chair, Scientific Advisory Committee, Universidad Central del Caribe
Chair, Columbia University Udall Center Research Program on Parkinson's disease: Pathogenesis of Dopamine Neuron Death (Robert Burke, PI)
Scientific Advisory Board, The Michael J. Fox Foundation for Parkinson’s
Advisory Committee, COBRE, University of Puerto Rico
Scientific Advisory Committee, Keystone Symposia
American Association for the Advancement of Science
AAAS Committee on Sections member
Society for Neuroscience
International Affairs Committee
US-Canadian Committee to IBRO

Saša Živković, MD

Advisory Committees
National
AANEM Quality Improvement Committee
University and Medical School
University of Pittsburgh Senate, Bylaws and Procedures Committee
Risk Management Review Committee
Interview Committee
Research Grants, Funding and Collaborations
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**Federal Grants: Public Health Service Training Grants**

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$95,944.18 $7,675.50

$6,829,048.10 $2,809,806.21

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### Other Federal Grants

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<td>Towards Assessing and Mitigating the Toxicity of Metal Nanoparticles</td>
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<td>Building the Capacity of Academic Institutions and Professional Societies to Implement Ethics Instruction on a Large Scale</td>
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### Society and Foundation Funding

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<td>Parkinson's Disease Foundation</td>
<td>Evaluating the role of Mitochondrial dynamics in Parkinsons Disease in an in vivo vertebrate model: Real-time live imaging of Mitochondrial dynamics in dopamine neurons in whole zebra fish</td>
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<td>DiMaio</td>
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<td>Cannabinoids Therapeutic potential in the prevention of chronic epilepsy</td>
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<td>PET, Posturographic and Clinical Marker of Early PD</td>
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<td>LRRK2 Transgenic rat Parkinsons Disease Model Characterization</td>
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<td>Development of a Noninvasive Method for the Early Detection of Vascular Amyloidosis</td>
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<td>Defining non-motor phenotypes in de novo Parkinson Disease and novel strategies for diagnosis</td>
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<td>Neuronal dysfunction in AD Measured with MEG</td>
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<td>Utility of intravenous lacosamide compared with fosphenytoin in the treatment of patients with frequent nonconvulsive seizures</td>
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<td>Clinical trial of Coenzyme Q10 and Prednisone in Duchenne M.D.</td>
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<td>Parental Knowledge and Attitudes towards newborn screening for Muscular Dystrophy and Spinal Muscular Atrophy</td>
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<td>Alzheimers Disease Neuroimaging Initiative II - ADNI-II</td>
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<td>ENROLL-HD: A Prospective Registry Study in a Global Huntington's Disease Cohort A CHDI Foundation Project</td>
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<td>Endovascular treatment for small core and anterior circulation proximal occlusion with emphasis on minimizing CT to recanalization times</td>
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## Faculty Research Collaborations

### Arun Antony, MD

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<tr>
<td>Mark Richardson, MD</td>
<td>University of Pittsburgh Department of Neurological Surgery</td>
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<td>Jullie Pan, MD, PhD</td>
<td>University of Pittsburgh Department of Neurology</td>
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### Sarah Berman, MD, PhD

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<tr>
<td>Edward Burton, MD, Phil</td>
<td>University of Pittsburgh Department of Neurology</td>
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<tr>
<td>J. Timothy Greenamyre, MD, PhD</td>
<td>University of Pittsburgh Department of Neurology</td>
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<tr>
<td>Kenneth Hallows, MD, PhD</td>
<td>University of Pittsburgh, Medicine and Cell Biology &amp; Physiology</td>
</tr>
<tr>
<td>Alexander Sorkin, PhD</td>
<td>University of Pittsburgh, Department of Cell Biology</td>
</tr>
<tr>
<td>Michael Steketee, PhD</td>
<td>University of Pittsburgh, Department of Ophthalmology</td>
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### Edward Burton, MD, DPhil, FRCP

<table>
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<tr>
<td>J. T. Greenamyre, MD, PhD</td>
<td>University of Pittsburgh Department of Neurology and PIND</td>
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<tr>
<td>Sarah Berman, MD, PhD</td>
<td>University of Pittsburgh Department of Neurology and PIND</td>
</tr>
<tr>
<td>Andreas Vogt, PhD</td>
<td>University of Pittsburgh Department of Systems Biology and Drug Discovery Institute</td>
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<tr>
<td>Goetz Vesper, PhD</td>
<td>University of Pittsburgh Department of Chemical Engineering</td>
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<tr>
<td>Oliver Bandmann, MD, PhD</td>
<td>University of Sheffield, UK</td>
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<tr>
<td>Thomas Becker, PhD</td>
<td>University of Edinburgh, UK</td>
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<tr>
<td>Harry Burgess, PhD</td>
<td>NIH, Bethesda, MD</td>
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<tr>
<td>Kari Espolin Fladmark, PhD</td>
<td>University of Bergan, Norway</td>
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### Guodong Cao, PhD

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<td>Xiaoming Hu, MD</td>
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<tr>
<td>Rehana Leek</td>
<td>Duquesne University</td>
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<tr>
<td>Timothy J. Greenamyre</td>
<td>University of Pittsburgh Department of Neurology</td>
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<tr>
<td>Yanqin Gao</td>
<td>Fudan University National Key Laboratory of Medical Neurobiology, China</td>
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<tr>
<td>Jun Chen, MD</td>
<td>University of Pittsburgh Department of Neurology</td>
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### Jun Chen, MD

<table>
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<tr>
<td>Steven Graham, MD, PhD</td>
<td>University of Pittsburgh Department of Neurology</td>
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### Paula Clemens, MD

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<td>CINRG investigators</td>
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Cyrus Raji  
Paul Thompson  
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Merce Boada i Rovira  
Lenore Launer  

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<td>R. Anne Stetler, PhD</td>
<td>University of Pittsburgh Department of Neurology</td>
</tr>
<tr>
<td>Rehana K. Leak, PhD</td>
<td>Duquesne University School of Pharmacy</td>
</tr>
<tr>
<td>Baoliang Sun, MD, PhD</td>
<td>Tanshan Medical University</td>
</tr>
<tr>
<td>Xiaoming Hu, MD, PhD</td>
<td>University of Pittsburgh Department of Neurology</td>
</tr>
<tr>
<td>Michael Zigmond, PhD</td>
<td>University of Pittsburgh Department of Psychiatry</td>
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<tr>
<td>Judy Cameron, PhD</td>
<td>University of Pittsburgh Department of Neurology</td>
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<tr>
<td>Barry Hoffer, PhD</td>
<td>Case Western Reserve University</td>
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<tr>
<td>Jun Chen, MD</td>
<td>University of Pittsburgh Department of Neurology</td>
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<tr>
<td>Jan Cavanaugh, PhD</td>
<td>Duquesne University</td>
</tr>
<tr>
<td>Beth Fischer, PhD</td>
<td>University of Pittsburgh Department of Family Medicine</td>
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<tr>
<td>Adrian Michael, PhD</td>
<td>University of Pittsburgh Department of Chemistry</td>
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<tr>
<td>Karoly Mirnics, MD</td>
<td>Vanderbilt University</td>
</tr>
<tr>
<td>Richard Smeyne, PhD</td>
<td>St. Jude Children’s Hospital</td>
</tr>
<tr>
<td>Sasa Zivkovic, MD --</td>
<td>University of Pittsburgh SOM Department of Rheumatology</td>
</tr>
<tr>
<td>Thomas Medsger, MD</td>
<td>University of Pittsburgh Thomas Starzl Transplantation Institute</td>
</tr>
<tr>
<td>Guilherme Costa, MD</td>
<td>Pittsburgh Cancer Institute</td>
</tr>
<tr>
<td>Suzanne Lentzsch, MD PhD</td>
<td>University of Pittsburgh Graduate School of Public Health</td>
</tr>
<tr>
<td>Elsa Strotmeyer, PhD</td>
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</tr>
</tbody>
</table>
Faculty Honors, Editorial Service, and Professional Affiliations

Arun Antony, MD

**Honors**
Chief Fellow, Division of Epilepsy, Cleveland Clinic 2012-2013

**Membership in Professional and Scientific Societies**
- American Academy of Neurology
- American Epilepsy Society
- Society for Neuroscience

Anto Bagic, MD, PhD

**Honors**
Coordinator, American Epilepsy Society (AES) MEG SIG
President, American Clinical MEG Society (ACMEGS)

**Editorial Service**
Ad hoc reviewer
- *American Journal of Neuroradiology*
- *Brain Research*
- *Case Reports in Neurology*
- *Clinical Neurophysiology*
- *Croatian Medical Journal*
- *Epilepsia*
- *Epilepsy & Behavior*
- *Epilepsy Research*
- *Journal of Neuroimaging*
- *Journal of Clinical Neurophysiology*
- *Neurology*
- *Seizure*

**Membership in Professional and Scientific Societies**
National and International
- American Clinical MEG Society (ACMEGS), President, Board of Directors, Founding member
- American Clinical Neurophysiology Society (ACNS), Coordinator, MEG Special Interest Group
- American Clinical Neurophysiology Society (ACNS), Annual Meeting Program Committee
- American Epilepsy Society (AES)
- International Society for the Advancement of Clinical MEG (ISACM) Co-Chair, Credentialing Committee
- International Society for the Advancement of Clinical MEG (ISACM) Member, Reporting Committee
- National Association of Epilepsy Centers, Member, Committee for Standards and EMU Safety Group
- Croatian MED Initiative, Chair
- University and Medical School
- Clinical Neurophysiology Fellowship Committee, Department of Neurology
- Clinical Productivity Incentive Plan Committee, Department of Neurology
- Clerkship Committee, Department of Neurology
- PUH Epilepsy Task Force
- Neurology Value-Based Reimbursement Committee, Department of Neurology

Maria Baldwin, MD

**Editorial Service**
Ad hoc reviewer
- *Journal of Clinical Neurophysiology*

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

**Sarah Berman, MD, PhD**

**Editorial Service**
- Ad hoc reviewer
  - Autophagy
  - Cell Death and Differentiation
  - Journal of Neurochemistry
  - Neurobiology of Disease

**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

**Edward Burton, MD, DPhil, FRCP**

**Honors**
- 2013 CurePSP, Appointed to scientific advisory board
- 2014 Best Doctors.com, Elected for inclusion in Best Doctors in America 2013-2014
- 2014 Pittsburgh Magazine, Listed as one of 19 Top Doctors in the region for neurology
- 2014 University of Pittsburgh, Medical Student Research Mentoring Merit Award

**Editorial Service**
- Ad hoc reviewer
  - Brain
  - Developmental Biology
  - Journal of Biological Chemistry
  - Neurobiology of Disease
  - PLOS One
  - Science
  - The Journal of Neuroscience
  - Reviewing Editor starting in 2015
    - The Journal of Biological Chemistry

**Membership in Professional and Scientific Societies**
- Association of British Neurologists
- Movement Disorders Society
- Royal College of Physicians of London
- The Society for Neurosciences

