Department of Neurology
University of Pittsburgh School of Medicine
University of Pittsburgh Physicians

2013 Annual Report

Lawrence R. Wechsler, M.D.
Chair

Dedicated to Autumn Klein, MD

We in the department of neurology would like to dedicate this report to Dr. Autumn Klein, who sadly passed away last year. Autumn was a shining light within the department of neurology and in the greater neurology community. In her too short time with us she distinguished herself as a leader in women's neurology and the neurology of pregnancy. She established the women's neurology division within the department of neurology, one of the first and clearly the leading such division in the country. She initiated research projects, published books and articles, and lectured both locally and nationally on women's neurological issues. She was a consummate teacher of residents and medical students and communicated her passion for her work in every lecture. Autumn was a role model for the next generation of leaders. Most of all she will be remembered for the impact she had on the care of many individuals throughout western Pennsylvania who benefited from her expertise and were helped through difficult pregnancies or epilepsy issues by her thoughtful and caring dedication to her patients. She will always have a place in our department and will forever be a part of the UPMC and University of Pittsburgh family.

Cover Photo Credits: Top: Taken by Patrick Conway; Lower left: Brain Image from Anto Bagic; Lower right: Sarah Berman, April Dukes, and Edward Burton

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Annual Report for the Period July 1, 2012 through June 30, 2013

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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, 2012 through June 30, 2013, there were 62 faculty members with primary appointments in Neurology and we expect additional faculty to join us next year. The Department welcomed Dr. Simin Khavandgar, Dr. Houman Homayoun, Dr. Erek Lam, Dr. Barbara Swenson, Dr. Neil Busis, Dr. Jeffrey Esper, Dr. Erica Grazioli, Dr. James DeMatteis, Dr. Michelle Stevens, Dr. Michelle Kuczma, Dr. Jingzi Shang, Dr. Daniel Kinem, and Dr. Jullie Pan with a variety of specialties: in General Neurology, Epilepsy, Sleep, Headache, and Neuromuscular. Secondary appointments are held by Bing Wang, MD, PhD, Mary Ganguli, MD, William Klunk, MD, PhD, Robert Sweet, MD and Cheryl Bernstein, MD in recognition of their clinical and research interactions with the Department of Neurology. Many faculty members maintain secondary appointments throughout the University providing clinical and research collaborations.

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

We are committed to providing compassionate, comprehensive, timely and high quality service to our patients. 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 2012-2013 featured 36 lectures, six of whom were Visiting Professors from other institutions. We also had five Neurology & Neurosurgery Combined Grand Rounds, twelve Resident Presentations, eight In-House presentations and five 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. The department was ranked 10th in the *US News and World Report* rankings of neurology and neurosurgery programs in the most recent listings. Dr. Wechsler's interests include acute stroke therapy, imaging and telemedicine. He has participated in many clinical trials of treatments for stroke as an investigator or member of the steering committee. He was Editor in Chief of the *Journal of Neuroimaging* from 1999-2007. Dr. Wechsler holds memberships in several organizations, including the American Neurological Association, American Stroke Association, American Society of Neuroimaging and the American Academy of Neurology. 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 La Bua, Clinical Administrator.

Research Activities

The Department of Neurology has a sustained commitment to excellence in the three major components of academic medicine: teaching, clinical care, and research that advances medical knowledge and therapy. Research funding for the clinical, basic, and translational studies in the department has increased steadily over the past few years and in FY2013 the department received $11,120,379 in extramural research grant support. This is a significant increase from FY2012 when the department received $8,329,756 in extramural research support, an outstanding achievement given the current grant funding environment. Funding for twenty four new research projects was received in FY2013 with over $2.2M in annual research 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, which focuses on Parkinson's and Alzheimer's Diseases and the Geriatric Research Education and Clinical Center which focuses on stroke research. Other areas of focus include neuromuscular disorders, traumatic brain injury and epilepsy.

Neurology faculty secured funding for a number of new research projects in FY13, including:

- **Sarah Berman** received an R01 award from the National Institute of Neurological Diseases and Stroke to study the role of movement and transport of mitochondria in neurons in Parkinson's disease.
- **Ed Burton** received an award from the Bachmann-Strauss Dystonia & Parkinson's Foundation to develop a new genetic model of movement disorders in the zebrafish. He also received funding from the Ethel Vincent Trust to examine the role of CNS oligodendrocytes in axonal viability and regeneration and a pilot award from the UPMC Institute on Aging to develop zebrafish Parkinson's disease models for drug discovery and evaluation of the role of aging in pathogenesis. Dr. Burton also was selected for funding for new R01 and R21 projects from the National Institute of Neurological Diseases and Stroke that will begin in FY2014.
- **Guodong Cao's** applications for a new R01 award that addresses novel treatments for stroke was selected for funding by the National Institute of Neurological Diseases and Stroke and will begin in FY2014.
- **Xiaoming Hu** from Dr. **Jun Chen's** laboratory received an American Heart Association Scientist Development Award to address the role of omega 3 fatty acids such as found in fish oil in recovery of white matter function after stroke.
- **Milos Ikonomovic** received an award from the Michael J. Fox Foundation to develop a novel imaging technique to detect a-synuclein, the biochemical marker of Parkinson's disease.
- **Jullie Pan** was recruited from Yale University and has established two projects funded by the National Institute of Neurological Diseases and Stroke that explore the role of magnetic resonance spectroscopic imaging in epilepsy.
- **Roberto DiMaio** in **Dr. Tim Greenamyre's** laboratory received an award from RIMED to investigate the efficacy of cannabinoid-derived drugs in the prevention of chronic epilepsy,
- **Michael Zigmond** received an award from the Michael J Fox Foundation that targets System XC for the treatment of Parkinson's disease.

Clinical Research

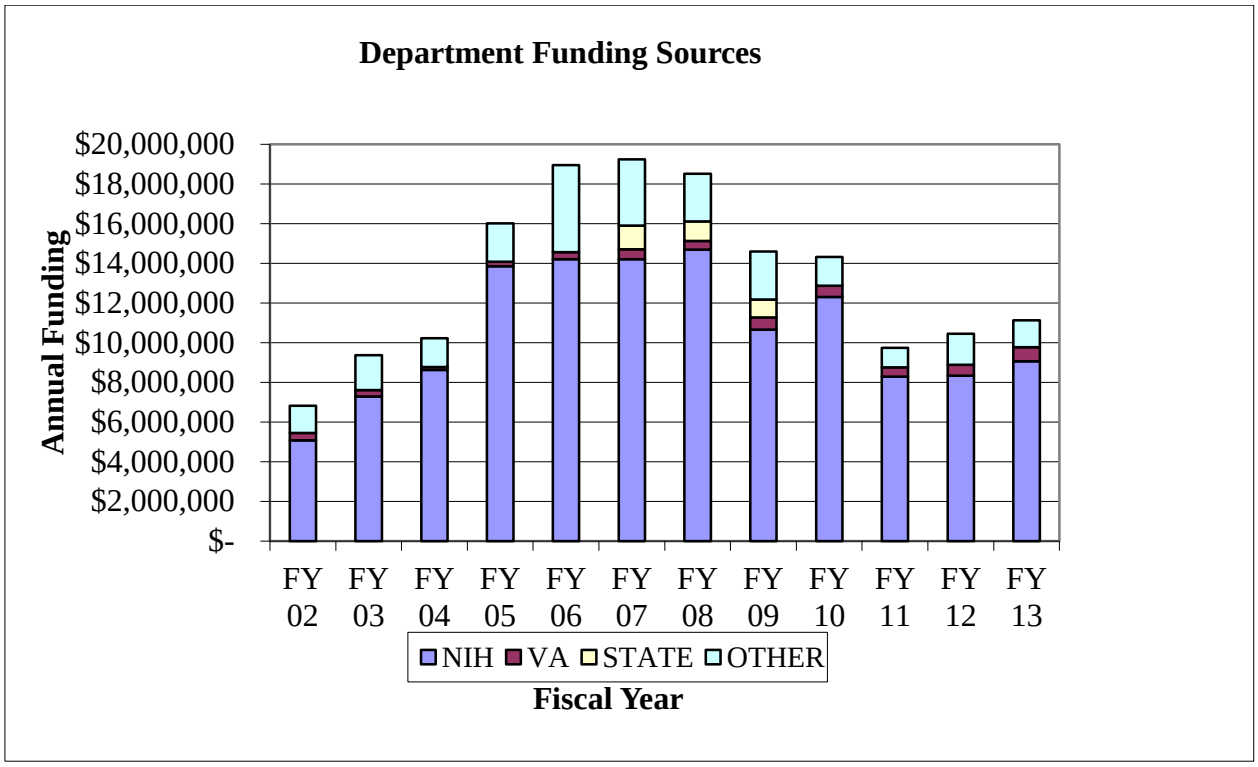
Clinical research in the Department of Neurology continues to expand and significant numbers of patients with neurologic diseases are enrolled in ongoing clinical trials. This is an invaluable resource for continued development of research in the department, and also attracts patients to our medical 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** is the Director of the University of Pittsburgh site in the NINDS-funded NeuroNEXT, a national clinical trials network established to coordinate Phase 1-2 neuroscience clinical trials.
- **Lawrence Wechsler, Max Hammer and Tudor Jovin** from the UPMC Stroke Institute continued their participation in federal and industry sponsored clinical trials. New projects included a clinical trial of a new drug from Aldagen in patients with acute ischemic stroke and comparing IV tissue plasminogen activating factor and endovascular treatment of stroke with the Solitaire Device.