**Neil Buis, MD**

**Honors**
- 2014 Best Doctors, Neurology in Pittsburgh Magazine

**Editorial Service**
- Editor, Medpedia (www:URL:http://www.medpedia.com/)
- Editorial Board, Neurology Today
- Ad hoc reviewer
  - Archives of Neurology
  - Clinical Neurophysiology
  - Medscape General Medicine
  - Muscle & Nerve
Memberships in Professional and Scientific Societies
ALLEGHENY COUNTY MEDICAL SOCIETY (PA)
AMERICAN ACADEMY OF NEUROLOGY
AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE
AMERICAN ASSOCIATION OF NEUROMUSCULAR & ELECTRODIAGNOSTIC MEDICINE
AMERICAN CLINICAL NEUROPHYSIOLOGY SOCIETY
AMERICAN COLLEGE OF PHYSICIANS / AMERICAN SOCIETY OF INTERNAL MEDICINE
AMERICAN MEDICAL ASSOCIATION
AMERICAN MEDICAL INFORMATICS ASSOCIATION
NEUROCITRICAL CARE SOCIETY
NEUROHOSPITALIST SOCIETY
PA MEDICAL SOCIETY
PA NEUROLOGICAL SOCIETY
STROKE COUNCIL OF THE AMERICAN HEART ASSOCIATION
SOCIETY FOR NEUROSCIENCE
THE INTERNET SOCIETY
WORLD MUSCLE SOCIETY

Guodong Cao, PhD

Honors
VISITING PROFESSOR, FUDAN UNIVERSITY, SHANGHAI, CHINA
VISITING PROFESSOR, XUEWU HOSPITAL, BEIJING CAPITAL UNIVERSITY OF HEALTH SCIENCES, CHINA
VISITING PROFESSOR, BAOTOU MEDICAL COLLEGE, BAOTOU, CHINA

Editorial Service
Editorial Boards
ASIAN JOURNAL OF NEUROSCIENCE
BRAIN DISORDER AND THERAPY
INTERNATIONAL SCHOLARLY RESEARCH NETWORK STROKE
JOURNAL OF CEREBRAL BLOOD FLOW AND METABOLISM
Reviewer Committee, Neural Regeneration Research
Ad hoc reviewer
ANIMALS OF NEUROLOGY
BRAIN RESEARCH
CELL DEATH AND DIFFERENTIATION
CNS NEUROSCIENCE AND THERAPEUTICS
CRITICAL CARE MEDICINE
DRUG DELIVERY LETTERS
EUROPEAN JOURNAL OF PHARMACOLOGY
JOURNAL OF CEREBRAL BLOOD FLOW AND METABOLISM
JOURNAL OF NEUROSCIENCE
JOURNAL OF NEUROCHEMISTRY
JOURNAL OF NEUROLOGICAL SCIENCE
MOLECULAR BIOLOGY REPORTS
NEURAL REGENERATION RESEARCH

NEUROBIOLOGY OF DISEASE
NEUROSCIENCE LETTERS
NEUROCHEMICAL INTERNATIONAL
NEUROCHEMICAL RESEARCH
NEUROPHARMACOLOGY
NEUROCHEMISTRY INTERNATIONAL
NEUROSCIENCE
NEUROTOXICITY RESEARCH
PEDIATRIC RESEARCH
PLOS ONE
PROGRESS IN NEUROBIOLOGY
STEM CELL
THE OPEN DRUG DISCOVERY
TRANSLATIONAL STROKE RESEARCH
Membership in Professional and Scientific Societies
- American Heart Association
- International Symposium on Cerebral Blood Flow & Metabolism
- Society for Neuroscience

Jun Chen, MD

Honors -
- VA Career Scientist Award 2011-2016
- RK Mellon Endowed Chair for Cerebrovascular Disease Research, University of Pittsburgh 2008-

Editorial Service

Editorial Board Member
- Associate Editor, Journal of Neuroscience
- Associate Editor, Translational Stroke Research
- Associate Editor, CNS Neuroscience & Therapeutics
- CNS Neurological Disorders – Drug Targets
- CNS Neurological Disorders – Clinical Drugs
- Journal of Cerebral Blood Flow and Metabolism
- Neurobiology of Disease
- Neurotherapeutics
- Progress in Neurobiology
- Stroke

Guest Editor – Special Issue “Neuroprotection against stroke and CNS injury: new mechanisms, targets and Controversies” in CNS Neurological Disorders-Drug Targets

Guest Editor – Special Issue “21st Century Forum of Translational Neuroscience Research” in Progress in Neurobiology

Ad hoc reviewer
- American Journal of Pathology
- Annals of Neurology
- Bio Techniques
- Brain Research
- Cell Death and Differentiation
- Circulation
- Circulation Research
- 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

Membership in Professional and Scientific Societies -
- American Heart Association Stroke Counsel
- American Institute of Biological Sciences
- Asian-Pacific Society of Neurochemistry
- International Society for Cerebral Blood Flow and Metabolism
- International Society of Neurochemistry
- Society for Neuroscience
**Professional Affiliations**
Treasurer, *International Society of Cerebral Blood Flow & Metabolism*
*Stroke Progress Review Group, NINDS/NIH*

**Paula Clemens, MD**

**Editorial Service**
Ad hoc reviewer

- *Annals of Neurology*
- *Gene Therapy*
- *Journal of Genetic Counseling*
- *Lancet Neurology*
- *Muscle & Nerve*
- *PLOS One*
- *Science Translational Medicine*

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

**James DeMatteis, MD**

**Membership in Professional and Scientific Societies**
American Academy of Neurology, active member, fellow
American Medical Association
American Society of Neuro Rehabilitation
Movement Disorder Society, active

**Joseph Diamond, MD**

**Membership in Professional and Scientific Societies**
American Academy of Neurology
American Academy of Sleep Medicine

**John Doyle, MD**

**Membership in Professional and Scientific Societies**
American Academy of Neurology

**Jan Drappatz, MD --**

**Honors**
Best Doctors, 2014
Best of Pittsburgh, 2014
Castle Connolly Top Doctors, 2014
Compassionate Caregiver Award, Vitals, 2014
Above and Beyond Award, UPMC, 2014

**Editorial Service**
Ad Hoc Reviewer

- *Neuro-Oncology*
- *Journal of Clinical Oncology*
- *Journal of Neuro-Oncology*
Grant Reviewer  
- Neurological Foundation of New Zealand  
- Qatar National Research Fund (QNRF)  
- Samantha Dickson Brain Tumour Trust, UK

Membership in Professional and Scientific Societies  
- Alliance for Clinical Trials in Oncology  
- American Academy of Neurology  
- American Association for Cancer Research  
- American Society of Clinical Oncology  
- International Primary Central Nervous System Lymphoma Collaborative Group  
- Society for Neuro-Oncology

Ahmed El-Dokla, MD

Editorial Service  
- Section Editor - Journal of Clinical Neuromuscular Disease

Membership in Professional and Scientific Societies  
- American Academy of Neurology

Jeffrey Esper, DO, MS, (Med Ed)

Membership in Professional and Scientific Societies  
- American Association of Neuromuscular and Electrodiagnostic Medicine, Fellow/Diplomat  
- American College of Osteopathic Neurology and Psychiatry  
- American Osteopathic Association  
- Pennsylvania Osteopathic Medical Association

Joanna Fong, MD

Membership in Professional and Scientific Societies  
- American Academy of Neurology  
- American Academy of Sleep Medicine  
- American Epilepsy Society

Kathy Gardner, MD

Editorial Service  
- Ad hoc Reviewer - Cephalalgia

Membership in Professional and Scientific Societies  
- American Academy of Neurology  
- American Headache Society  
- American Society of Human Genetics  
- International Headache Society  
- Society of Neuroscience

Gena Ghearing, MD

Editorial Service  
- Ad hoc reviewer
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
Pennsylvania Medical Society

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
Grant Review -
National Institute of Health, Center for Scientific Review, BINP Study Section

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

Erica Grazioli, DO

Honors
Speaker, National Multiple Sclerosis Society, Allegheny Chapter, Annual Meeting

Membership in Professional and Scientific Societies
American College of Osteopathic Neurologists and Psychiatrists
American Academy of Neurology
American Academy of Sleep Medicine
American Osteopathic Association
Consortium of Multiple Sclerosis Centers
J. Timothy Greenamyre, MD, PhD

Honors
Love Family Professor, University of Pittsburgh
Listed, Best Doctors in America

Editorial Service
Editor-in-Chief, Neurobiology of Disease
Editor-in-Chief, Medlink Neurology (www.medlink.com) online clinical resource
Consulting Editor for Journal of Clinical Investigation
Advisory Borad, 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
American Journal of Human Genetics
American Journal of Physiology
Annals of Neurology
Archives of Neurology
Behavioral Pharmacology
Biochemical Pharmacology
Biochim Biophys Acta
Biological Psychiatry
Brain
Brain Pathology
Brain, Behavior and Immunity
Brain Research
Cell
Cell Metabolism
Clinical Neuropharmacology
EMBO Molecular Medicine
Endocrinology
Epilepsy Research
European Journal of Neuroscience
Experimental Brain Research
Experimental Neurology
Free Radical Biology & Medicine
Human Molecular Genetics
Journal of Alzheimer’s Disease
Journal of Biological Chemistry
Journal of Cell Science
Journal of Cerebral Blood Flow and Metabolism
Journal of Clinical Investigation
Journal of Comparative Neurology
Journal of Experimental Medicine
Journal of Neural Transmission
Journal of Neurochemistry
Nature Reviews Neuroscience

Journal of Neuroscience
Journal of Neuroscience Research
Journal of Neurophysiology
Journal of the Neurological Sciences
J. Pharmacology and Experimental Therapeutics
The Lancet
Life Sciences
Molecular and Chemical Neuropathology
Molecular Pharmacology
Molecular Therapeutics
Movement Disorders
Nature
Nature Medicine
Nature Neuroscience
Neurobiology of Aging
Neurobiology of Disease
Neurodegeneration
Neurology
Neurorapharmacology
Neuroscience
Neuroscience Letters
Neuro Toxicology
Parkinson’s Disease
Physiology & Behavior
Psychobiology
Science
Science Translational Medicine
Trends in Molecular Medicine
Trends in Pharmacological Sciences
Ad hoc Grant Reviews
  Alzheimer’s Association
  Medical Research Council of Canada
  Hereditary Disease Foundation
  Huntington’s Disease Society of America
  The Ontario Mental Health Foundation (Canada)
  Alberta Heritage Foundation for Medical Research
  U.S. Army / BioReview (NETRP-97)
  North Carolina Biotech Center Science and Technology Development Program
  Parkinson’s Disease Society, London, UK

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

Editorial Service
  Ad Hoc Reviewer
    Stroke

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

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
    Neurobiology of Disease
    Journal of Neurochemistry

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

Editorial Service
Ad hoc reviewer
International Journal of MS Care

Houman Homayoun, MD

Professional Affiliations
Member of MKSAP17 neurology Committee, American College of Physician

Editorial Service
Ad hoc Reviewer
Brain Research Bulletin
Biological Psychiatry
International Journal of Neuropsychopharmacology
Journal of Pharmacology and Experimental Therapeutics
Neurobiology of Disease

Membership in Professional and Scientific Societies
American Academy of Neurology
International Parkinson and Movement Disorder Society
Society for Neuroscience

Xiaoming Hu, MD, MS, PhD

Editorial Service
Book Editor
Springer Science & Business Media, New York 2013
Book Reviewer
CNS Neuroscience & Therapeutics and Brain Research

Membership in Professional and Scientific Societies
American Heart Association
The International Society of Cerebral Blood Flow and Metabolism

Milos Ikonomovic, MD

Editorial Service
Associate Editor - Cardiovascular Psychiatry and Neurology
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
VA Geriatric Research Education and Clinical Center (GRECC) Scientific Review
VA Healthcare Network, Competitive Pilot Project Fund review

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

Ashutosh Jadhav, MD, PhD

Honors
Faculty Teaching Award, University of Pittsburgh, Neurology

Editorial Service
Associate Editor – Society of Vascular and Interventional Neurology Newsletter
Abstract Reviewer
American Stroke Association, International Stroke Conference
Ad hoc reviewer
Journal of Neuroimaging

Membership in Professional and Scientific Societies
American Academy of Neurology
American Stroke Association
Society of Vascular and Interventional Neurology

Samay Jain, MD

Honors
Winner of Inaugural Pitt Innovation Challenge, 2014

Editorial Service
Guest Editor
Neurobiology of Disease
Ad Hoc Grant Reviews
VISN 4 Competitive Pilot Project Fund Medical Research Council
Western Psychiatric Institute and Clinic Research Committee

Editorial Board
The Neurohospitalist
Journal of the American Geriatrics Society

Ad hoc reviewer
Case Reports and Clinical Practice Review
Clinical Neurology and Neurosurgery
European Journal of Neurology
Expert Review of Neurotherapeutics

Journal of American Geriatrics Society
Journal of Pediatric Neurology
Movement Disorders
The American Journal of Managed Care
Membership in Professional and Scientific Societies
- American Academy of Neurology
- Cardiovascular Health Study
- Movement Disorders Society
- Parkinson Study Group

Tudor Jovin, MD

Editorial Service
- Member, Editorial Board, Journal of Neuroimaging
- Member, Editorial Board, Stroke
- Member, Editorial Board, Interventional Neurology
- Ad hoc reviewer
  - Annals of Neurology
  - Circulation
  - Journal of Endovascular Therapy
  - Journal of Neuroimaging
  - Journal of Neurointerventional Surgery
  - Journal of Neurology Neurosurgery and Psychiatry

Membership in Professional and Scientific Societies
- American Academy of Neurology
- American Association of Neurological Surgeons
- American Neurological Association
- American Society of Neuroimaging
- Society of Vascular and Interventional Neurology

Robert Kaniecki, MD

Editorial Service
- Assistant Editor, Headache
- Abstracts Editor, Headache

Membership in Professional and Scientific Societies
- American Academy of Neurology
- American Council for Headache Education
- American Headache Society
- International Headache Society
- National Headache Foundation

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
Simin Khavandgar, MD

Membership in Professional and Scientific Societies
American Association of Sleep Medicine
American Academy of Neurology

Daniel Kinem, DO

Honors
2013-14 Faculty Teacher of the Year – UPMC Hamot Neurology Residency Program

Membership in Professional and Scientific Societies
American Academy of Neurology
American Osteopathic Association

Laurie Knepper, MD

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

Editorial Service
Reviewer - Journal of Stroke and Cerebrovascular Diseases
Ad hoc Reviewer
Headache Journal

Membership in Professional and Scientific Societies
American Academy of Neurology
Headache subsection
Stroke subsection
American Headache Society
Headache Cooperative of New England
Pennsylvania Neurological Society

David Lacomis, MD

Honors
“America’s Top Doctors,” Castle Connolly Medical Ltd., 2014
“Best Doctors in America” (Woodward/White, Inc.), 2014
“Patients’ Choice” (MDx Medical, Inc.) 2014

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:
Muscle and Nerve

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

Membership in Professional and Scientific Societies
American Academy of Neurology
American Academy of Sleep Medicine
Mayo Clinic Alumni Association

Frank Lieberman, MD

Editorial Service
Ad hoc reviewer

Annals of Neurology
Clinical Cancer Research
Lancet

Cancer Chemotherapy and Pharmacology
Journal of Neuroimaging

Membership in Professional and Scientific Societies
American Association of Cancer Research
American Academy of Neurology – Neuro-Oncology Section
American Society of Clinical Oncology
Collaborative Ependymoma Research Network
Radiation Therapy Oncology Group-CNS Tumors Committee
Society for Neuro-Oncology

Anthony K.F. Liou, PhD

Editorial Service
Journal

Experimental Neurology
Brain Research Bulletin
Journal of Neurochemistry
CNS Neuroscience and Therapeutics

Grant
Parkinson’s Society United Kingdom

Membership in Professional and Scientific Societies
Society for Neuroscience

Hao Liu, MD, PhD

Editorial Service
Ad hoc reviewer

Brain Research
BMC Neuroscience
Journal of Neuroinflammation

Mediators of Inflammation
Neurotherapeutics
PLOS One

Membership in Professional and Scientific Societies
American Society for Biochemistry and Molecular Biology (ASBMB)
International Society for Cerebral Blood Flow and Metabolism (ISCBFM)
Society for Neurosciences (SFN)
Oscar Lopez, MD

Honors
Distinguished Alumni (2013). Universidad Nacional (National University) of La Plata, La Plata, Argentina

Editorial Service
Editorial Board, Neuropsychology Review, Associate Editor
Ad hoc reviewer
   Alzheimer’s & Dementia
   Annals of Neurology
   Biological Psychiatry
   Circulation: Cardiovascular Quality & Outcomes
   Human Brain Mapping
   International Journal of Geriatric Psychiatry
   JAMA-Neurology
   Journal of Alzheimer’s Disease
   Journal of the American Geriatrics Society
   Neurobiology of Aging
   Neurology
   The American Journal of Psychiatry

Ad Hoc Grant Reviewer
   Alzheimer’s Association, Chicago IL
   National Fund for Scientific and Technological Development (Fondo Nacional para el Desarrollo Científico y Tecnológico -FONDECYT), Santiago, Chile
   Vienna Science and Technology Fund (Wiener Wissenschafts- Forschungs- und Technologiefonds), Vienna, Austria
   U.S.-Israel Binational Science Foundation, Jerusalem, Israel
   National Agency of Research (Agence Nationale de la Récherche), Paris, France
   The German Federal Ministry for Education and Research (BMBF), Berlin, Germany

Angela Lu, MD

Membership in Professional and Scientific Societies
   American Academy of Neurology

Adnan Mahmood, DO

Membership in Professional and Scientific Societies
   American Academy of Neurology
   American Osteopathic Association

Eric McDade, DO

Editorial Service
Ad hoc reviewer
   Journal of Alzheimer Dementia
   Journal of Neurology, Neurosurgery and Psychiatry
   Neurology
   PLOS One
   The Gerontologist
Section Editor – Current Treatment Options in Neurology-Dementia sections
Grant Reviews
  Western Psychiatric Institute and Clinic Research Review Committee
  Alzheimer Association
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
  Psi Chi National Honor Society in Psychology

Barbara McManus, MD

Membership in Professional and Scientific Societies
  American Epilepsy Society

Galen Mitchell, MD

Membership in Professional and Scientific Societies
  American Academy of Neurology
  Diplomate, National Board of Medical Examiners
  Member, Government Services Committee of the American Academy of Neurology

Edward Mistler, DO

Membership in Professional and Scientific Societies
  American Academy of Neurology
  American Osteopathic Association
  Pennsylvania Medical Society

Bradley Molyneaux, MD, PhD

Editorial Service
  Ad hoc reviewer
    Journal of Neuroscience

Membership in Professional and Scientific Societies
  American Academy of Neurology
  American Heart Association
  Neurocritical Care Society
  Society for Neuroscience
  Society of Critical Care Medicine

Eric Ogren, MD

Membership in Professional and Scientific Societies
  American Academy of Neurology
Jullie Pan, MD, PhD

Editorial Service
Editorial Board - *Magnetic Resonance in Medicine*

Membership in Professional and Scientific Societies
- American Academy of Neurology
- American Epilepsy Society
- International Society for Magnetic Resonance in Medicine
- Society for Neuroscience

Alexandra Popescu, MD

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

Araya Puwanant, MD

Editorial Service
Ad hoc review
- *European Journal of Neurology*
- *European Neurology*
- *Muscle & Nerve*

Membership in Professional and Scientific Societies
- American Academy of Neurology
- American Association of Neuromuscular & Electromyography Medicine
- American Neurological Society
- Muscle Study Group

Vivek Reddy, MD

Membership in Professional and Scientific Societies
- American Academy of Neurology
- American College of Physician Professionals
- American Heart Association/American Stroke Association
- American Medical Informatics Association
- Association of Medical Directors of Information Systems

Jingzi Shang, MD, PhD

Membership in Professional and Scientific Societies
- American Academy of Neurology
- American Academy of Sleep Medicine
- Pennsylvania Medical Society

Lori Shutter, MD, FCCM

Honors
Fellow, College of Critical Care Medicine (FCCM)
Faculty of the Year; Department of Critical Care Medicine
Fellow, Neurocritical Care Society (FNCS)

**Editorial Service**

**Periodicals**

- *Critical Care Medicine*
- *Journal of Neurosurgery, Neurology and Psychiatry*
- *Journal of Critical Care*
- *Journal of Neurotrauma*
- *Neurosurgery*
- *Neurocritical Care*
- *New England Journal of Medicine*

**Membership in Professional and Scientific Societies**

- American Medical Association
- American Heart Association
  - International Stroke Conference Abstract Reviewer
- American Academy of Neurology
  - Critical Care and Emergency Neurology Section Member
- Brain Trauma Foundation
  - Guidelines Development
- National Neurotrauma Society
  - Women in Neurotrauma
- Western Neurosurgical Society
- Neurocritical Care Society (NCS)
  - Guidelines Committee
    - Coordinator, Reviews of External Guideline
    - Women in Neurocritical Care (WINCC) member
- National Institutes of Health Review Panel
- Congress of Neurological Surgeons
- American Association of Neurological Surgeons
  - Women in Neurosurgery
- Society of Critical Care Medicine
  - Neuroscience Section
    - Section Steering Committee Member-at-large
  - Research Section
  - Annual Conference Abstract Reviewer
  - Adult MCCKAP Committee
- Gold Humanism Honor Society

---

**Stuart Silverman, MS, MD, FAAN**

**Membership in Professional and Scientific Societies**

- Allegheny County Medical Society
- American Academy of Neurology
- American Society of Neuroimaging
- Pennsylvania Medical Society
- Pittsburgh Neuroscience Academy

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**Amanda Smith, PhD**

**Membership in Professional and Scientific Societies**

- Society for Neuroscience
- The Gerontological Society of America
Beth Snitz, PhD

**Honor**
NIH Research Career Development Award (K-23)

**Editorial Service**
Editorial Board Member: *Journal of the American Geriatrics Society* (JAGS)
Ad hoc reviewer
*Brain Research, Pharmacology, Biochemistry and Behavior*
*Experimental Neurology, Physiology and Behavior*

**Membership in Professional and Scientific Societies**
American Psychological Association
International Neuropsychological Society

Matthew Starr, MD

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

Ruth Anne Stetler, PhD

**Editorial Service**
Ad hoc reviewer
*Brain Research, Journal of Neurochemistry*
*Brain Research Bulletin, Journal of Neuroscience*
*CNS Neuroscience & Therapeutics, Journal of Neuroscience Research*
*CNS & Neurological Disorders-Drug Targets, Leukemia*
*International Journal of Biological Sciences, Neurochemistry International*
*Journal of Cerebral Blood Flow and Metabolism, Recent Patents on CNS Drug Discovery*