- **David Lacomis** began a new trial of the experimental Cytokinetics drug CK-2017357 in patients with amyotrophic lateral sclerosis.
- **Galen Mitchell** began a new trial of Arbaclofen in the treatment of spasticity in patients with multiple sclerosis.
- **Autumn Klein** received awards from the National Institute of Neurological Diseases and Stroke and the Feinstein Institute to study the role of antiepiletics in maternal and fetal health. **Anton Bagic** has continued these projects.
- **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. A new clinical research project begun this year addresses the efficacy & safety of the Elan drug, ELND005, for the treatment of agitation and aggression in Alzheimer's patients. Several new trials will begin in FY2014.
- **Eric McDade** received research support from the Pittsburgh Foundation and has been awarded a pilot study in the Alzheimer Disease Research Center to examine cerebrovascular reactivity in cognitively normal and mild cognitive impairment.
- **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 CINGRG was received to conduct trials in muscular dystrophies, including FSH**.**

Training Grants

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


Department Funding Sources
Annual Funding
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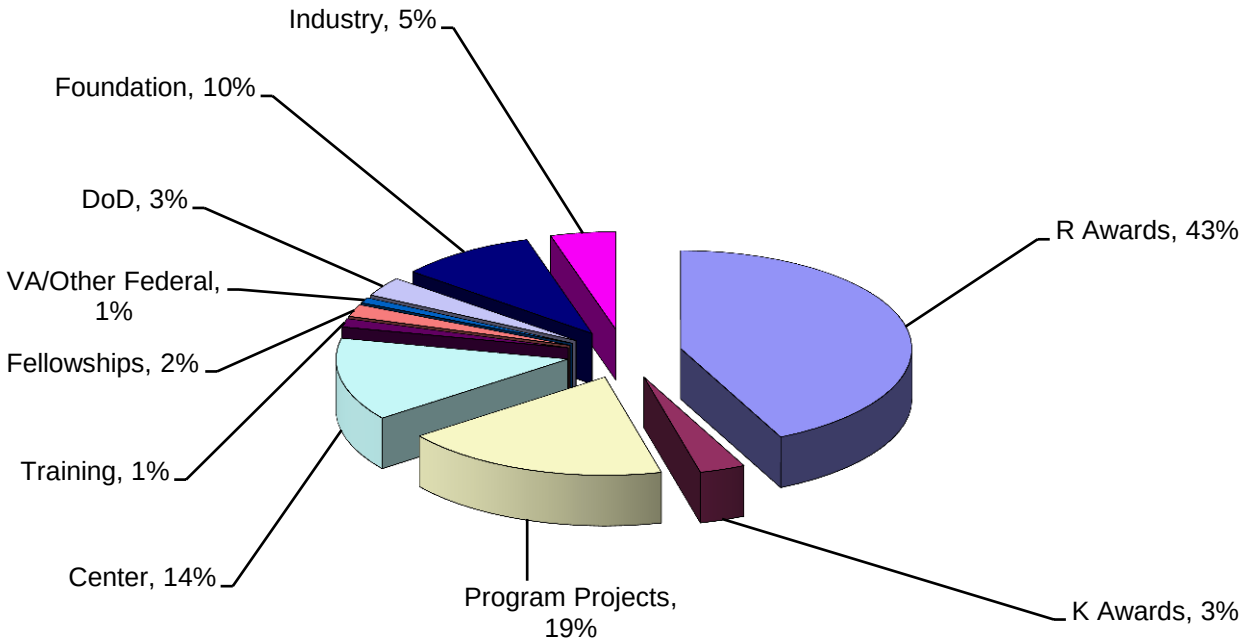

Extramural Funding FY 13
Industry, 5%
Foundation, 10%
DoD, 3%
VA/Other Federal, 1%
Fellowships, 2%
Training, 1%
Center, 14%
Program Projects, 19%
R Awards, 43%
K Awards, 3%

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 2012-2013 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 can elect regions of emphasis within these areas, but graduate with a broad skill set in clinical neurophysiology. Three fellowships are offered yearly.

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

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

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

Headache 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 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

Neurology is taught in a combined 8 week course with Psychiatry in the third year of medical school. The clinical portion of the rotation is divided into two parts with the students dividing their clinical time between 3 weeks of Neurology and 5 weeks of Psychiatry. This clinical exposure has mixed inpatient, outpatient and consult time slots. Throughout the rotation, all students are provided didactic material primarily from Neurology and Psychiatry. This consists of 8 core lectures each from Neurology and Psychiatry. In addition to the Neurology and Psychiatry material, students are also exposed to additional didactic material from Pediatric Neurology, Neurosurgery, Neuropathology and Neuro-radiology throughout the rotation. Occasionally, students are allowed to

monitor neurosurgical cases in the operating room. They also attend two formal neuropathology conferences that include gross sectioning of brains obtained at autopsy with discussion of the noted pathology.

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

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

Future Initiatives

Plans for the Department of Neurology include initiatives in the clinical, research, and teaching areas of our mission. The department continues to expand with resultant improvement in clinical patient diagnosis and treatment activities. The department will expand the Healthtrak access to include direct scheduling and electronic visits (E-visits) to afford patients autonomy and flexibility as active consumers of healthcare services. The department will continue optimization of the Electronic Health Record (EHR) and review existing workflows to provide further efficiency and streamlining as faculty and staff have become engaged participants of the upgrades. The Department will utilize meaningful use data to report quality measures indicative of a fully integrated EHR. Additionally, the department will work with Press Ganey to obtain and promote patient satisfaction and best practices amongst all divisions as the department continues to expand to various locations within the community. With the expansion of the clinical research, residency, and fellowship programs, the department will focus on streamlined patient throughput in clinical and administrative space to improve workflow and access to necessary resources. The project will encompass all clinical and administrative staffing to provide timely and appropriate care in patient friendly locations utilizing sufficient resources from clinic, multi-disciplines, and community resources.

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

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

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

The administrative functions of the department are continuously reviewed and improvements made whenever appropriate. The roles of our Division Chiefs have been expanded to support department administrative efforts. The Executive Committee consists of the 10 Division Chiefs and the Vice Chairs for Research, Academic Affairs and VA Affairs. The Executive Committee will expand with the addition of a 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 2012-2013 academic year saw continuing growth in the diagnosis and treatment services of the clinical practice in the Department of Neurology (University of Pittsburgh Physicians–Neurology). The Department includes the Divisions of Epilepsy, General Neurology, Headache, Movement Disorders, Neuromuscular Disorders, Neuroimmunology/Multiple Sclerosis, Cognitive and Behavioral Neurology, Vascular Neurology and Women's Neurology. The continued growth of the Alzheimer Disease Research Center in Neurology has expanded services in behavioral neurology and memory disorders. Each division maintains a distinct mix of patient care, clinical research, and teaching activities.

Neurology maintains a highly visible presence at several locations throughout Western Pennsylvania. The majority of clinical activity takes place in the Oakland health system facilities, as well as meeting the needs in other geographical areas. The Department has two headache center locations, in Oakland and in Wexford. An active physician practice continues to operate in Mt. Lebanon. 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. While UPMC Mercy also offers a full spectrum of outpatient services including a fully accredited sonography laboratory. The department expanded services in Erie with the Northshore Neurology practice that encompasses a vast array of outpatient services including general neurology, EEG, EMG, and acupuncture.

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, 24 peer-reviewed manuscripts in the year 2012.

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, 9 peer-reviewed manuscripts and 3 invited papers in the year 2012.

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

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

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

Epilepsy Division

During the 2012-2013 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), **Maria Baldwin, MD** (Assistant Professor Neurology; Director, Continuous EEG Program), **Richard Brenner, MD** (Clinical Professor of Neurology, retired on March 30, 2013), **Gena Ghearing, MD** (Assistant Professor of Neurology; Director, EEG Laboratory), **Rick Hendrickson, PhD** (Assistant Professor of Neurology, Neuropsychologist), **Alexandra Popescu, MD** (Assistant Professor of Neurology), and **Anne C. Van Cott, MD** (Associate Professor of Neurology, Neurology Service/ VA Pittsburgh Healthcare System). 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.

Our center not only 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), and a state-of-the-art magneto encephalography (MEG) facility, but our EMU diagnostic capabilities improved to provide an even higher diagnostic yield with an addition of automatic remotely-controlled SPECT injectors that reduce a seizure-onset-to-injection time delay from above 60 to less than 10 seconds.

During the last year, our central UPMC PUH EEG Laboratory was relocated to a new nearby location within remodeled Neurodiagnostic Testing Center (8^{th} Floor, PUH), and renewal of its entire equipment was completed with an addition of six new portable video-EEG machines. With sustained efforts on training new EEG technologists, this enabled a continued growth of the laboratory service, including STAT and continuous EEG recordings that are available 24/7. On this premise, we have continued to develop the Continuous EEG Service at Presbyterian University Hospital (PUH), and help to establish the foundation of similar services at the nearby UPMC hospitals. 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 participate in a number of trials involving traumatic brain injury and post cardiac arrest patients.

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 placing the UPCEC currently among the top Epilepsy Centers in the Country.

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

Research conducted at the Epilepsy Center 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 or Surgery for Epilepsy) trial, a NIH-funded, multicenter randomized controlled trial designed to compare radiosurgery as a treatment option for medically-intractable mesial temporal lobe

epilepsy against standard resective surgery, and Intravenous Lacosamide Compared with Fosphenytoin in the Treatment of Patients with Frequent Nonconvulsive Seizures (TRENdS).

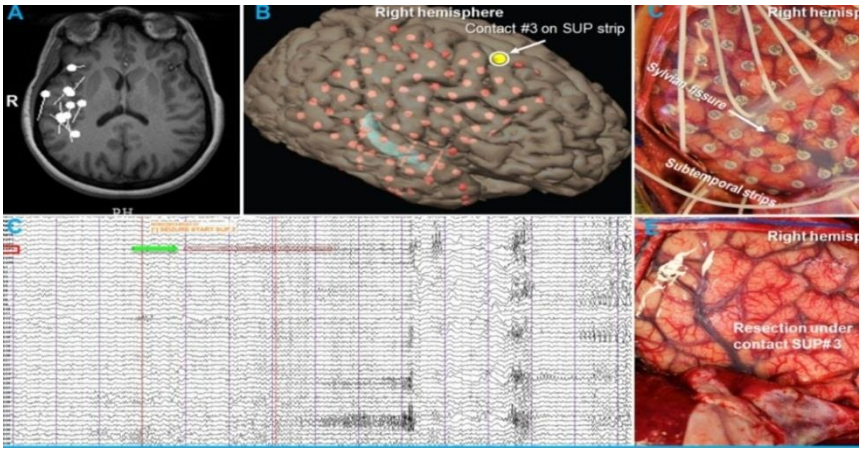


Figure 1.
An illustrative example of the implementation of the latest technologies and approaches to localize seizure onset (epileptogenic zone) and planned surgery for a challenging nonlesional case of intractable epilepsy leading to seizure-freedom: A. Magnetoencephalography (MEG) showing irritative zone in the right frontal lobe including deep right peri-Sylvian region; B. A right frontal view of the brain reconstruction with navigational software showing location of the fronto-temporal grid, subtemporal and superior frontal (SUP) strip electrodes, and amygdala and hippocampal depth electrodes; C. Pre-resection grid placement on the cortical surface; D. Electrocorticography (ECoG) with seizure onset seen at SUP3 contact; E. A small frontal gyrus resection under the SUP3 contact with pathology revealing severe cortical dysplasia.

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 out-patient clinics prepare residents for clinical practice at the completion of their training.