**Membership in Professional and Scientific Societies**
American Heart Association
International Society for Cerebral Blood Flow and Metabolism
Society for Neuroscience

Michelle Stevens, DO

**Membership in Professional and Scientific Societies**
American Association of Neuromuscular and Electrodagnostic Medicine
American College of Osteopathic Neurologists and Psychiatrists
American Osteopathic Association
Dandan Sun, Md, PhD

**Honors**
- Faculty Sponsor for Brackenridge Undergraduate Research Fellowship at University of Pittsburgh
- Faculty Sponsor for Chancellor’s Undergraduate Research Fellowship at University of Pittsburgh

**Editorial Service**
- Editorial Board Member
  - Frontiers in Membrane Physiology
  - International Journal of Physiology, Pathophysiology and Pharmacology
  - Translational Stroke Research
- Ad hoc reviewer – National Science Foundation grants
  - *Journal of Cerebral Blood Flow and Metabolism*
  - *Journal of Neurochemistry*
  - *Journal of Neuroscience*

**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 2013, 2014

**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

Viktoria Totoraitis, MD

**Membership in Professional and Scientific Societies**
- American Academy of Neurology

Anne Van Cott, MD

**Honors**
- Best Doctor (Neurology) 2014, Pittsburgh Magazine

**Editorial Service**
- Ad hoc reviewer
  - *Aging Health*
  - *Epilepsia*
  - *Epilepsy and Behavior*
  - *Epilepsy Research*
- *Hospital Physician Epilepsy Board Review Manual*
- *Journal of Neurology*
- *Pharmacoepidemiology and Drug Safety*
- *The American Journal of Geriatric Pharmacother*
Research
Centers for Disease Control and Prevention Special Emphasis Panel
Epilepsy Foundation of America’s Targeted Research Initiative for Seniors
VA Healthcare Network VISN 4 Competitive Pilot Project Fund (CPPF)

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

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

Lawrence Wechsler, MD

Honors
To Docs – Pittsburgh Magazine 2014

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

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

Islam Zaydan, MD

Honors
Nominated amount the Pittsburgh Best Physicians
Best Clinical Teacher ward (Neurology residents 2013)

Membership in Professional and Scientific Societies
American Academy of Neurology
North American Neuro-Ophthalmologic Society
Feng Zhang, MD

Honors

2010-2013 American Heart Association National Scientist Development Award

Editorial Services

Managing Editor, *Frontiers in Bioscience*
Ad hoc reviewer

*Brain Research*  
*Clinical Pharmacology & Biopharmaceutics*  
*CNS Neuroscience & Therapeutics*  
*Journal of Visualized Experiments*  
*Mini-review of Medical Chemistry*

*Molecular Biology Reports*  
*Neurological Research*  
*Plos One*  
*Translational Stroke Research*  
*Vascular Health and Risk Management*

Membership in Professional and Scientific Societies

American Heart Association/American Stroke Association
International Society of Cerebral Blood Flow and Metabolism
Society for Neuroscience

Michael Zigmond, PhD

Honors

Honorary Member of the Indian Academy of Neuroscience

Editorial Service

Editor-in-Chief - *Progress in Neurobiology*

*Journal of Undergraduate Neuroscience Education*  
*Science in Engineering Ethics*  
*Translational Neurodegeneration*

Membership in Professional and Scientific Societies

American Association for the Advancement of Science (Secretary, Neuroscience Section)
International Brain Research Organization
International Neuroethics Society
Sigma Xi
Society for Neuroscience
US-Canadian Society of IBRO

Saša Živković, MD

Honors


Editorial Service

Editorial consultant, ACP PIER online module “Distal Symmetric Polyneuropathy” (author J. England)
Editorial consultant, ACP PIER online module “Myasthenia Gravis” (authors R.P. Lisak, D. Sanders, M. Merriglioli)
Member, Editorial Advisory Board, *World Journal of Hepatology*
Ad hoc reviewer

Acta Neurologica Scandinavica
BMC Case Reports
Brain, Behavior and Immunity
Central European Journal of Medicine
Clinical Neurology and Neurosurgery
Neurology
New England Journal of Medicine
Postgraduate Medical Journal
Transplantation

Membership in Professional and Scientific Societies
ALS Research Group
American Academy of Neurology
American Association of Neuromuscular and Electrodiagnostic Medicine
Inflammatory Neuropathy Consortium (INC)
National VA ALS Consortium
North East ALS Consortium (NEALS)
Peripheral Nerve Society
Faculty Mentoring and Teaching
Members of the Faculty 2013-2014

Arun Antony, MD  Assistant Professor
Anto Bagić, MD, PhD  Associate Professor
Marie Baldwin, MD  Assistant Professor
Sarah Berman, MD, PhD  Assistant Professor
Edward A. Burton, MD, DPhil, FRCP  Associate Professor
Neil Busis, MD  Clinical Professor
Guodong Cao, PhD  Associate Professor
Jun Chen, MD  Professor
Paula R. Clemens, MD  Professor
James DiMatteis, MD
John J. Doyle, MD  Associate Professor
Jan Drappatz, MD  Associate Professor
Ahmed El-Dokla, MD  Assistant Professor
Jeffrey Esper, DO  Clinical Professor of Internal Medicine
Kathy Gardner, MD  Assistant Professor
Gena Ghearing, MD  Assistant Professor
Steven H. Graham, MD, PhD  Professor
J. Timothy Greenamyre, MD, PhD  Professor
Eric Grazioli, DO
Maxim Hammer, MD  Associate Professor
Teresa G. Hastings, PhD  Associate Professor
Rick Hendrickson, PhD  Assistant Professor
Rock A. Heyman, MD  Associate Professor
Eric Hoffman, PhD  Research Assistant Professor
Houman Homayoun, MD  Assistant Professor
Xiaoming Hu, MD  Research Assistant Professor
Milos Ikonomovic, MD  Associate Professor
Ashutosh Jadhav, MD  Clinical Instructor
Samay Jain, MD  Assistant Professor
Tudor Jovin, MD  Associate Professor
Robert Kaniecki, MD  Assistant Professor
Kelly Kay, DO  Clinical Assistant Professor
Simin Khavandgar, MD  Clinical Assistant Professor
Daniel Kinem, DO  Neurohospitalist
Laurie Knepper, MD  Clinical Associate Professor
David Lacomis, MD  Professor
Erek Lam, MD  Clinical Assistant Professor
Frank Lieberman, MD  Professor
Guillermo Linares, MD  Clinical Instructor
Anthony Liou, PhD  Research Assistant Professor
Hao Liu, PhD  Research Assistant Professor
Oscar L. Lopez, MD  Professor
Angela Lu, MD  Clinical Assistant Professor
Eric McDade, DO  Assistant Professor
Barbara McManus, MD  Clinical Assistant Professor
Galen Mitchell, MD  Associate Professor
Eric Ogren, MD  Assistant Professor
Jullie Pan, MD, PhD  Professor
Alexandra Popescu, MD  Assistant Professor
Vivek Reddy, MD  Assistant Professor
Jingzi Shang, MD  Visiting Professor
Lori Shutter, MD  Assistant Professor
Amanda Smith, PhD  Research Assistant Professor
Beth Snitz, PhD  Assistant Professor
Ruth Ann Stetler, PhD  Research Assistant Professor
Michelle Stevens, DO  Professor
Dandan Sun, MD, PhD  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>
</table>
| Arun Antony, MD      | Fellow – Clinical Neurophysiology  
Cleveland Clinic Foundation |
| Joseph Diamond, MD   | Sleep Medicine Fellow  
University of Miami/Jackson Memorial Hospital |
| Joanna Fong, MD      | Department of Neurology, Section of Regional Neurosciences, Epilepsy Center, Sleep Disorders Center at the Cleveland Clinic |
Adnan Mahmood, DO  
Resident and Intern  
Department of Neurology  
Hamot Medical Center, Erie, PA

Lazarus Mayoglou, DO  
Resident  
Hamot Medical Center, Erie, PA

Edward Mistler, DO  
Partner  
Associates in Neurology of Pittsburgh  
Pittsburgh, PA

Bradley Molyneaux, MD, PhD  
Post Doctoral Fellow  
Harvard Department of Stem Cell and  
Regenerative Biology

Stuart Silverman, MD  
Chief, Department of Neurology  
Jefferson Regional Medical Center  
Clairton, PA

Matthew Starr, MD  
Assistant Professor of Neurology  
University of New Mexico Health Science Center, Albuquerque, NM

Viktoria Totoraitis, MD  
Vascular Neurology Fellow  
University of Pittsburgh Medical Center  
Pittsburgh, PA

Faculty Departures

<table>
<thead>
<tr>
<th>Faculty Member</th>
<th>New Position and Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Richard Brenner, MD</td>
<td>Retired</td>
</tr>
</tbody>
</table>
| David Hinkle, MD, PhD | OhioHealth                             
|                       | Columbus, OH                           |

Clinical Education 2014-2015

House Officers

PGY 4 Co-Chief Residents

<table>
<thead>
<tr>
<th>Lindsay Higdon, MD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cynthia Kenmuir, MD, PhD</td>
</tr>
<tr>
<td>Ajitesh Ojha, MD</td>
</tr>
</tbody>
</table>

Medical Education

| University of Maryland School of Medicine  |
| University of Toledo College of Medicine  |
| Case Western Reserve University School of Medicine  |
**PGY 4 Residents**

<table>
<thead>
<tr>
<th>Name</th>
<th>Medical School Attended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steven Factor, MD</td>
<td>Loyola University of Chicago, Stritch School of Medicine</td>
</tr>
<tr>
<td>Lauren Natbony, MD</td>
<td>University of Miami, Leonard M. Miller School of Medicine</td>
</tr>
<tr>
<td>Michael Reznick, MD</td>
<td>Ohio State University College of Medicine</td>
</tr>
<tr>
<td>Monica Skordilis, MD</td>
<td>Ohio State University College of Medicine</td>
</tr>
</tbody>
</table>

**PGY 3 Residents**

<table>
<thead>
<tr>
<th>Name</th>
<th>Medical School Attended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diana Mnatsakanova, MD</td>
<td>West Virginia University School of Medicine</td>
</tr>
<tr>
<td>Robyn Nadel, MD</td>
<td>University of Maryland School of Medicine</td>
</tr>
<tr>
<td>Kristen Bacaro, MD</td>
<td>Texas A&amp;M University System HSC College of Medicine</td>
</tr>
<tr>
<td>Yumna Saeed, MD</td>
<td>State University New York Upstate Medical University</td>
</tr>
<tr>
<td>Thomas Shoemaker, MD</td>
<td>Rush Medical College</td>
</tr>
<tr>
<td>Chauncey Spears, MD</td>
<td>West Virginia University School of Medicine</td>
</tr>
<tr>
<td>Kara Wyant, MD</td>
<td>University of Toledo College of Medicine</td>
</tr>
</tbody>
</table>

**PGY 2 Residents**

<table>
<thead>
<tr>
<th>Name</th>
<th>Medical School Attended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alexandra Czap, MD</td>
<td>University of Connecticut School of Medicine</td>
</tr>
<tr>
<td>Stella Lai, MD</td>
<td>University of Toledo College of Medicine</td>
</tr>
<tr>
<td>Andrew Levin, MD</td>
<td>Ohio State University College of Medicine</td>
</tr>
<tr>
<td>Megan Mantica, MD</td>
<td>State University of New York Upstate Medical University</td>
</tr>
<tr>
<td>Jennifer Nichols, MD</td>
<td>University of Illinois College of Medicine</td>
</tr>
<tr>
<td>Stephanie Paolini, MD</td>
<td>University of South Carolina School of Medicine</td>
</tr>
</tbody>
</table>

**PGY 1 Residents**

<table>
<thead>
<tr>
<th>Name</th>
<th>Medical School Attended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kiruba Dharaneeswaran, MD</td>
<td>Pennsylvania State University College of Medicine</td>
</tr>
<tr>
<td>Natalia Gonzales, MD</td>
<td>Pennsylvania State University College of Medicine</td>
</tr>
<tr>
<td>Brian Hanrahan, MD</td>
<td>State University of New York Upstate Medical University</td>
</tr>
<tr>
<td>Eric Jackowiak, MD</td>
<td>Indiana University School of Medicine</td>
</tr>
<tr>
<td>James Lee, MD, PhD</td>
<td>University of Illinois College of Medicine</td>
</tr>
<tr>
<td>Jodi Manners, MD</td>
<td>University of Pittsburgh School of Medicine</td>
</tr>
<tr>
<td>Deepak Soneji, MD</td>
<td>University of Pittsburgh School of Medicine</td>
</tr>
<tr>
<td>Alexis Steinberg, MD</td>
<td>Technion-Israel Institute of Technology</td>
</tr>
</tbody>
</table>

**Neurology Fellows**

<table>
<thead>
<tr>
<th>Name</th>
<th>Medical School Attended</th>
<th>Residency Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sergiu Abramovici</td>
<td>Carol Davila University of Medicine and Pharmacy, Romania</td>
<td>Soroka University Medical Center, Israel</td>
</tr>
<tr>
<td>Name</td>
<td>Institution 1</td>
<td>Institution 2</td>
</tr>
<tr>
<td>---------------------</td>
<td>----------------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>David Avila, MD</td>
<td>Universidad Catolica de Santiago de Guayaquil</td>
<td>University of Pittsburgh Medical Center</td>
</tr>
<tr>
<td>David Campbell, MD</td>
<td>University of Miami Miller School of Medicine</td>
<td>University of Pittsburgh Medical Center</td>
</tr>
<tr>
<td>Deepak Gulati, MD</td>
<td>Santosh Medical College, India</td>
<td>Case Western Reserve University</td>
</tr>
<tr>
<td>Jennifer Han, MD</td>
<td>University of Maryland School of Medicine</td>
<td>University of Pittsburgh Medical Center</td>
</tr>
<tr>
<td>Nicholas Lanciano, MD</td>
<td>Philadelphia College of Osteopathic Medicine</td>
<td>Ohio State University Wexner Medical Center</td>
</tr>
<tr>
<td>Manal Moustafa, MD</td>
<td>University of Tennessee College of Medicine</td>
<td>UPMC Children’s Hospital of Pittsburgh</td>
</tr>
<tr>
<td>Marcelo Rocha, MD</td>
<td>UMDNJ-Robert Wood Johnson Medical School</td>
<td>Massachusetts General Hospital</td>
</tr>
<tr>
<td>Palak Shah, MD</td>
<td>Government Medical College Surat Veer Narmad Sohut Gujarat University, India</td>
<td>M.S. Hershey Medical Center</td>
</tr>
</tbody>
</table>

**Departing House Officers**

<table>
<thead>
<tr>
<th>Residents</th>
<th>New Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edilberto Amorim, MD</td>
<td>Neuro-critical Care Fellowship – Massachusetts General Hospital</td>
</tr>
<tr>
<td>David Campbell, MD</td>
<td>Vascular Neurology Fellowship – UPMC</td>
</tr>
<tr>
<td>David Avila, MD</td>
<td>Clinical Neurophysiology Fellowship - UPMC</td>
</tr>
<tr>
<td>Stacie Demel, DO, PhD</td>
<td>Vascular Neurology Fellowship – University of Cincinnati</td>
</tr>
<tr>
<td>Jennifer Han, MD</td>
<td>Movement Disorders Fellowship - UPMC</td>
</tr>
<tr>
<td>Robby Hendry, MD</td>
<td>Neuro-critical Fellowship – Duke University</td>
</tr>
<tr>
<td>Claire Yanta, MD</td>
<td>Headache Fellowship - UPMC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fellows</th>
<th>New Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Palak Shah, MD</td>
<td>Epilepsy Fellowship – UPMC</td>
</tr>
<tr>
<td>Jigyasa Tewari, MD</td>
<td>Hospitalist – Greenville, SC</td>
</tr>
<tr>
<td>Xuan Wu, MD, PhD</td>
<td>Faculty - Baylor College of Medicine</td>
</tr>
<tr>
<td>Nima Aghaebrahim, MD</td>
<td>Interventional Neurology Fellowship – UPMC</td>
</tr>
</tbody>
</table>
Srikant Rangaraju, MD  
Faculty – Emory University Hospital

Chris Streib, MD  
Neuronet Stroke Trials Fellowship – UPMC

Ashutosh Jadhav, MD  
Faculty – Department of Neurology UPMC

Anat Horev, MD  
Chief, Neurointerventional Center – Soroka University Medical Center, Israel

**Fellowship Directors**

Anto Bagic, MD, PhD --yes  
Epilepsy Fellowship Program

Robert Kaniecki, MD --yes  
Headache Fellowship Program

Maxim Hammer, MD -yes  
Vascular Neurology Fellowship Program

Samay Jain, MD -yes  
Movement Disorders Fellowship Program

Gena Ghearing, MD --yes  
Clinical Neurophysiology

**Neurology Mentors**

Jun Chen, MD  
Lili Zhang

Yun Wu

Zhongfeng Weng

Tudor Jovin, MD  
Anat Horev, MD

Maxim Hammer, MD -  
Viktoria Totoraitis, MD

Dan-Victor Giurgiu, MD

Sunanda Nanduri, MD

David Lacomis, MD --  
David Avila

**Faculty Teaching and Mentoring Contributions**

**Junior Faculty Research Mentoring**

**Jun Chen, MD**

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.

Xiaoming Hu, MD Research Assistant Professor  
Studies mechanisms of neuron-glia interactions under conditions of ischemic injury or Parkinson’s disease.
Investigating the molecular mechanism underlying ischemic brain injury and neuronal cell death.

Study molecular and cell biology methods to identify key proteins that participated in the cell death process in response to toxins.

**Paula Clemens, MD**

Amy Goldstein, PhD  
Assistant Professor of Pediatrics, Division of Child Neurology, UPMC

Michele Yang, MD  
Clinical Instructor, Pediatric Neurology, Denver Children’s Hospital, Denver, CO

Roxanna Bendixen, PhD  
Assistant Professor of Occupational Therapy, University of Pittsburgh

Araya Puwanant, MD  
Assistant Professor of Neurology, University of Pittsburgh

**J. Timothy Greenamyre, MD, PhD**

Jason Canon  
K99 Awardee

Samay Jain  
K23 Awardee

**Samay Jain, MD**

Christian Agudelo  
MS-II/IV, NIMH funded

**Jullie Pan, PhD**

James Ibinson, MD, PhD  
Assistant Professor Anesthesiology “Neuroimaging of pain”

**Dandan Sun, MD, PhD**

Pelin Cengiz, MD  
Pediatrics Department, University of Wisconsin-Madison

Peter Ferrazzano, MD  
Pediatrics Department, University of Wisconsin-Madison

**Post-Doctoral Research Mentoring**

**Anto Bagic, MD, PhD**

Manal Moustafa, MD  
Pediatric Neurology Fellow

MEG project

Stephanie Paolini, MD  
Neurology Resident  
EEG Project mentor with Dr. Baldwin

Megan Mantica, MD  
Neurology Resident  
EEG Project mentor with Dr. Baldwin
Maria Baldwin, MD

Eduardo Amorin, MD

Provided EEG teaching and assisted with his current research project, “Prognostication value of EEG in cardiac arrest survivors undergoing hypothermia.”

Sarah Berman, MD, PhD

Victor Van Laar, PhD

The role of parkin in neuronal mitochondrial dynamics

April Dukes, PhD

Neuroprotection by selenoproteins against toxin-induced cell death

Edward Burton, MD, DPhil

April Dukes, PhD

Neuroprotection by selenoproteins against toxin-induced cell death

Victor van Laar, PhD

Mitochondrial dynamics in neurodegeneration

Guodong Cao, PhD

Lili Zhang, MD

Research Associate, Department of Neurology, University of Pittsburgh

Xinzhi Chen, MD, PhD

Research Associate, Department of Neurology, University of Pittsburgh

Zheng Jing, PhD

Research Associate, Department of Neurology, University of Pittsburgh

Jun Chen, MD

Guohua Wang

Postdoctoral Fellow, University of Pittsburgh

Jinchao Xia

Postdoctoral Fellow, University of Pittsburgh

Shangfeng Zhao

Postdoctoral Fellow, University of Pittsburgh

Ziangrong Liu

Postdoctoral Fellow, University of Pittsburgh

Steven Graham, MD, PhD

Wei Yu, PhD

Role of UCH-L1 and CyPg in MPP+toxicity

J. Timothy Greenamyre, MD, PhD

Amber Van Laar, MD

Postdoctoral and Clinical Fellow

Paul Barrett, PhD

Postdoctoral fellow

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

Caitlyn Barrett, PhD

Role of mitochondrial GPx4 in neuroprotection
Julie M. Breckenridge, PhD  Neuroprotection by selenoproteins against toxin-induced cell death

Milos Ikonomovic, MD  
Violetta Pivtoraiko, PhD  The Role of Truncated and Pyroglutamate Modified Aβ in MCI and early Alzheimer’s Disease
Postdoctoral fellow
Zhiping Mi, PhD  Oxidized Phospholipids and Synaptic changes in Mild Cognitive Impairment
Postdoctoral fellow
Patrick Murray, PhD  KO1 Review Committee member

Tudor Jovin, MD  
Ridwan Lin, MD  Interventional Neuroradiology Fellowship, Riverside Medical Center, Columbus, OH
Dean Kostov, MD  Interventional Neuroradiology Fellowship
Hilal Kanaan, MD  Interventional Neuroradiology Fellowship
Mouhammad Jumaa, MD  Interventional Neuroradiology Fellowship
Syed Zaiidi, MD  Interventional Neuroradiology Fellowship

Bradley Molvneaux, MD, PhD  
Michael Reznik  University of Pittsburgh Neurology Resident

Jullie Pan, MD, PhD  
Vincent Carson, MD  “Quantitative EEG, resting connectivity and AED withdrawal,” Department of Pediatric Neurology

Lori Shutter, MD  
David Campbell  Neurology Resident
Stephanie Demel  Neurology Resident
Matt Siedsma, MD, Chief Fellow  Critical Care Medicine
Deepa Malaiyandi, MD, Fellow  University of Pittsburgh Medical Center, Neurocritical Care
Premkumar Nattanmai, MD  1st Yr Neurocritical Care Fellow  University of Pittsburgh Medical Center, Neurocritical Care