Headache Division

Drs. Robert Kaniecki, **Laurie Knepper**, **Barbara Vogler**, 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. 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. 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. 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 this year mentored student and resident research projects resulting in poster presentations at the International Headache Congress. Drs. Kaniecki, Vogler, and Knepper have all received board certification in Headache Medicine from the United Council for Neurological Subspecialties; Dr. Knepper received certification this past year. Dr. Kaniecki remains on the editorial board and acts a 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 **Dr. Josif Stakic** completed the program in June 2013. He subsequently was recruited to the faculty and is scheduled to see outpatients at the Headache Center and the VA Medical Center. 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, David Hinkle, Houman Homayoun, Samay Jain**,** and **Valerie Suski**. Additional clinical services are provided by **Jessica Kappel**, **PA-C**. The Movement Disorders Division has three broad objectives: (i) to provide subspecialty care in Parkinson's disease and other movement disorders; (ii) provide education in movement disorders for medical students, graduate students, residents and fellows; and (iii) carry out research in basic and clinical aspects of movement disorders. The American Parkinson Disease Association (APDA) has designated the Division as 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 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. The clinical fellowship program has matriculated its first fellow, Dr. Amber Van Laar.

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 with the addition of **Lori Shutter, MD**, as the first neurology trained neuro-intensivist at the University of Pittsburgh School of Medicine. She was appointed as Professor, Department of Critical Care Medicine, Neurology and Neurosurgery, and serves as Program Director for the Neurocritical Care Fellowship, and Co- Director of the Neurovascular Intensive Care Unit. She was previously at the University of Cincinnati College of Medicine from 2003 - 2012 where she established one of the first accredited Neurocritical Care Fellowship Training Programs. Her research focus is the area of traumatic brain injury and advanced monitoring in neurocritical care.

The last year has focused on development and growth of Neurocritical Care while strengthening the collaborations between Critical Care Medicine, Neurology, and Neurosurgery. Recruitment of additional NCC faculty has been a priority, and some outstanding candidates were interviewed. **Bradley Molyneaux, MD, PhD** agreed to join the division in July 2013 after completing his NCC fellowship at MGH/Brigham. Efforts for further recruitment in key clinical areas continue.

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).

The NCC fellowship was accredited by the United Council of Neurological Subspecialties (UCNS) in July of 2012. The program accepts one fellow a year into the 2 year training program, and is part of the Multidisciplinary Critical Care Training Program of the Department of Critical Care Medicine. The overarching goal of this program is to train fellows in the acute medical knowledge and technical skills needed to care for critically ill patients with neurological conditions, and thus be intensivists with expertise in neurocritical care. Our first fellow, **Premkumar Nattanmai, MD**, starts his training in July 2013. The selection into this program is done through a match process that occurs 18 months prior to the start of training. In the spring of 2013 we had 12 applicants for the July 2014 NCC fellow position. The strength of this new program is demonstrated by the fact that we matched with our top ranked candidate.

Additional educational efforts for 2012 – 2013 included the development of a required NCC rotation for Neurology Residents, and an advanced elective rotation in NCC for those residents interested in hospital based care of emergent neurological conditions. A NCC lecture series is being developed in coordination with the Neurovascular and Neurology services to provide collaborative training. Finally, a mentorship program has been established for residents interested in the field of NCC.

Research activities for the Division of NCC currently focus on clinical management of critically ill neurology patients. The SHINE study (funding: NIH via the NETT) is evaluating glucose control methods after stroke. In collaboration with the Department of Neurosurgery, a study assessing a novel treatment for cerebral edema after traumatic brain injury is underway with funding support from the DOD. Finally, a study looking at goal-directed management of neurocardiac injury after subarachnoid hemorrhage has received a highly fundable score from the NIH.

In summary, the Division of Neurocritical care has had a productive inaugural year and is on track for significant future growth.

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**. The infusion center managed by nurses **Rebecca Rosiek** and **Victoria Young** has expanded to meet the needs of patients on intravenous therapies including monoclonal antibodies, corticosteroids and immunoglobulin. Many patients with other immunologic conditions such as neuromyelitis optica, Sjogren's syndrome or sarcoidosis involving the central nervous system are seen by this division in support of regional physicians.

Division research continues and includes involvement in multi-center studies of novel oral or infusion therapies for MS. Some of the agents used in current protocols are 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 Oddi,** and assistant, **Darlene Punjack,** provide organization and support for these trials. **Katherine (Ashley) Kniseley** coordinates our Registry for MS and Related Disorders, which has been supported by the Ethel Vincent Charitable Trust. The registry aides 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**, 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.

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. 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).

The other major area of research involves ALS including clinical drug trials (tirasemtiv and recently completed dexpramipexole and ceftriaxone), serial magnetic resonance high field fiber tract imaging, (Drs. Lacomis, El-Dokla, and Zivkovic with Drs. Fernandez-Miranda, Ferrante and Friedlander from Neurosurgery), serial biomarkers (Lacomis with Dr. Robert Ferrante), induced skin pluripotent stem cell research (Lacomis with Drs. Ferrante, Carlisle, and Friedlander) and caregiver burden (Lacomis and Zivkovic). Dr. Lacomis mentored a Human Genetics graduate student who studied caregiver stress as her thesis project. 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).

In addition to the above, research initiatives for 2013-14 include participation in a multicenter study of diaphragm pacing in ALS (Dr. Lacomis – PI) and expansion of the high field fiber tract imaging project. 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 gliomas, and development of novel therapies 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. In 2013 Nduka Amankulor joined the Department of Neurosurgery after completing clinical and research training at Memorial Sloan Kettering Cancer Center. He joins Jonathan Engh and Peter Grezsten as neuro-oncologic neurosurgery faculty caring for cancer patients on the Shadyside campus. 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. Dr. Drappatz is a member of the CNS Tumor Committee for the newly formed Alliance for Clinical Trials in Oncology consortium.

- Through our participation in the ABTC, the Neuro-oncology Program provides patients with access to clinical trials focused on novel molecularly targeted drugs in phase1 development. The Alliance 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 full integration of the UPMC Neuro-Oncology Program into the newly formed "Alliance for Clinical Trials in Oncology" will take place in the coming academic year. 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 bevicizimab treatment in patients with recurrent glioblastoma. 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. With the arrival of Dr. Hoby Hetherington, Professor of Radiology, this program is expanding to include imaging of 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 chemo radiation 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.
- With the recruitment of Dr. Nduka Amankulor, Assistant Professor of Neurosurgery, the Neuro-oncology Program has gained a collaborator with expertise in the development of transgenic animal models of gliomas. Dr. Amankulor is developing models for elucidating the mechanisms through which IDH1 mutations in human gliomas affect gliomagenesis and provide targets for molecular therapy.
- 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. The working group produced a state of the art review of current achievements and challenges of quantitative imaging of tumor treatment response in clinical trials as part of a state of the art review edition dedicated to quantitative imaging in the Journal of Magnetic Resonance Imaging.

- 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.
- In collaboration with Drs. Drappatz and Lieberman, Dr. Hideho Okada, Professor of Neurosurgery, is directing an innovative program testing a novel approach to immunotherapy of gliomas using a vaccine based on glioma-associated peptides. Vaccine trials for patients with low grade gliomas began in 2009 and represent a paradigm changing innovation in the use of immunotherapeutic strategies for brain tumor treatment. The immunotherapy repertoire is expanding to include trials for patients with glioblastoma, and the low grade gliomas trials have been modified to allow patients who are not HLA-2A positive to participate. Dr. Okada, in collaboration with Neuro-oncology Program faculty, is the only North American investigator participating in a paradigm changing vaccine protocol for patients with glioblastoma in which the vaccine targets the specific genetic profile of the patient's tumor.
- 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 for 2013 is the development of a multidisciplinary group to address 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).
- Implementation of pivotal, randomized, double-blind, controlled 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).

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.

Women's Neurology Division

The Division of Women's Neurology at the University of Pittsburgh Medical Center is the newest division in the Department of Neurology and was established in July 2011. This unique interdisciplinary program bridges neurology with obstetrics, gynecology, and women's medicine, and focuses on gender differences in medical evaluation, diagnosis, and implementation of treatment and care. Its specialists consider how hormonal and reproductive changes throughout a woman's lifespan, including pregnancy and menopause, as well as the use of oral contraceptives and assisted reproduction, impact neurological health and disease. There are three areas of emphasis: clinical care, development of research, and patient and physician education. The division offers a clinical program where patients can see physicians specializing in clinical evaluation of the female neurological patient. The division has identified research clinicians who investigate neurological diseases specific to women and how gender-specific issues impact neurological disease. Physicians educate patients on topics specific to women experiencing neurological illnesses, train residents and fellows in this area, and provide information to physicians in the community at large.

A unique aspect to the division is the clinical and research collaboration with physicians at Magee Women's Hospital and the neuro-obstetrical concentration. With over 10,000 deliveries a year, Magee is one of the largest obstetrical hospitals in the country and houses the extensive Magee Obstetric Medical and Infant (MOMI) research database with information on more than 100,000 deliveries since 1995. These resources are unlike those anywhere else in the country and can be used to answer clinical questions regarding women and neurological illness.

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

Due to persistent collaborative efforts through the Women's Neurology Division, the UPMC became a part of the two cardinal NIH-funded multicenter observational studies: 1. Women with Epilepsy: Pregnancy Outcomes and Deliveries (WEPOD that is focused at examining the patterns of fertility among women with epilepsy (WWE) compared to an age matched group of women without epilepsy (WWoE), and 2. Maternal Outcomes and Neurodevelopmental Effects of Antiepileptic Drugs (MONEAD) that aims to establish the relationship between antiepileptic drug (AED) exposure and outcomes in the mother and child as well as describe and explain the variability in AED exposure and response.

Autumn Klein, MD, PhD served as the founding Women's Neurology Division chief from 2011 until her premature tragic death in April 2013. A rapid progress of this and related programs and large patient population acquired over a short period of time are the best attestations of Dr. Klein's enthusiasm, dedication, competency and professionalism. She will be very much missed by her patients and colleagues.

Department Institutes and National Center Affiliations

Alzheimer Disease Research Center

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

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

Current research studies funded by the ADRC include:

- The identification of amyloid pathology more than 15 years prior to the onset of symptoms in early onset AD
- The examination of the factors that may promote or delay the progression of mild cognitive impairment to very early AD
- The examination of aging effects on microglia and their role in the early pathology of AD
- 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. The ADRC participates in several national consortia including the Alzheimer's Disease Cooperative Study, Alzheimer's Disease Neuroimaging Initiative, the Alzheimer's Disease Genetics Initiative, and the National Alzheimer's Collaborative Center.