Dandan Sun, MD, PhD  
Wen Zhu  Study of chloride transporter in GBM tumor cells
Hui Yuan  
Postdoctoral fellow  
Study of Intracellular Ca\(^{2+}\) rise in microglial migration

LiaoLiao Li  
Postdoctoral Fellow  
Study of Cl transporters in Ischemic brain damage

Gulnaz Begum  
Postdoctoral Fellow  
Study DHA-mediated Neuroprotection after traumatic brain injury

**Anne Van Cott, MD**

Stacie Demel, DO, PhD  
Mentoring 4/2013- Present

**Lawrence Wechsler, MD**

Edilberto Amorim, MD  
Resident Mentoring 2014

**Pre-Doctoral Mentoring**

**Sarah Berman, MD, PhD**

Co-mentor for Vivek Patel  
NRSA Pre-doctoral fellowship, NINDS, 1F31NS076040-1, University of Pittsburgh

**Guodong Cao, PhD**

Daisy Zhu  
Summer Student, University of Pittsburgh School of Pharmacology

**Jun Chen, MD**

Guohua Wang  
PhD Candidates – graduated 2012

Peiying Li  
PhD Candidates – graduated 2012

**Graduate Student Mentoring and Advising**

**Sarah Berman, MD, PhD**

Stephanie Aldrich, CNUP Graduate Student  
Research Rotation 7/2013-12/2013

**Edward Burton, MD, DPhil**

Mohammad Atif Towheed  
Understanding the Pathogenesis of ATP6 mutation in mitochondria

**Jun Chen, MD**

Hongjian Pu  
PhD Candidate

ShanShan Ma  
PhD Candidate

Leilei Mao  
PhD Candidate

**David Lacomis, MD**

Kristin Qutub  
Master’s Candidate – Department of Genetics
Alexandra Popescu, MD

Ed Amorim
Malignant EEG Patterns are Common in Cardiac Arrest Survivors Treated with Therapeutic Hypothermia and a Standardized Antiepileptic Algorithm
Lindsay Higdon
Significance of Photic Driving Response on EEG in Predicting Prognosis in Coma
Jennifer Nichols
Significance of Photic Driving Response on EEG in Predicting Prognosis in Coma

Lori Shutter, MD

Michael Reznik, MD
Neurocritical Care Interest

Dandan Sun, MD, PhD

Yejei Shi, Graduate Student
Study of roles of Na+/H+ exchanger in microglial activation after ischemia
Damin Cong, PhD Graduate Student
Study of roles of Na+/H+ exchanger in GMB

Undergraduate Mentoring and Advising

Anto Bagic, MD, MSc, PhD

Julia Zheng
University of Pittsburgh Neuroscience Program Student EEG-MEG Project 2013-Present

Sarah Berman, MD, PhD

Nikita Roy
June 2010-August 2012
Swati Rajprohat
June 2012-2013
Carly Dibas
June 2012-2013

Edward Burton, MD, DPhil

Rachel Tang
Student Researcher 2012-present

Teresa Hastings, PhD

Meghan Bucher
Research project: Role of selenoproteins in models of Parkinson’s disease

Xiaoming Hu

Peiying Li
Project study on how regulatory t cells protect against ischemic stroke
Leilei Mao
Project study on how regulatory t cells protect against ischemic stroke

Milos Ikonomovic, MD

Andrew Morrison
2013 - Present – University of Pittsburgh
Ye Weon Ryu
2013 - Present – University of Pittsburgh
Onyinyechi Ogbumbadiugha 2014 - Present – University of Pittsburgh
Grazia Candiotti 2014 - Present – University of Pittsburgh

**Dandan Sun, MD, PhD**
Julia Deng Study DHA-mediated neuroprotection after traumatic brain injury
Lloyd Harvey Study DHA-mediated neuroprotection after traumatic brain injury

**Medical Student Mentoring**

**Maria Baldwin, MD**
Yin Zhao Provide EEG teaching and assisted with research project “Optimal sampling interval for intermittent electroencephalography (iEEG) in detecting malignant patterns in post cardiac arrest patients.”

**Sarah Berman, MD, PhD**
Nikita Roy Mentor, Scholarly Project and Dean’s Summer Research Program

**Edward Burton, MD, DPhil**
Ritika Parris Scholarly project mentor 2010 – 2014
Hubert Zhou Tsinghua scholar mentor 2012 – 2014

**Paula Clemens, MD**
Jeffrey Chung Medical Student Scholarly Project
Malcolm Dombrowski Medical Student Scholarly Project
Anriada Mehmeti Medical Student Scholarly Project
Corey Toocheck Medical Student Summer Research & Medical Student Scholarly Project

**Max Hammer, MD**
Elizabeth O’Neill Research Project: “Hypertonic Saline Therapy for Patients with Malignant Stroke:

**Rick Hendrickson, MD**
Ronak Dixit Summer Research Project: “Psychopathology of patients with nonepileptic spells”

**Eric McDade, DO**
Albert Kim, MD Medical Student – Dorris Duke Foundation Medical Scholar
Bradley Molyneaus, MD, PhD

Sean Doerfler
Medical Student – University of Pittsburgh School of Medicine

Faculty Participation in Graduate Level Teaching, Mentorships, and Service

Jun Chen, MD
Lecture
Apoptosis-Cellular and Molecular Neurology MSNBIO

J. Timothy Greenamyre, PhD
Lecture
Bioenergetics and Excitotoxicity
Lecture
Mitochondrial Disorders
Lecture
Huntington’s disease

Teresa Hastings, PhD
7 Lectures
Cellular and Molecular Neurobiology
Lecture
Neuropharmacology

Michael Zigmond, PhD
Lecture
Ethics

Course Director

Teresa Hastings, PhD
Cellular and Molecular Neurobiology

Milos Ikonomovic, MD
MSNBIO – Topics in Neurological Disorders

Laurie Knepper, MD
Clinical Neuroscience Clerkship (Co-Director)
The Neurological Examination

Galen Mitchell, MD
Clinical Neuroscience Clerkship (Co-Director)
The Neurological Examination

Additional Graduate Student Mentoring and Advising

Sarah Berman, MD, PhD
MSTP Mentor 5/13-12/13
Niyathi Hedge
MSTP Mentor 2014-present
Michelle Dail

Steven Graham, MD, PhD
MSTP Mentor 2013
Eliot Collins
Graduate Student Committee member 2008-2013
Jafar Sadik Bhasha Shaik
Graduate Student Committee member

J. Timothy Greenamyre, MD, PhD
MSTP PhD Thesis Committee
Vivek Patel
MSTP PhD Thesis Committee
Wai Can Chiu
Career Advisor | Gil Hoftman  
Career Advisor | Michelle Dail  
Career Advisor | Eric Strobl  

**Teresa Hastings, PhD**

- MSTP Academic Career Advisor | Daniel Wonjae Chung  
- MSTP Academic Career Advisor | Stephanie Myal  
- MSTP Academic Career Advisor | Adrienne Taren  
- CNUP Graduate Advisor Committee | Zhenyu Liu  
- CNUP Graduate Advisor Committee | Louisa Ho  
- CNUP Graduate Advisor Committee | Yue Luo  
- CNUP Graduate Advisor Committee | Victor Van Laar  
- CNUP Graduate Advisor Committee | Niccole Larsen  

**Committee Memberships**

**Sarah Berman, MD, PhD**
- Member, PSTP Selection Committee  
- Member, PSTP Steering Committee  
- Member, MSTP Selection Committee  

**Edward Burton, MD, DPhil**
- Member, FAST Advisory Committee  
- Member, MSTP/CNUP Admissions Committee  

**Teresa Hastings, PhD**
- Member, MSTP Steering Committee  
- Member, CNUP NIH T32 NS07433 “Predoc training in basic Neuroscience”

**Thesis and Dissertation Committee Service**

**Sarah Berman, MD, PhD**
- Member, Doctoral Thesis Committee | Andrea Braganza  

**Edward Burton, MD, DPhil**
- PhD Thesis Committee | Sandra Noble  

**Tim Greenamyre, MD, PhD**
- Honors Thesis Advisor | Collin Flannigan  
- PhD Candidate | Wai Kan Chiu
Teresa Hastings, PhD  
Chair -Dissertation Committee  
Mahlon Collins  
Member –Comprehensive  
Committee  
Hyunjung Oh  
Member –Dissertation  
Committee  
Eser Yilmaz  
Oscar Lopez, MD  
Examination Committee  
Andrea Metti  
Anne Van Cott, MD  
Thesis Committee  
Matt Diamond

Faculty Participation in Medical School Teaching, Mentorships, and Service

Teaching

Arun Antony, MD

Small Group- Localization of Dysfunction  
MS1: Neuroscience

Lecture: Epilepsy and Clinical Neurophysiology  
MS1: Neuroscience

Small Group – Clinical Conference 4  
MS1: Neuroscience

Anto Bagic, MD, PhD

Seizures and Epilepsy  
Neurology Clerkship

Clinical Pharmacology  
MS4: Clinical Pharmacology

Lecture: Intro & Brief Pathophysiology of Epileptic Seizures  
MS1: Neuroscience

Lecture: Anti-Epileptic Drugs & Pharmacologic  
MS1: Neuroscience

Maria Baldwin, MD

Lecture: Motor System Degeneration  
MS1: Neuroscience

Lecture: Seizure  
MS1: Neuroscience

Lecture: Movement  
MS1: Neuroscience

Sarah Berman, MD

2 Lectures: Movement  
MS1: Neuroscience

Lecture: Tremor and Dystonia  
MS1: Neuroscience

Small Group – Parkinson  
MS1: Neuroscience

Edward Burton, MD, DPhil

Lecture: Ataxia  
MS1: Neuroscience

Lecture: What Causes Parkinson’s Disease  
MS1: Neuroscience

Lecture: Movement Disorders: Tics, Ataxias, Myoclonus  
MS1: Neuroscience

Lecture: Movement Disorders  
MS1: Neuroscience

Neil Busis, MD

Small Group: Neuroanatomy  
MS1: Neuroscience

Mentored two medical students monthly  
Neurology Clerkship
Guodong Cao
Lecture: Neuropharmacology  MS4: ILS Clinical Pharmacology

Paula Clemens, MD
Facilitator: Small Group  MS1: Methods and Logic in Medicine
Lecture: Neurology Core Topics  Neurology Core Topics Course
Lecture: Molecular Medicine  MS4: Integrated Life Science Course
Lecture: Molecular Basis of Human Inherited Disease  Human Genetics Graduate Course

John Doyle, MD
Co-Director PMS-1  Neuroscience
Disorders of Consciousness  Neuroscience
Language and it’s Disorders  Neuroscience
Principles of Neurological Localization  Neuroscience

Jan Drappatz, MD
Lectures: Neuro-Oncologic Emergencies  MS4: ILS Neoplasia & Neoplastic Diseases

Ahmed El-Dokla
Lectures: AIDP & CIDP  MS1: Neuroscience

Gena Ghearing, MD
Small Group: Localization of Dysfunction  Clinical Conference 1
Small Group: PBL Introduction  MS1: Neuroscience
Lectures: Seizures  MS3: Clinical Neuroscience
Small Group: Syndromes Involving the Brainstem and Cranial Nerves, Clinical Conference 2  MS1: Neuroscience

Steven Graham, MD, PhD
Lecture: Clinical Skills  MS2: Clinical Skills Course
Lecture: Clinical Neuroscience Conference  Neuroscience