American Parkinson Disease Association Center for Advanced Research

The University of Pittsburgh School of Medicine was designated an American Parkinson Disease Association Center for Advanced Research in 2006. The APDA is the nation's 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 role of Co-Director along with Robert Ferrante, PhD (Neurosurgery and Neurology) as Co-Director. The primary purpose of the Center is to promote collaboration among University of Pittsburgh scientists and clinicians who share an interest in motor neuron disease research thereby expanding basic, clinical, and translational research in amyotrophic lateral sclerosis. The clinical arm is a certified MDA-ALS Center recognized for clinical and research expertise in ALS. Current collaborative projects include identification of cerebrospinal fluid and serum biomarkers, high field MRI fiber tracking, and pluripotent skin stem cell studies. One biomarkers study is geared toward evaluating TDP-43, and specimens are being shared with other institutions in a multicenter discovery and validation study. The pluripotent stem cell study will allow examination of human motor neurons and glia from patients and controls with ALS. The fiber tracking studies are performed in collaboration with investigators in the Department of Neurosurgery and will examine disease spread in the spinal cord as well as the brain over time. An ALS Tissue Bank is maintained in the Division of Neuropathology and is headed by Dr. Julia Kofler. In conjunction with Eleanor Feingold, PhD and Steve Albert, PhD from the School of Public Health and graduate student Kristen Qutub, a study of caregiver stress and depressive symptoms was performed. The Center is participating in a phase IIb trial of tirasemtiv and in a study of diaphragm pacing.

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 $1.5M VA core funding.

The education component of the GRECC is designed to ensure that existing knowledge in geriatrics and new research findings are integrated into clinical practice and disseminated locally, regionally and nationally, and consists of two elements; (1) postgraduate fellowship training in geriatrics for physicians, clinical rotations for internal medicine residents and medical students, and clinical and didactic offerings for trainees in associated health science fields, and (2) continuing medical education in geriatrics for physicians and other health service practitioners. There were more than 60 GRECC trainees in the last fiscal year and approximately 1000 attendees at GRECC CME activities.

There were three active GRECC clinical demonstration projects: 1) The Pittsburgh Intensive Residential Aphasia Treatment and Educational program (PIRATE) is a novel residential outpatient aphasia rehabilitation program. PIRATE provides a 21 day program of intensive aphasia treatment for veterans who reside at the John Heinz Community Living Center in Aspinwall during treatment. 2) The GRECC has developed a Driving Evaluation Clinic that assesses the ability of elderly veterans to drive. This clinic focuses on medical and cognitive assessment in elderly veterans. 3) A new Dementia Clinic has been developed that provides comprehensive geriatric, neurological, psychiatric and social work services for Veterans with dementia 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.

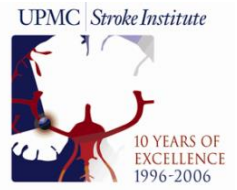
Pittsburgh Institute for Neurodegenerative Diseases

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 is one of the few hospitals in the country to meet the requirements for then newly developed Comprehensive Stroke Center designation. 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. Effective May 2010, Tudor Jovin, MD was named Director of the UPMC Stroke Institute. He succeeded Lawrence R. Wechsler, MD who was appointed chairman of the Department of Neurology.

The Stroke Institute is comprised of a cerebrovascular specific clinical service that provides in person coverage at two hospitals (UPMC Presbyterian and UPMC Mercy) resulting in over 2000 cerebrovascular inpatients seen annually. In addition, an extensive telestroke network is in place providing remote stroke care at 18 other 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, Guillermo Linares, Ashutosh Jadhav, 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, Guillermo Linares, 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 8th annual all day nursing conference with continuing education credits focusing on stroke was provided this year. The Institute supports community programs and provides stroke screenings in many local settings. Both faculty and staff are active on the local, state and national level providing education and participating in legislative activities to promote stroke care. 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 interventions or recovery. 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 up to 10 UPMC community-based hospitals, improving the standards of stroke care. The Stroke faculty now provides on-site acute stroke management at both UPMC Mercy and UPMC Shadyside hospitals. Telemedicine equipment for 24/7 stroke assessment has also been introduced at UPMC Passavant/Passavant-Cranberry, UPMC St. Margaret, UPMC McKeesport, UPMC Magee, UPMC Horizon, and UPMC Northwest and UPMC Bedford. In 2008, the Institute began to expand services to non-UPMC affiliated hospitals and now provides telemedicine to regional hospitals such as Monongahela Valley Hospital, Jefferson Regional Medical Center, Meritus Hospital in Hagerstown, MD, The Washington Hospital, Washington, PA, Jameson Hospital, and Heritage Valley Medical Center – Beaver Valley campus. Preparations are underway for two additional sites that will be added in 2013. Since implementation of telemedicine within UPMC, over 1400 urgent stroke consults have been conducted via telemedicine and over 375 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 renewed accreditation by the American Board of Registration of Electroencephalographers and Evoked Potential Technologists (ABRET) this year.

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

geriatric psychiatry fellows throughout the year. We also serve as a training site for the geriatrics fellowship programs at UPMC and St. Margaret's Hospitals. 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 and neuropathology by Dr. Gutti Rao. The VA neurology service further contributes to the educational mission of the neurology department by serving as a clinical rotation site for medical students in their third year of training and for acting interns in their fourth year of training.

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

The VA Neurology Faculty for 2012-2013 was comprised of Dr. Paula Clemens, Chief of Service and Drs. Ed Burton, Kathy Gardner, Steven Graham, David Hinkle, Eric Ogren, Anne Van Cott and Saša Živković.

Research and Scholarly Activities

Research and Scholarly Activities

Cognitive and Behavioral Neurology Division

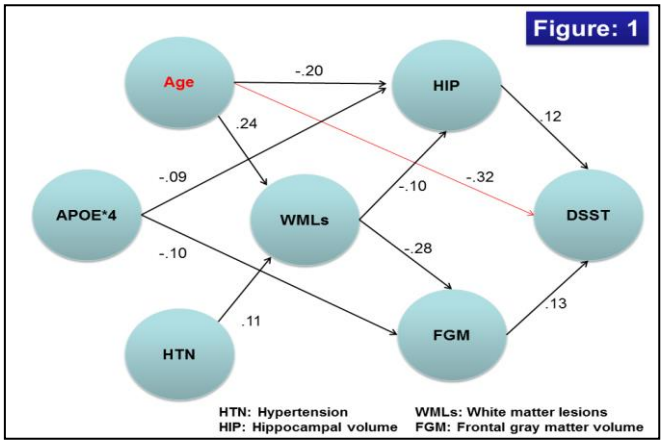
Oscar Lopez, MD
Professor of Neurology
Chief, Cognitive and Behavioral Neurology

Dr. Lopez continues to be 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 8 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.

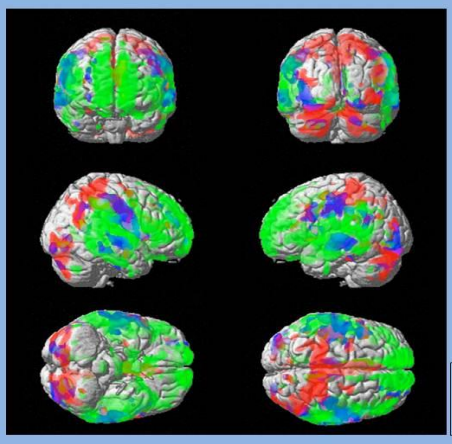
Dr. Lopez continues conducting genome-wide association studies (GWAS) in late onset AD through the following cooperative studies: 1) Cohorts for Heart and Aging Research in Genomic Epidemiology (CHARGE); this is a consortium formed by the Reykjavik Study, Cardiovascular Health Study (CHS), Framingham 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 study that reported variants in the ATP-binding cassette transporter (ABCA7), apolipoprotein E*4, and the risk of late-onset Alzheimer disease in African Americans. With colleagues at the University of Washington, Seattle, he examined the glucocerebrosidase gene mutations associated with increased risk for Lewy body disease in patients with and without Alzheimer's disease pathology.

Dr. Lopez has conducted a large-scale study in the clinical diagnosis of mild cognitive impairment (MCI), which is considered an intermediate state between normalcy and dementia. His findings are relevant to an understanding of the symptom profile and nosology of MCI. In addition, Dr. Lopez's group continues with studies that examine the factors that affect brain structure in cognitively normal elderly individuals in the Cardiovascular Health Study-Cognition Study (CHS-CS) (P.I.: Dr. Lopez). He has conducted studies to determine (i) whether greater white matter lesion (WML) burden affects gray matter (GM) volume, (ii) the influence of age on this relationship, and (iii) the relative contribution of WML to cognition through its relationship to brain structure using MRI scans in cognitively normal participants. This study showed three main findings: First, higher WML burden reflecting more severe small vessel disease, was related to lower GM volume. Second, WML and age had independent and addictive effects on GM. That is, WML and age influence different regions, based on covariate adjustment, but also showed additive effects in the frontal and temporal lobes including the posterior hippocampus. Third, age and hypertension independently predicted higher WML burden. Collectively, these findings suggest that WMLs are features of brain aging and hypertensive vascular disease that independently predict brain structure of regions relevant to cognitive function such as the hippocampus and frontal lobes. These findings were used to create a model of age, cognition, and



cerebrovascular disease. Figure 1 shows that the commonly observed correlation between performance on cognitive testing (the digit symbol substitution test (DSST)) and chronological age (red line). However, DSST performance was actually predicted by hippocampal and frontal cortex volume, which were themselves predicted by the APOE*4 allele and white matter lesions (WMLs), which, in turn, were associated with hypertension. *Age did not have a direct effect on DSST performance;* its effect was fully mediated by WMLs and the volume of the hippocampus and frontal cortex. Figure 2 shows the effect of hypertension and WML on GM volume.

Figure 2: Effects of hypertension and white matter lesions on brain volume



Main effect of hypertension in red, WMLs in green, and overlap between both in blue.

Eric McDade, DO
Assistant Professor of Neurology

Dr. Eric McDade joined the Department of Neurology in 2011 following the completion of Fellowship training. He graduated from the Chicago College of Osteopathic Medicine and then completed his Neurology training at the University of Maryland where he was Co-Chief Resident and received the Arnold P. Gold Humanism Award. Dr. McDade then pursued Fellowship training in Dementia and Cognitive Neurology at the Mayo Clinic. While at the Mayo Clinic he also obtained additional training in clinical research through the Clinical and Translational Science Award Institution.

Dr. McDade's clinical focus is on dementia with a particular interest 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.

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. He will also serve as the site Principle Investigator on the upcoming DIAN Trial.

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. 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 was co-investigator on the NCCAM-funded Ginkgo Evaluation of Memory (GEM) Study (DeKosky, PI). She collaborates closely with mentors and 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 Chief, Epilepsy Division
Director, UPMC MEG Epilepsy Program and Epilepsy Monitoring Unit
Chief Scientific Advisor, MEG research
Director, University of Pittsburgh Comprehensive Epilepsy Center
Director, Epilepsy Monitoring Unit (EMU)
Director, UPMC MEG Epilepsy Program
Chief Scientific Advisor, MEG research
Director, University of Pittsburgh Comprehensive Epilepsy Center (UPCEC)
President, American Clinical MEG Society (ACMEGS), 2012 - Current

Dr. Bagić conducted an Outpatient Epilepsy Clinic, had major attending responsibilities in the Epilepsy Monitoring Unit, 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 expanded and most recently upgraded by an addition of automatic remotely-controlled SPECT injectors that reduces a seizure-onset-to-injection time delay from above 60 to less than 10 seconds, MEG Epilepsy Program doubled its volume of studies over the last 18 months and sustained Epilepsy Division team efforts in concert with Adult Epilepsy Surgery Program resulted in a steep increase in our surgical volume 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 and smaller grants. Dr. Bagić has been investigating hand transplant recipients using MEG since the Hand Transplant Program enrolled its first participant in March 2009. A presentation of initial results at international conferences sparked major international collaborations with MEG experts in Finland and Spain focused on brain plasticity; some are being prepared for publication.

Nationally, Dr. Bagić continued to be very active within the American Clinical MEG Society (ACMEGS) where he is a founding member, served on the Board of Directors and as a treasurer, and chaired the Clinical Practice Guidelines (CPG) Committee that finalized the world's first clinical practice guidelines for the field of clinical MEG, a vital step in propelling MEG technology from clinical research to clinical routine. Currently, Dr. Bagić serves as the President of the ACMEGS. Since 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 Credentialing Committee and MEG Reporting Committee of the International Society for Advancement of Clinical MEG (ISACM), and founding member of the **Mag**netoencephalography **I**nternational **C**onsortium for **A**lzheimer's **D**isease (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.

During the past academic year, Dr. Bagić presented on three major international meetings, chaired various sessions on two, published several articles in major journals, and has four related articles in review and several in preparation. His follow up study on public perception, attitude and knowledge about epilepsy was published in *Epilepsy & Behavior*, while his other related publications about social distance towards persons with epilepsy are in submission.

Dr. Bagić's research is focused on applications of MEG in studying epilepsy, language, cognition and brain plasticity in response to hand transplantation. Dr. Bagić is a co-investigator or consultant on multiple MEG-based studies ongoing at UPMC, including NIH-funded R01 grants. Currently, the most active MEG research efforts are on studying dementia, music and brain plasticity. Over the last year, 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 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 MEG studies, particularly those focused on brain plasticity of hand transplant recipients, as well as initiating a major invasive cognitive study of epilepsy patients with subdural grids, 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 role within the Residency Program, Clinical Neurophysiology Fellowship Program, MS1 Neuroscience Course, MS4 Clinical Pharmacology, and Multimodal Neuroimaging Course. One of Dr. Bagić's short-term goals is 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 expanded 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 the entire Epilepsy Division in various epilepsy advocacy activities.

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.

Richard Brenner, MD
Clinical Professor of Neurology

Dr. Brenner worked part-time in the EEG Laboratory at the University of Pittsburgh Medical Center He continued as a member of the Editorial Board of the Journal of Clinical Neurophysiology, as well as serving as a reviewer for several journals, including Seizure and Clinical Neurophysiology.

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

Gena Ghearing, MD
Assistant Professor of Neurology

Dr. Ghearing has been continuing to work to increase the activity of the adult surgical epilepsy program which is now averaging approximately two to three surgeries per month. Many of these cases have been complicated cases which require prolonged extra operative 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 works in neurology, neuropsychology, neurosurgery, MRI, nuclear medicine, MEG, and other interested groups.

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

Dr. Ghearing collaborates with Dr. Wei Wang, Dr. Tyler-Kabara, Dr. Richardson and colleagues in bioengineering to record human cortical activity using mico-electrocortiography. This year the project has shifted to evaluating high frequency oscillations, and we also successfully recorded micro-seizures and hope to collaborate on a project with Mayo clinic evaluating this further. She also continues her research in ictal asystole.

Dr. Ghearing continues to be the director of the EEG lab at Presbyterian Hospital, which underwent extensive renovation and growth this year. We now have 6 ambulatory EEG machines for prolonged outpatient recordings and 12 Video EEG machines, which can be utilized for monitoring in the ICU. We also have started to perform lower extremity somatosensory evoked potentials in addition to upper extremity evoked potentials, brainstem auditory evoked responses, and visual evoked potentials. We are also expanded the video continuous ICU services performing 180-190 of these 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 that was recently submitted. In addition, he provided 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.

In 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 and a medical student in the analysis of cognitive and psychological variables on the above studies with Dr. Popescu. He also plans to independently analyze the above database for another paper. Dr. Hendrickson will provide neuropsychological services as previously with his primary clinical responsibilities addressing the needs of the Epilepsy Center, mostly performing inpatient assessments.

Jullie Pan, PhD
Professor of Neurology

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 development work pulls together multiple engineering issues in high field MR to target its assessment in challenging cases of localization related epilepsy (see Figure). In so doing, discoveries of metabolic network aberrancies in epilepsy, inhibitory dysfunction in epilepsy are coming to light. The newest project undertaken in the laboratory focuses on implementing a rat model of epilepsy with spectroscopic imaging at 7T to assess the metabolic pathophysiology of epileptogenesis. Given the metabolic dysfunction and the disturbances in excitatory and inhibitory neurotransmission that are highly prevalent in epilepsy, we anticipate that this rodent project may help define the imaging biomarkers of epileptogenesis. With ongoing parallel human imaging studies, we believe that this work will provide an assessment of the metabolic contribution towards epilepsy, and also a direct approach to the evaluation and management of epilepsy patients.

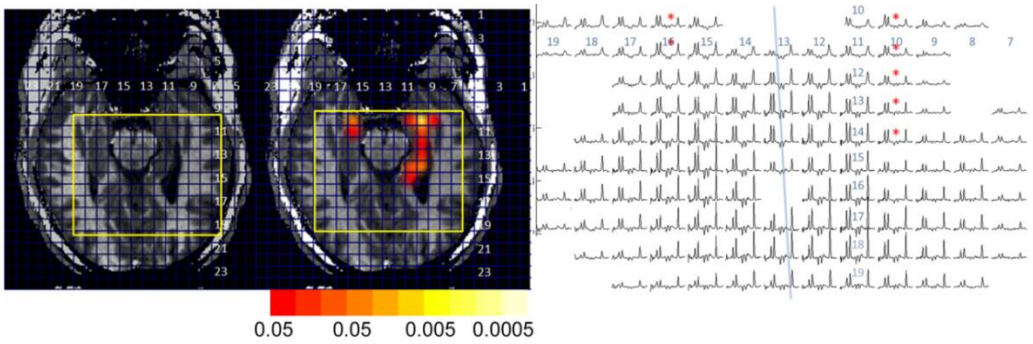


Figure shows the abnormal distribution of metabolic compounds throughout the (left) ipsilateral medial temporal lobe, smaller involvement of the (right) anterior contralateral medial temporal lobe. The color overlay shows the extent of abnormality of the ratio of N-acetyl aspartate/creatine in these regions with p values as shown in the colorbar. Data from the MR spectroscopic imaging are shown on the right with asterisked spectra showing some of the abnormality. These data acquired at 7Tesla using an 8 channel transceiver array.

Funding sources are currently NIH R01 EB011639 and R21 NS083035, and in the past have included the Swebilius Foundation and Dana Foundation.

Alexandra Popescu, MD
Assistant Professor of Neurology

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

Dr. Popescu's activities this year included serving as attending on the Epilepsy Monitoring Unit, and playing a leading role in the adult surgical epilepsy program. Dr. Popescu 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 2012-2013 Dr. Popescu continued her work with the post cardiac arrest team assessing patients and using continuous EEG monitoring during therapeutic hypothermia. Dr. Popescu presented her work in a platform presentation at the 65th American Academy of Neurology annual conference entitled "Malignant EEG Patterns Are Common in Cardiac Arrest Survivors Treated with Therapeutic Hypothermia and a Standardized Antiepileptic Algorithm (S07.003)".

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. Future research endeavors will focus 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 two University of Pittsburgh professors on separate projects examining traumatic brain injury in veterans. She will serve as 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 will also serve as the principal investigator at the VA for Dr. Okonkwo's (Clinical Director of the Brain Trauma Research Center) DoD/CDMRP funded study of veterans with chronic traumatic encephalopathy using High Definition Fiber Tracking 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 was just re-accredited by the American Board of Electroencephalographic and Evoked Potential Technologists (ABRET) in 2013.

Dr. Van Cott has always enjoyed educating fellow health care providers and the public and frequently lectures on the treatment of epilepsy. 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 the quality assurance committee for the Clinical Neurophysiology Fellowship Program and the university.

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.

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.

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.

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

Dr. Busis joined the Department on August 1, 2012 and provides 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 comprised third and fourth year medical students during the course of the year. Dr. Busis also serves as Director of the Neurodiagnostic Laboratory at UPMC Shadyside and helped ensure that high quality outpatient and inpatient EEGs, EMGs, and evoked potentials were provided in a timely fashion.

Dr. Busis was again named among the Top Doctors by Pittsburgh Magazine and in Best Doctors and Top Doctors nationally. He and one of his patients were featured in "8 Incredible Medical Stories" in Pittsburgh Magazine and in the New York Times' "Think Like a Doctor" column online and in the New York Times Sunday Magazine.

Dr. Busis currently serves on the Board of Directors of the American Academy of Neurology and recently finished his term as Chair of its Medical Economics and Management Committee. 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 advocated in Congress and with the Centers for Medicare & Medicaid Services for fair reimbursement for neurological services and procedures, chaired the Practice section of the American Academy of Neurology's Navigating Health Care Reform Task Force, and was the project leader on the American Academy of Neurology's Neurology Medical Home project.

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.