J. Timothy Greenamyre, MD, PhD
Lecture: Parkinson’s Disease  MS1: Neuroscience
Lecture: Huntington’s disease  MS1: Neuroscience

Max Hammer, MD
Clinical Conference 1: Localization of Dysfunction  MS2: Neuroscience
Clinical Conference 2: Brainstem Syndromes  MS2: Neuroscience
Lecture: Cerebral Vascular Disorders  MS2: Neuroscience

Rick Hendrickson, MD
Lecture: Neuropsychological Assessment  Neurology Core Series
Rock Heyman, MD

- Multiple Lectures: Multiple Sclerosis  - MS1: Neuroscience
- Lectures: Neurological Examination  - MS1: Neuroscience

Houman Homayoun, MD

- Lecture: Basal Ganglia Functional Anatomy and Kypherosis Movement Disorders  - MS1: Neuroscience
- Lecture: Parkinson’s Disease  - Occupational Therapy

Ashu Jadhav, MD, PhD

- Lectures: Stroke  - MS1: Neuroscience

Samay Jain, MD

- Lecture: Parkinson’s Disease: Clinical Features, Differential Diagnosis, and Treatment  - MS1: Neuroscience
- Lectures: Movement  - MS1: Neuroscience

Robert Kaniecki, MD

- Multiple Lectures: Headache  - MS1: Neuroscience
- Lectures: Movement  - MS1: Neuroscience

Simin Khavandgar, MD

- Small Group: Headaches & Other Intracranial Disorders  - Clinical Conference 4

Laurie Knepper, MD

- Small Groups: Exam Review  - MS1: Neuroscience

David Lacomis, MD

- Lecture: Neuromuscular Junction & Muscle  - MS1: Neuroscience
- Lecture: Peripheral Motor Disease: Patient Presentation  - MS1: Neuroscience
- Lecture: Peripheral Nerve & Anterior Horn  - MS1: Neuroscience

Erek Lam, MD

- Small Group: Localization of Dysfunction  - Clinical Conference 1
- Small Group: Syndromes Involving the Brainstem and Cranial Nerves, Clinical Conference 2  - MS1: Neuroscience

Frank Lieberman, MD

- Lecture  - MS4: ILS Neoplasia Neoplastic Diseases

Oscar Lopez, MD

- Dementia, 5 lectures  - Clinical Neurosciences Clerkship
- Dementia course  - MS2: Neuroscience
- Treatment of AD: Focus on prevention trials  - Neurobiology of Disease
Angela Lu, MD
Small Group: Localization of Dysfunction Clinical Conference 1
Small Group: Syndromes Involving Brainstem and Cranial Nerves Clinical Conference 2
Small Group: Motor System Degeneration Clinical Conference 3
Multiple Lectures: Peripheral Neuro MS1: Neuroscience

Eric McDade, DO
Alzheimer’s and Lewy Body Dementia MS1: Neuroscience
Neurocognitive Foundations of Executive Function/Frontotemporal Dementia MS1: Neuroscience
Delirium & Dementia MS1: Neuroscience

Galen Mitchell, MD
Multiple Lectures: Neuro Exam MS3: Clinical Neuroscience
Multiple Lectures: Orientation to Neuro MS3: Clinical Neuroscience
Lectures: Neuro Emergency MS1: Neuroscience
Co-Director and Neurology Lectures Clinical Neurosciences Clerkship

Bradley Molyneaux, MD
Lecture: Science of Resuscitation MS4: EMED Course
Small Group: Syndromes Involving the Brainstem and Cranial Nerves, Clinical Conference 2 MS1: Neuroscience

Alexandra Popescu, MD
Lecture: Selective in Clinical Pharmacology MS4: ILS Clinical Pharmacology
Small Group: Localization of Dysfunction Clinical Conference 1

Lori Shutter, MD, FCCM, FNCS
Lectures: Neurocritical Care PBL 1 and 2, and Neurotrauma Lecture Series
Lectures: Neurovascular and Neurocritical Care Weekly Teaching Conference Clinical Conference
Lectures: Coma and Low Arousal States MS3/MS4: Neuroscience

Josef Stakic, MD
Lectures: Headache MS1: Neuroscience

Valerie Suski, DO
Lecture: Huntington’s Disease MS1: Neuroscience
Small Group: Motor System Clinical Conference 3
Small Group: Clinical Conference 4
Small Group: Chorea and HD MS3: Clinical Neuroscience
Small Group: CJD
Small Group: Coma Examination
Small Group: Aniscicoria
Small Group: Multiple Sclerosis
Small Group: Parkinson’s
Small Group: Tremors
Small Group: Huntington’s Disease
Small Group: Dysarthria
Small Group: Movement Disorders
Lecture: Parkinson’s treatment
Small Group: Movement Disorders

Anne Van Cott, MD
Lectures: Neurological Disorders
Small Group: Multiple Sclerosis - EEG

Islam Zaydan, MD
Lecture: Neuro Ophthalmology

Sasa Zivkovic, MD
Small Group: Syndromes Involving Brainstem and Cranial Nerves
Small Group: Motor System Degeneration

Course Directors

Teresa Hasstings, PhD
Galen Mitchell, MD

Medical Student Mentoring

Sarah Berman, MD
Paula Clemens, MD
Maxim Hammer, MD
Samay Jain, MD

Mentored Scholarly Project
Mentored Scholarly Project
Mentored Scholarly Project
Mentored Scholarly Project

Roy Nikita
Jeffrey Chung
Corey Toocheck
Malcolm Dombrowski
Elizabeth O’Neill
Christian Agudelo
Committee Service

Edward Burton, MD, DPhil
Course Design Group – Neuroscience
Course Design Group – Neurology

Paula Clemens, MD
Promotions

John Doyle, MD
Course Design Group – Neuroscience

Laurie Knepper, MD
MS Retention

Galen Mitchell, MD
Promotions
Retention Committee MS 3 & 4
Clinical Procedures Course Design Group
Undergraduate Medical Education Teaching Coordinator

Anne Van Cott, MD
MS Retention

Sasa Zivkovic, MD
MS Applicant Interviewer
Grand Rounds and Special Lectures
Department of Neurology Grand Rounds 2013-2014

2013

September 4  Michael Reznik, MD
Resident, Department of Neurology
University of Pittsburgh School of Medicine
Residents’ CPC Series
“S/P: Outcomes and Recovery After Brain Injury”

September 18  Dandan Sun, MD, PhD
Professor of Neurology
“BUMEX-sensitive Ion Transporter Proteins: The Unexpected Roles in Epilepsy, Stroke, and GBM”

September 25  David O. Okonkwo, MD, PhD
Associate Professor of Neurological Surgery Clinical Director, Brain Trauma Research Center Executive Vice Chairman, Clinical Operations Director, Neurotrauma Program Director, Scoliosis and Spinal Deformity Program
Residents’ CPC Series
“What’s His Blood Pressure? Blood Pressure Management in Acute Stroke”

October 2   Gabrielle Bonhomme, MD
Assistant Professor of Ophthalmology
Neuro-Ophthalmology Service Director
Department of Ophthalmology
University of Pittsburgh School of Medicine
“Neuro-Ophthalmology Case Conference”

October 16  Jenna Gaesser, MD
Resident, Department of Child Neurology
Hot Cases: In Patient & Out Patient
“AMAN or Not”

October 16  Ryan Orie, PA-C, MPAS
Galen Mitchell, MD
Associate Professor of Neurology
Director of Multiple Sclerosis Research
Director of Medical Student Education for Clinical Neurology
“Demyelinating Dilemma”

October 23  Stacie Demel, DO, PhD
Resident, Department of Neurology
University of Pittsburgh School of Medicine
Residents’ CPC Series
“Sex Differences in Stroke”

October 30  Julie W. Pan, MD, PhD
Professor of Neurology
University of Pittsburgh
“Metabolic Dysfunction in Epilepsy”

November 6 Dana D. Cummings, MD, PhD
Pediatric Stroke Program Director
Assistant Professor of Pediatrics Division of Child Neurology
Department of Pediatrics, Children’s Hospital of Pittsburgh UPMC
“Pediatric Stroke: It’s About Time!”
November 20  Robert Hendry, MD, MS  
Resident, Department of Neurology  
University of Pittsburgh School of Medicine  
Residents’ CPC Series  
“Systemic Complications of Severe Neurological Disease”

December 4  Milos Ikonomovic, MD  
Associate Professor of Neurology and Psychiatry  
University of Pittsburgh School of Medicine  
“Pictures of the Broken Brain: Neuropathological Validation of Amyloid Imaging in Alzheimer’s Disease”

December 11  Neil A. Busis, MD  
Chief of Neurology, UPMC Shadyside Director of Community Neurology  
University of Pittsburgh Physicians, Department of Neurology  
“From Volume to Value: Transitioning to More Rational Health Care Reimbursement”

December 18  David Avila, MD  
Resident, Department of Neurology  
University of Pittsburgh School of Medicine  
Residents’ CPC Series  
“Changing the Channels”

2014

January 15  Jen Han, MD  
Resident, Department of Neurology  
University of Pittsburgh School of Medicine  
Residents’ CPC Series  
“Aphasia in Bilinguals with Stroke: Insights into Language Processing”

January 22  Lindsay M. Higdon, MD  
Resident, Department of Neurology  
University of Pittsburgh School of Medicine  
“The Neurologist’s Favorite Vitamin: The Neurologic Manifestations on B12 Deficiency”

January 29  Emanuel Kana, MD, FACR, FISMRRM, AANG  
Professor of Radiology and Neuroradiology  
Director of Magnetic Resonance (MR) Services  
Professor & Director of MR Education  
University of Pittsburgh School of Medicine  
“Nephrogenic Systemic Fibrosis and Gadolinium-Based Contrast Agents”

February 5  Christopher J. Chermansky, MD  
Assistant Professor of Urology  
Female Urology and Neuourology  
University of Pittsburgh Medical Center  
“Neurogenic Bladder, with a Focus on Botox”

February 12  William E. Klunk, MD, PhD  
Distinguished Professor of Psychiatry & Neurology  
University of Pittsburgh School of Medicine  
“Amyloid Imaging: Impact on the Study of Alzheimer’s Disease”
February 19
Monica Skordilis, MD
Resident, Department of Neurology
University of Pittsburgh School of Medicine
Residents’ CPC Series
“Pain in Parkinson’s Disease”

February 26
David A. Lewis, MD
Chairman, Department of Psychiatry
University of Pittsburgh
“A Neural Circuitry Basis for Impaired Cortical Network Oscillations and Cognitive Dysfunction in Schizophrenia”

March 5
Lauren Natbony, MD
Resident, Department of Neurology
University of Pittsburgh School of Medicine
Residents’ CPC Series
“Hormones and Headache: Migraine in Women”

March 12
Paula Clemens, MD
Professor of Neurology
Microbiology and Molecular Genetics
Human Genetics and Pediatrics Chief
Chief, Neurology Service Pittsburgh Veteran Affairs Healthcare System
“The Road to Therapy for Duchenne Muscular Dystrophy: Obstacles, Detours and Bypasses”

March 19
Frank Lieberman, MD
Associate Professor of Neurology and Medical Oncology
Adult Neurooncology Program Director, UMPC Cancer Center Director
Diana Mnatsakanova, MD
Resident, Department of Neurology
Ahmed El-Dokla, MD
Assistant Professor of Neurology
Hot Cases: In Patient & Out Patient
“Complex Neurologic Disorder in a Long Term Survivor of Medulloblastoma”