Plans are underway to enhance neurology at UPMC Shadyside and UPMC Passavant in the coming year by adding additional full-time staff and clinical neurophysiological services and by introducing clinically relevant quality measures. A neurology medical home is being developed in collaboration with the UPMC Health Plan.

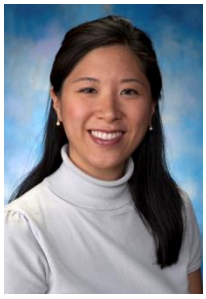
Simin Khavandgar, MD
Clinical Assistant Professor of Neurology

After a 1 year interval, Dr. Khavandgar rejoined the department of neurology in July 2012. Since that time she has been primarily focused on clinical neurology practice and sleep medicine at UPMC Monroeville center. She established a sleep neurology practice at the Monroeville center and also continues to see general neurology patients and perform diagnostic electromyography for patients with a range of neuromuscular disorders. In addition, Dr. Khavandgar participates in a range of educational activities including lectures for medical students and residents and precept rotating neurology residents and fellows. She has a special interest in the interface of neurology and sleep medicine, including diagnosis and treatment of sleep disorders associated with movement disorders including Parkinson’s disease, cerebrovascular disorders, and multiple sclerosis as well as other sleep disorders including sleep disordered breathing. She is looking forward to continue and broaden 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 of 2012. During the 2012-13 year, he established a busy general neurology practice at UPMC Passavant and a sleep neurology practice at UPMC Monroeville clinics. He continues to see general neurology patients in the outpatient and inpatient setting at UPMC Passavant, and is also seeing sleep patients and interpreting sleep studies from Monroeville and the UPMC Montifiore sleep center. 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 a lecture to the internal medicine residents as a part of the neurology curriculum and will be giving a lecture on Parkinson's disease 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 serves as a general neurologist providing daily outpatient clinical care. Her practice at the UPMC Mercy satellite location has allowed the department to increase its clinical productivity and expand its reach to patients in an under-served community.

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

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

Kelly Kay, DO
Clinical Assistant Professor of Neurology

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

Eric Ogren, MD
Assistant Professor of Neurology

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

Barbara Swenson, MD
Clinical Assistant Professor of Neurology

Barbara 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.

Janet Waters, MD, MBA
Clinical Assistant Professor of Neurology

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

Headache Division

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

During the academic year 2012-2013 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. She has established collaborations to help with the collection at headache centers at University of Oklahoma Health Sciences Center. She is the PI for this multi-center study funded by the American Headache Society/ Pfizer and is responsible for oversight and protocol renewals at Children's Hospital and the VA. The hemiplegic migraineurs are referred through NIH-sponsored Genetests website, where she is the author of the monologue on Familial Hemiplegic Migraine (FHM). Dr. Gardner also has a study ongoing at the Children's Hospital NF clinic to characterize headache types and frequency in subjects of all ages with NF-1 titled "Headaches in Neurofibromatosis-1." She is an advisor and board member for the local chapter of the Neurofibromatosis Clinics Association and Co-Director of the Children's Hospital Neurofibromatosis Clinic.

Laurie Knepper, MD
Clinical Associate Professor of Neurology

In the past academic year, Dr. Knepper has studied and passed her UCNS Headache Subspecialty Board Certification Exam. She now holds the Headache Certification as well as the ABPN sub certification in Vascular Neurology. She has enjoyed increasing involvement in teaching of the medical students and Neurology Residents. She has also been clinically busy at the UPMC Headache Center and I am in the process of developing a formal affiliation and clinical collaboration with UPMC Psychiatry and Psychology. Dr. Knepper met with Psychiatry and Psychology from WPIC and the Center for Integrative Medicine and has been in contact with the UPMC Pain Center as well in attempt to establish, hopefully on site, psychiatry/psychology support. Currently she has designed a monthly calendar, which all the Headache providers have been using since July 1, 2013 to record the number of patients that they feel would benefit from Psychology or Psychiatry referrals, or both. She is beginning to pursue research interests in headache medicine. She would like to evaluate the use of MR venogram vs. CT genogram in Transverse sinus pathology, pertinent to their patients with Intracranial Hypertension. Dr. Knepper also has an interest in Reversible Cerebral Vasoconstriction Syndromes and the association with Thunderclap headache and migraine. She is in the process of reviewing the treatment of migraines in pregnant patients with possible assay/trial of current non medication alternatives. She has greatly enjoyed being back in the University of Pittsburgh's Department of Neurology.

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. Over the past year, Dr. Vogler has been an Attending for the Headache Fellowship program.

Movement Disorders Division

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

Dr. Greenamyre 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 dystonias. She oversees management and programming of stimulators, other aspects of treatment, and evaluations and referrals for new patient candidates. Since 2008, she also evaluates patients at the Alzheimer's Disease Research Center.

Dr. Berman is also a principal investigator with the Pittsburgh Institute for Neurodegenerative Diseases (PIND), where she continues to be engaged in an active research program focusing on the role of mitochondria in neurodegenerative diseases, particularly Parkinson's disease (PD). Dr. Berman's research focuses on the role of mitochondrial dynamics in neurodegenerative diseases. Mitochondria, the energy-producing organelles in cells, are dynamic in neurons, undergoing frequent division (fission) and fusion, and being transported in a regulated fashion. These processes are critical for synapse function and formation, programmed cell death mechanisms, and protection of mitochondrial DNA, and specific defects in mitochondrial fusion genes cause neurodegenerative diseases. Mitochondrial dynamics have been increasingly implicated in neurodegenerative diseases, particularly PD, but these mitochondrial processes have been very difficult to study directly, particularly in the brain. Using novel methodology, Dr. Berman's laboratory directly studies the role of mitochondrial dynamics in neurotoxicity of PD models and aging, and her results have suggested that neurotoxicity can be affected by altering mitochondrial dynamics. 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 as several undergraduate students.

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

Over the course of the 2013-2014 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
Assistant Professor of Molecular Genetics and Biochemistry

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

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

2. The Burton lab has developed recombinant viral vectors that target the α-synuclein gene implicated in Parkinson's disease. These vectors substantially knock down α-synuclein expression in the mammalian brain *in vivo* after intra 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. The studies will potentially yield a novel gene therapy approach for treating PD. This work is supported by the US Department of Veterans' Affairs.

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

Dr. Hinkle joined the University of Pittsburgh Neurology faculty in 2004 after completing his Neurology residency and fellowship training in movement disorders at the University of Pennsylvania. He has been an active member of the Movement Disorders Division through his participation in the Comprehensive Movement Disorders (CMDC) and Dystonia Clinics, his role as the Course Director for the CMDC continuing medical education activity entitled "Parkinson's Disease (PD) and other Movement Disorders: Update for the Clinical Practitioner," and through his outreach activities with local Parkinson's disease and dystonia patient support groups. Dr. Hinkle speaks in the Neurology resident Movement Disorders lecture series, and serves as the Clinical Advisor for the Pittsburgh Chapter of the Dystonia Medical Research Foundation. In addition to these activities, Dr. Hinkle also attends at the Veterans Administration Movement Disorders clinic, is the VA PD Consortium Director of the National Parkinson's Disease Research and Education Centers, and attends on the UPMC inpatient neurology consultation service. He is an active participant in the clinical training of Neurology, Psychiatry, Geriatrics, and Internal Medicine students, residents, and fellows through these outpatient and inpatient services. He also lectures in a variety of capacities around campus, including the medical school Neuroscience course.

Dr. Hinkle runs a basic science laboratory within the Pittsburgh Institute for Neurodegenerative Diseases. His lab studies the role of astrocyte-mediated neuroprotection against neurodegenerative disorders. He is particularly interested in how DJ-1, a gene that causes familial PD when silenced, may act through astrocytes to protect neurons under experimental conditions that are relevant to PD. Dr. Hinkle has recently presented this work at several international meetings and has had several publications result from these studies over the past year. His lab plans to investigate the mechanisms of astrocyte-mediated neuroprotection over the next year using high-throughput neuron-astrocyte co-culture bioassays, in-cell Western analysis, quantitative PCR, array-based gene expression profiling, mitochondrial dynamics/physiology, transgenic mouse, and virus-mediated gene transfer technologies. Dr. Hinkle's lab has two technicians and is funded by the National Institute of Environmental Health Sciences (R01).

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

Eric K. Hoffman, 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 various clinical aspects of 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 and hemifacial spams, Cerebellar and Gait 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 selected patients. Dr. Homayoun's 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, he is participating in the treatment of patients with different movement disorders, primarily dystonia, with Botulinum Toxin injection. Along with his clinical duties, he 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.

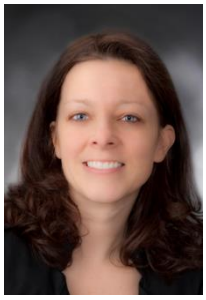
Samay Jain, MD
Assistant Professor of Neurology
Clinical Director, Movement Disorders Division

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. In addition to working full-time as a neurologist specializing in movement

disorders, he is also working on a documentary about creativity in the lives of patients with Parkinson disease and participates in activities with local Parkinson disease support groups.

Dr. Jain is interested in developing accurate and early clinical diagnosis techniques and therapy for movement disorders, as well as complications later in the 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.



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
Professor, Critical Care Medicine, Neurology and Neurosurgery
Director, Neurocritical Care Fellowship Program
Co-Director, Neurovascular ICU

Dr. Shutter joined the Departments of Critical Care Medicine (CCM), Neurology and Neurosurgery in July 2012 to lead development of the Neurocritical Care (NCC) Fellowship Training Program. Her clinical work is primarily in the Neurovascular and Neurotrauma ICUs. Dr. Shutter helped to 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. Under her direction the NCC curriculum has been completely revised for the CCM training program. In recognition of her educational activities Dr. Shutter was named Faculty of the Year by the fellows of Critical Care Medicine. She has been appointed to the Neurology Residency Curriculum Committee and developed the educational training and rotations in NCC for the Neurology Residency Training Program. In addition, she has been actively mentoring two neurology residents who are interested in NCC fellowship training. The UPMC Neurocritical Care Fellowship Program was accredited in July 2012, and the first fellow will be starting in July 2013. In addition, the program matched with our top ranked applicant for July 2014. NCC research activities are being created both on an individual level and through collaborations with Neurosurgery, Neurology and Emergency Medicine. Finally, Dr. Shutter was named a Fellow within the Society of Critical Care Medicine based on her clinical activities, program development, academic accomplishments and leadership activities in the field.

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 Chairmen (Chairman), and Task Forces regarding the relationship of the NMSS with the Pharmaceutical Industry and with the Comprehensive Care Center Affiliation process. He has been active with the Consortium of MS Centers, where he has been a member of the Broad of Trustees as a Member at Large and coordinates consensus conference development. Regionally, Dr. Heyman serves the Allegheny District Chapter of the NMSS on the Board of Trustees (executive committee), medical advisor, research advocate, and chairman of the Clinical Advisory Committee.

Dr. Heyman's educational efforts also center on Multiple Sclerosis. He lectures to the University of Pittsburgh medical, physical therapy, and occupational therapy students as well other regional health care professionals. Dr. Heyman is the lecturer for the medical school's classes on MS and related disorders and teaches in all of the first year medical school neuroscience small group sessions and problem based learning sessions. He has assisted in the development of course materials for the Neuroscience Course problem-based learning and small group

neurology conferences. He has presented numerous CME programs regionally and nationally as well as producing enduring CME materials for physicians and other health care professionals as well as educational works (brochures, videos) for patients nationally. The clinical care he provides at the Kaufmann Building site usually also involves teaching medical students, neurology residents, and fellows in clinical MS care and spinal cord injury medicine. Dr. Heyman believes strongly in patient education and he supports numerous patient support and education groups throughout the region and assists with both regional and national media issues regarding MS.

Dr. Heyman is involved in all of the division's multi-center research trials, as either a principal 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 to continue 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. 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 group was 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.

A study we are preparing to start is "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 will enter 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 hopes 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 on-line 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. Dr. Mitchell will also continue to serve on numerous education committees as well as teach the medical students, neurology residents and fellows.

Islam Zaydan, MD
Assistant Professor of Neurology

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

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

Dr. Zaydan is a fellowship trained neuro-ophthalmologist and holds a joint appointment at the UPMC Ophthalmology Department (UPMC Eye and Ear Institute)/Neuro-Ophthalmology Division where he provides

evaluations and treatments of various neuro-ophthalmologic problems including ocular motility disturbances, optic nerve diseases, and visual field/perception disturbances. He has written several chapters on the striate cortex and cerebellum and has presented at the North American Neuro-Ophthalmology Society annual meetings.

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

Neuromuscular Diseases

David Lacomis, MD
Professor of Neurology and Pathology
Chief, Division of Neuromuscular Diseases
Director, Clinical 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. Dr. Lacomis continues to direct the Clinical Neurophysiology Fellowship Program and mentored two fellows this year. He remained active in teaching medical students in the Neuroscience Course and house staff from Neurology and Pathology. He is also in charge of the Neuromuscular Pathology Service and trained three 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 III randomized, double-blind, placebo-control study of the safety and efficacy of dexpramipexole in amyotrophic lateral sclerosis (ALS) and for the NIH-sponsored Phase III study of intravenous ceftriaxone in ALS. He is the site PI for a Phase II study of tirasemtiv in ALS. Along with collaborators from the Center for ALS Research, of which he is a Co-director, he is studying and for a longitudinal blood and cerebrospinal fluid biomarkers, serial high field MRI fiber tract imaging, and developing an induced pluripotent skin stem cell program. Along with Drs. Shende and Luketich from Thoracic Surgery, Dr. Lacomis initiated a diaphragm pacemaker program for ALS patients at UPMC.

Dr. Lacomis mentored Human Genetics master's degree student, Kristen Qutub, in a study of ALS caregiver burden and depression. She received her degree, and they identified risk factors and are completing a manuscript for publication. Dr. Lacomis is also collaborating with Drs. Chester Oddis and Rohit Aggarwal from the Division of Rheumatology in studying necrotizing myopathies, especially those associated with antibodies against signal recognition particle (SRP) and HMG Co-A. This work was presented at the American College of Rheumatology meeting. Dr. Lacomis is primarily evaluating the histopathological changes in these patients so that they can be correlated with serologic and clinical markers. He is also working with those Rheumatology colleagues and Dr. El-Dokla in characterizing amyopathic dermatomyositis and identifying more sensitive methods of detecting pathologic changes in skeletal muscle in those patients. Previous work with Steve Meriney, PhD from the Department of Neuroscience, regarding calcium channel agonists as therapeutic agents in Lambert-Eaton Myasthenic Syndrome is now in press. He presented a lecture on "Interpretation of the Muscle Biopsy Report in Patients with Myopathy," at the American College of Rheumatology Annual Meeting, Washington DC, on November 13, 2012.

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, 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 evalaution 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 medicated 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.

Saša Živković, MD, PhD
Associate Professor of Neurology

In the academic year July 1, 2012 through June 30, 2013, 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 a 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 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 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.

Neuro-Oncology

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

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

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

Dr. Lieberman is involved in a collaborative study of novel PET technique using a tracer, which is selectively sequestered in apoptotic tumor cells, in which the tracer is being assessed as a marker of treatment response in brain metastasis from nonsmall cell lung cancer.

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

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

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

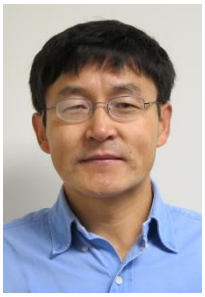
Dr. Drappatz is a leading expert in brain cancer treatment and research. As a board- certified neurologist specializing in the field of neuro-oncology, his primary areas of research involve the development of novel agents for the treatment of gioblastoma, central nervous system lymphoma, and other primary 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 RO1 titled "White matter protection in cerebral ischemia" was funded (5 years, starting in summer of 2013). 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 good score for his VA merit review grant (BLR&D) which will study the angiogenesis and neurogenesis effect of NAMPT in cerebral ischemia. In professional service, he joined American Heart Association study section-Brain/stroke basic Science and served in Editorial Board for three Journals. 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 July 1, 2012 to June 30, 2013, Dr. Clemens provided leadership for the Neurology Service at the Pittsburgh VA Healthcare System. She directs an out-patient and consultation service with 8 part-or full-time neurologists and 3 neurology resident physician

positions. The active teaching service also comprised third and fourth year medical students, geriatrics fellows and geriatric psychiatry fellows during the course of the year.

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

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 this year to conduct phase 1-2 neuroscience clinical trials. She also leads a Department of Defense-funded clinical treatment trial in muscular dystrophy.

Dr. Clemens precepts third and fourth year medical students at the VAMC. She is mentoring a medical student for his scholarly project performing a human clinical study and also will have a first year medical student performing a summer research internship in her laboratory this summer. She is a career advisor for the MSTP program.

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 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.

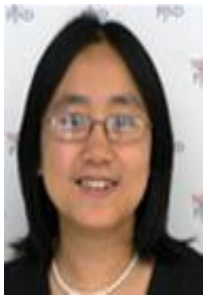
Dr. Graham will continue his studies regarding the mechanism by which COX2 directly injures neurons after anoxia, focusing on the role of prostaglandins in exacerbating cell death. As GRECC Director, he plans to recruit new faculty and further develop its research program in cerebrovascular disease.

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 one postdoctoral fellow and one undergraduate student in the laboratory, and serves as the career advisor for two MSTP students. She serves as training faculty on three institutional training grants including "NINDS Postdoctoral Training in the Neurobiology of Neurodegenerative Disease (M. Zigmond, Director)," "NIH Medical Scientist Training Program (R. Steinman, Director) and "NIH Predoctoral Training in Basic Neuroscience" (A.F. Sved, Director).

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



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

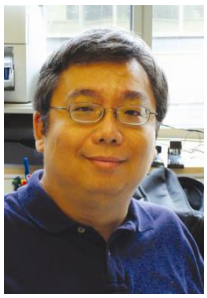
Over the past academic year, Dr. Ikonomovic and his research team have made several major advances in their studies examining the pathobiology of two inter-related neurodegenerative conditions, traumatic brain injury (TBI) and Alzheimer's disease (AD). Utilizing a controlled cortical impact model of experimental TBI and a mouse model of AD, as well as human brain tissue and spinal fluid samples from severe TBI and AD patients, the laboratory has been examining the relationship between neuronal degeneration and amyloid-β (Aβ) aggregation, which is increased after TBI but is also a major pathogenic factor in AD. Their new findings include the observation that simvastatin treatment of brain injured transgenic AD mice reduces pathological surges in brain Aβ concentration and improves cerebral blood flow, resulting in significantly improved outcomes. These

findings were published in the *Journal of Cerebral Blood Flow and Metabolism* (2013 June;33:826-833), and an extensive review of their research findings was published in the *Nature Review Neurology* (2013 April;9:192-200).

Dr. Ikonomovic is Principal Investigator on his MERIT grant awarded by the Veterans Affairs, examining whether chronic memantine therapy can improve histological and neurological outcomes in rats subject to TBI. He is also Principal Investigator on a project "Novel Amyloid-Targeting Therapies for Preserving Cognitive Function in Alzheimer's Disease" funded by the Pittsburgh Foundation. This project investigates the effects of a combined treatment with small Aβ binding compounds and passive Aβ immunization on improving cognitive function and reducing synaptic abnormalities in a transgenic mouse model of AD. Dr. Ikonomovic is Principal Investigator on a project within the NIA-funded PPG "Neurobiology of Mild Cognitive Impairment" led by Dr. Elliott Mufson (Rush University Medical Center, Chicago); his project examines alterations in Aβ metabolism, synaptic integrity and cholinergic function in subjects with mild cognitive impairment (MCI) and early AD. Recent results from Dr. Ikonomovic's 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 presented at the 2013 *International Conference on Alzheimer's and Parkinson Disease*. Dr. Ikonomovic is Principal Investigator on a project within the NIH-funded PPG "In Vivo PiB PET Amyloid Imaging: Normals, MCI, and Dementia" led by Dr. William Klunk (Department of Psychiatry). The overall objective of Dr. Ikonomovic's project is to define neuropathological substrates for PiB binding, by conducting postmortem histological and biochemical analyses of amyloid pathology and correlating these measures with region-matched PiB PET retention levels recorded in the same subjects antemortem. New findings include the differential binding of PiB to diffuse, neuritic, and cotton-wool plaques in cases with familial AD; these results were presented at the 2013 *Human Amyloid Imaging* 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 2013 *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 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 serves as a consultant for GE Healthcare and the University of Pittsburgh Alzheimer's Disease Research Center (ADRC). He also serves as an associate editor for the journal Cardiovascular Psychiatry and Neurology, a grant reviewer for the Alzheimer's Association's International Research Grant Program and the University of Pittsburgh ADRC Pilot Grant Review, and an ad-hoc grant reviewer for the VA Scientific Review.