March 26
Claire Yanta, MD
Resident, Department of Neurology
University of Pittsburgh School of Medicine
Residents’ CPC Series
“Genetics of Migraine”

April 2
Michael (Micky) Collins, MD
UPMC Sports Medicine Concussion Program Director
“Prognosticating Outcomes from Sports mTBI: An Evidence-Based Analysis”

April 9
Steven Factor, MD
Resident, Department of Neurology
University of Pittsburgh School of Medicine
Residents’ CPC Series
“Seize the Night: Relationships between Epilepsy and Parasomnias”
<table>
<thead>
<tr>
<th>Date</th>
<th>Speaker</th>
<th>Affiliation</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 23</td>
<td>Edilberto Amorim, MD</td>
<td>Resident, Department of Neurology, University of Pittsburgh School of Medicine</td>
<td>&quot;EEG for the Cloud Computing Generation&quot;</td>
</tr>
<tr>
<td>May 7</td>
<td>Michael Shy, MD</td>
<td>Professor of Neurology, Professor of Pediatrics, Neuromuscular &amp; Neurogenetics Division Director, University of Iowa Carver College of Medicine</td>
<td>&quot;A Translational Approach to Therapy Development in the Inherited Neuropathies&quot;</td>
</tr>
<tr>
<td>May 21</td>
<td>Cynthia Kenmuir, MD</td>
<td>Resident, Department of Neurology, University of Pittsburgh School of Medicine</td>
<td>&quot;Reversing Anticoagulants: A Balancing Act&quot;</td>
</tr>
<tr>
<td>June 4</td>
<td>Robert G. Holloway, Jr., MD, MPH</td>
<td>Professor of Neurology, Professor of Preventive Medicine, University of Rochester School of Medicine &amp; Dentistry, Edward A. Alma Vollertson Rykenboer, Professor &amp; Chair of Neurology, University of Rochester School of Medicine &amp; Dentistry, Director, Research Education, Career Development &amp; Training Key Function, University of Rochester’s Clinical and Translational Science Institute</td>
<td>&quot;Neuro-Palliative Care: Defining a New Field&quot;</td>
</tr>
<tr>
<td>June 11</td>
<td>Ajitesh Ojha, MD</td>
<td>Resident, Department of Neurology, University of Pittsburgh School of Medicine</td>
<td>&quot;CNS Parasitic Infections&quot;</td>
</tr>
<tr>
<td>June 25</td>
<td>Houman Homayoun, MD</td>
<td>Assistant Professor of Neurology, University of Pittsburgh School of Medicine</td>
<td>&quot;Deep Brain Stimulation: What Else? Applications in Uncommon Movement Disorders and New Directions&quot;</td>
</tr>
</tbody>
</table>

**Joint Neurology-Neurosurgery Conferences**

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Speaker</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 11</td>
<td>&quot;Understanding Facial Pain and Spasms and an Update on Imaging of the Cranial Nerves&quot;</td>
<td>Raymond F. Sekula, Jr., MD</td>
<td>Assistant Professor of Neurological Surgery, Cranial Nerve Disorders Program Director</td>
</tr>
</tbody>
</table>
October 9  "ICH Update: CLEAR and MISTIE Trials"
  - Daniel F. Hanley, Jr., MD  
    Director, Division of Brain Injury Outcomes  
    Jeffery and Harriet Legum Professor  
    John Hopkins Medicine Acute Care Neurology  
    Professor of Neurology

November 13  "The More Things Change, the More Things Stay the Same? An Update on Diagnosing PHD"
  - Eric McDade, DO  
    Assistant Professor of Neurology  
    University of Pittsburgh School of Medicine
  - Andrew F. Ducruet, MD  
    Assistant Professor of Neurological Surgery  
    University of Pittsburgh School of Medicine

January 8  "Stereo-EEG: Multiple Depth Electrode Diagnostic Epilepsy Surgery"
  - Mark Richardson, MD, PhD  
    Assistant Professor of Neurological Surgery, Adult Epilepsy and Movement Disorders Surgery Director, Brain Modulation Laboratory Directory
  - Arun Antony, MD  
    Assistant Professor  
    University of Pittsburgh Physicians, Department of Neurology

Special Presentations

April 16  Don Cleveland, PhD  
  The Leonard Gerson Distinguished Scholar Award  
  Departmental Chair of Cellular and Molecular Medicine  
  Professor of Medicine, Neurosciences, and Cellular and Molecular Medicine  
  Ludwig Institute for Cancer Research  
  University of California San Diego  
  "From Charcot to Lou Gehrig: Mechanism and Therapy in ALS and Beyond"
Faculty Bibliography


Raji C, Lopez OL, Kuller LH, Gach HM, Carmichael OT, Rosano C, Aizenstein H, Becker JT. White matter lesions are negatively correlated with gray matter volume in cognitively normal elderly subjects. Neurobiology of Aging 2012; 33(4): 834 e7-16 [PMCID: PMC3248984].


Apolipoprotein E -4 increases the risk of dementia in the “pure” synucleopathies. JAMA-Neurology 2013; 70(2): 223-238 [PMCID: PMC3580799].


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Fowler NR, Johnson K, Lie J, Moore CG, Saba S, Lopez OL, Barnato AE. The use of cardiac implantable electronic devices in older adults with cognitive impairment. JAMA-Internal Medicine, in press.

Raji CA, Erickson KI, Lopez OL, Keller LH, Gach MH, Thompson PM, Riverol M, Becker JT. Regular fish consumption is neuroprotective and reduces risk for cognitive decline in the Cardiovascular Health Study. American Journal of Preventive Medicine 2014, in press.


Eric McDade, DO


Timothy M. Hughes, Lewis H. Kuller, Emma J.M. Barinas-Mitchell, Rachel H. Mackey, Eric M. McDade, William E. Klunk, Howard J. Aizenstein, Ann D. Cohen, Beth E. Snitz, Chester A. Mathis,

Susan L Mills; Jacquelyn A Mallmann; Anna M Santacruz; Angela Fuqua; Matt Carril; Paul S Aisen, MD; Mathew C Althage; Stephanie Belyew, MS, CCRC; Tammie L Benzinger, MD, PhD; William S Brooks, MBBS, MPH; Virginia D Buckles, PhD; Nigel J Cairns, PhD, FRCPPath; David Clifford, MD; Adrian Danek, MD; Anne M Fagan, PhD; Martin R Farlow, MD; Nick Fox, MD, FRCP, FMedSci; Bernardino Ghetti, MD; Alison Goate, DPhil; Denise Heinrichs; Russell D Hornbeck, MSc, MPM; Clifford Jack, MD; Mathias Jucker, PhD; William E Klunk, MD, PhD; Daniel S Marcus, PhD; Colin L Masters, MD; Ralph N Martins, PhD; Richard P Mayeux, MD, MSc; Eric McDade, DO; John C Morris, MD; Angela M Oliver, RN, MSG; John M Ringman, MD, MS; Martin N Rossor, MD; Stephen Salloway, MD, MS; Peter R Schofield, PhD, DSc; B. Joy Snider, MD, PhD; Peter J Snyder, PhD; Reisa Sperling, MD; Christy R Stewart, MBA; Ronald G Thomas, PhD; Chengjie Xiong, PhD; Randall Bateman, M.D. Preclinical Trials in Autosomal Dominant Alzheimer's Disease: Implementation of the DIAN-TU. *Trial Revue Neurologique* (accepted July 2013).


Beth Snitz, PhD


Snitz BE, Yu L, Crane PK, Chang CC, Hughes, TF, Ganguli M. Subjective cognitive complaints of older adults at the population level: an item response theory analysis. *Alzheimer Disease and Associated Disorders*. PMCID: PMC3337955. PMID: 22193355.

Ruth Anne Stetler, PhD, Research Assistant Professor


**Epilepsy Division**

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


**Arun Antony, MD, Assistant Professor**

Arun Antony, AV Alexopoulos, JA Gonzalez-Martinez, JC Mosher, L Jehi. Functional Connectivity Estimated from Intracranial EEG Predicts Surgical Outcome in Intractable Temporal Lobe Epilepsy, *PloS one* 8 (10), e77916
Arun Angelo Patil, Arun Antony, Richard Andrews. Efficacy of Vagal nerve stimulation after multiple sub pial transection in Epilepsy. *Surgical science* 4;273

**Gena Ghearing, MD, Assistant Professor**


**Rick Hendrickson, PhD, Assistant Professor**


**Jullie Pan, PhD, Professor**


**Alexandra Popescu, MD, Assistant Professor**


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**Anne Van Cott**, MD, Associate Professor


**General Division**

**Neil Busis**, MD, Clinical Professor


**Joseph Diamond**, MD, Clinical Assistant Professor


**Joanna Fong**, MD, Clinical Assistant Professor


Erek Lam, MD, Clinical Assistant Professor


Shepard P, Lam EM, St. Louis EK, Dominik J. Sleep Disturbances in Myotonic Dystrophy Type 2. Eur Neurol 2012; 68:377-380


Janet Waters, MD

Waters JH, Dyga RM, Waters JFR, Yazer MH. The volume of returned RBCs in a Large Blood Salvage Program: Where does it all go? Transfusion. [Epub ahead of print].

Movement Disorders Division

Sarah Berman, MD, PhD, Assistant Professor


Edward A. Burton, MD, DPhil, Assistant Professor


development of the nervous system and regeneration of the optic nerve in adult zebrafish. *Glia.* 60(2):253-70.


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


Houman Homayoun, MD, Assistant Professor


Samay Jain, MD, Assistant Professor


Neurocritical Care

Bradley Molyneaux, M.D., PhD, Assistant Professor


173

**Lori Shutter, MD, Visiting Professor**


Hinzman JM; Andaluz A; Shutter LA; Okonkwo DO; Pahl C; Strong AJ; Dreier JP; Hartings JA. Inverse neurovascular coupling to cortical spreading depolarizations in severe brain trauma. *Brain* 2014; doi: 10.1093/brain/awu241.
Neuroimmunology Division

Islam Zaydan, MD, Assistant Professor


Neuromuscular Diseases Division

Ahmed El-Dokla, MD, Assistant Professor


David Lacomis, MD, Professor and Chief, Neuromuscular Diseases


Winer L, Dushyanth S, Seung C, Lacomis D. SOD1 in Cerebral Spinal Fluid as a Pharmacodynamic Marker for Antisense Oligonucleotide Therapy. JAMA Neurol 2013;70:201-207.


Saša Živković, MD, Associate Professor


Neurooncology Program

Jan Drappatz, MD, Associate Professor


Frank Lieberman, MD, Professor


Research Division

Guodong Cao, PhD, Associate Professor


**Jun Chen, MD, Professor**


Hu X, Li P, Chen J. Regulatory T cells are protective in ischemic stroke. Stroke 2013 July 2 [Epub ahead of print].


Paula Clemens, MD, 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**


**Xiaoming Hu, MD, MS, PhD, Research Assistant Professor**


Milos Ikonomovic, MD, Associate Professor


**Anthony Liou K.F., PhD, Research Assistant Professor**


Hao Liu, PhD, Research Assistant Professor


Amanda Smith, PhD, Research Assistant Professor


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