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

Dr. Liou is currently continuing his research focus on using molecular and cell biology methods to identify key proteins that participated in the cell death process in response to toxins such as MPP^+ and 6-OHDA in dopaminergic cells and subsequently examine the extent of protection by regulating these proteins in 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 under a variety of pathological conditions, including hypoxia and neurotoxins insults. To facilitate their research, Lenti-viral vectors carrying UCH-L1 or its mutants have been constructed to overexpress UCH-L1 and its mutant proteins in primary neuronal cells. Currently, they are performing experiments to investigate the neuron protective effects of UCH-L1and the potential mechanisms.

Amanda D. Smith, PhD
Research Assistant Professor of Neurology

Dr. Smith has continued to investigate how experience may alter the vulnerability of dopamine (DA) neurons in the substantia nigra to oxidative stress and how this vulnerability is influenced by age. Specifically the lab group studies how lifestyle modification can alter the vulnerability of DA cells and whether the benefits of such therapy diminish with age. This work has been extended to investigating exercise and/or dietary supplementation as therapeutic interventions for Parkinson's disease using 6-hydroxydopamine (6-OHDA) to model the DA deficiency in the nigrostriatal pathway. As age is the major risk factor for PD, we feel it is important that therapeutic interventions be examined in older animals. The group has observed that voluntary running can attenuate behavioral deficits induced by 6-OHDA in young and older animals, although to a lesser extent in older animals. Furthermore, in younger animals, the combined effects of supplementing the diet with blueberry juice and exercise, results in a larger attenuation of behavioral deficits than either treatment alone, an effect not observed in the older animals. 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.

Over the course of the next year, Dr. Smith will continue to investigate how experience alters the vulnerability of the nigrostriatal pathway to toxic insult and the mechanisms that underlie this protection. She will also begin to examine if exercise and dietary supplementation have restorative effects on behavioral deficits and/or damage to the dopaminergic nigrostriatal pathway.

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. She is the first author on the following publications.

Stetler RA, Gao Y, Zhang L, Weng Z, Zhang F, Hu X, Wang S, Vosler, Cao G, Sun D, Graham SH, Chen J. Phosphorylation of HS27 by Protein Kinase D is essential for mediating neuroprotection against ischemic neuronal injury. *J Neurosci*. 2012;32(8):2667-2682.

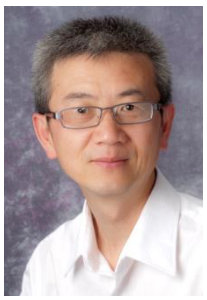
Stetler RA, Leak RK, Yin W, Zhang L, Wang S, Gao Y, Chen J. Mitochondrial biogenesis contributes to ischemic neuroprotection afforded by LPS preconditioning. *J Neurochem*. 2012;123(Suppl. 2):125-137.

Dandan Sun, MD, PhD
Professor of Neurology

Dr. Sun's laboratory is interested in understanding the role of ion transporter proteins (Na^+-K^+-Cl^- cotransporter, Na^+/H^+ exchanger, and Na^+/Ca^{2+} 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^+, Ca^{2+}) as well as organelle Ca^{2+} (ER and mitochondria) cause nerve cell death and proinflammatory responses in ischemic brains. With respect to Glioblastoma multiforme (GBM) brain tumor, we study how the chloride cotransporter functions in regulating chloride and cell volume in GBM cancer cell survival. These proteins may be potential "targets" for therapeutic intervention.

During the academic year July 2012 – June 2013, Dr. Sun's laboratory made major research progress and published the following scientific papers:

- G. Begum, D. Kintner, Y. Liu, S. W. Cramer, and **Dandan Sun**. DHA inhibits ER Ca^{2+} release and ER stress in astrocytes following *in vitro* ischemia. J. Neurochem. 120: 622-630, 2012. PMCID PMC3259263
- J. Algharabli, D. B. Kintner, Q. Wang, G. Begum, P. A. Clark, S. Yang, S Lin, K. T. Kahle, J. S. Kuo, **Dandan. Sun**. Inhibition of Na^+-K^+-$2Cl^-$ cotransporter isoform 1 accelerates temozolomide-mediated apoptosis in glioblastoma cancer cells. *Cell Physiol Biochem*. 30: 33-48, 2012. NIHMS447212
- Uluç K, Kendigelen P, Fidan E, Zhang L, Chanana V, Kintner D, Aktüre E, Song C, Ye K, **Dandan Sun**, Ferrazzano P, Cengiz P. TrkB receptor agonist 7,8 Dihydroxyflavone triggers profound gender-dependent neuroprotection in mice after perinatal hypoxia and ischemia. *CNS Neurol Disord Drug Targets*. 12(3):360-70, 2013. NIHMS 442624
- Ferrazzano P, Chanana V, Uluc K, Fidan E, Akture E, Kintner DB, Cengiz P, **Dandan Sun.** Age-dependent microglial activation in immature brains after hypoxia-ischemia. *CNS Neurol Disord Drug Targets*. 12(3):338-49, 2013.



Feng Zhang, MD, PhD
Research Assistant Professor of Neurology

Dr. Zhang joined the faculty of Neurology in November of 2009. His research interest focuses on experimental cerebral ischemia and neuroprotection using small molecular proteins and chemical compounds. Specifically, he has been using endogenous functional proteins, such as erythropoietin (EPO) and leptin, to protect against cerebral ischemia. His ongoing projects include the neuroprotective effects of synthetic triterpenoids, hypothermia, ischemic preconditioning and omega-3 fatty acids, which are rich in fish oil. He is also interested in the mechanisms responsible for the protection of these approaches, including various signaling

pathways and antioxidative enzymes. Dr. Zhang serves as a managing editor for the Frontiers in Bioscience, and as *ad-hoc* referee for several journals, including Neurobiology of Disease, CNS Neuroscience & Therapeutics, Vascular Health and Risk Management, Brain Research, Translational Stroke Research and Mini-review of Medical Chemistry.

Michael Zigmond, PhD
Professor of Neurology
Pittsburgh Institute for Neurodegenerative Diseases

Over the past year, 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 the survival kinases and reduce the vulnerability of dopamine to neurotoxins and to the effects of aging.

The Zigmond lab is also interested in the impact of stressors on the vulnerability of dopamine neurons to subsequent cellular stress. These studies have involved both in vivo and in vitro models. For example, they have found in preliminary studies that several stressors – including maternal separation, traumatic brain injury, and restraint stress – make animals more vulnerable to 6-hydroxydopamine. On the other hand, exposure to a subtoxic concentration of 6-hydroxydopamine, methamphetamine, or MG132 (an inhibitor of proteasomal function) greatly reduced the vulnerability of dopaminergic cells to a subsequent challenge; a phenomenon termed "preconditioning." 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 stress- and exercise-induced alteration in the vulnerability of dopamine neurons to stress. For example, studies are underway to determine if conditional knockouts of a specific trophic factor receptor or inhibition of kinase activation will block neuroprotection seen with exercise or GDNF or increase the toxic effects of oxidative stress. Results from these and related studies should provide insights into new treatment modalities for PD. This work involves a number of collaborations, including those with individuals at the University of Pittsburgh, Judy Cameron (WPIC) and Jun Chen (Neurology) 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*, and will be editing a book on the neurobiology of brain dysfunctions, which is due to be published in 2014. He is also planning to begin a monograph on the influence of life style on brain health.

Vascular Neurology

Tudor Jovin, MD
Associate Professor of Neurology and Neurosurgery
Division Chief, Vascular Neurology
Director, UPMC Center for Neuroendovascular Therapy
Director, UPMC Stroke Institute

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 interventional 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, moya-moya 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
Assistant Professor of Neurology
Director of Stroke Services, UPMC Mercy Hospital
Director of Neurosonology laboratory, Department of Neurology
Director of Vascular Neurology Fellowship Program

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.

Vivek Reddy, MD
Assistant Professor of Neurology

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

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

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

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

Lawrence Wechsler, MD, Professor of Neurology 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 18 hospitals in the western Pennsylvania area. Since the inception of the Telestroke service at UPMC, over 1,000 stroke patients have been evaluated with outcomes the same as expected for patients treated face-to-face. In addition to Telestroke, UPMC has expanded telemedicine into 21 service lines in 23 facility locations and has active teleconsult centers at 2 locations in western Pennsylvania.

Women's Neurology

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

Dr. Klein is the Chief of the Division of Women's Neurology. Her clinical and research interests focus on neurological disease in pregnancy and neurological issues specific to women. Approximately 75% of her practice is comprised of pregnant and postpartum patients. She is board certified in epilepsy and headache, the two most common neurological diseases in pregnancy.

She is one of a few neurologists in the country, if not the only one, who specializes in seeing pregnant women with all types of neurological diseases. She has extensive research experience in both basic science and clinical research, and her current research interests focus on pregnancy and the effects of hormonal fluctuations on neurological disease. Her current research projects investigate obstetrical outcomes in pregnant women with neurological disease including epilepsy and headache, stroke in pregnancy, and the effects of hormones on headache. She is the Vice Chair of the Women in Neurology Subcommittee at the American Academy of Neurology (AAN), and she was recently elected to participate in the AAN's Emerging Leaders forum. She is also co-chair of the Pregnancy Special Interest Group at the American Epilepsy Society (AES). She received a grant from the Epilepsy Foundation of American to study obstetrical and neonatal outcomes in women enrolled in the North American Antiepileptic Drug Pregnancy Registry. These findings will be presented at the national annual meeting later this year and then released for publication.

Dr. Klein was asked to be involved in the WEPOD study, a multicenter prospective study tracking fertility in women with epilepsy who are trying to get pregnant. She is the co-director of the obstetrical and neonatal core and the site PI for an NIH funded multicenter study titled Maternal Outcomes and Neurocognitive Effects of Antiepileptic Drugs (MONEAD). This research project studies in utero exposure to antiepileptic drugs and the obstetrical, neonatal, and neurocognitive outcomes. In addition, she has several other ongoing research collaborations. She is studying the effect of oral contraceptives on migraine headache using electronic surveys that track pill use and daily headaches. She is also working with a large pharmaceutical distributor to better understand how antiepileptic drugs are prescribed for women of reproductive age and the appropriateness of co-prescribed oral contraceptives. She has several other small ongoing unfunded research projects and she is mentoring three neurology residents in investigative questions.

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 and 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 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 Neurovasculaar Disease.

Dr. DeMatteis 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 serves as the director of the Muscular Dystrophy Clinic in Erie, Pa. Dr. Esper 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 has received the 2013 Clinical Teaching award from the graduating neurology residents. He also has given a lecture at the 2013 national spring conference of the ACONP on the topic of autoimmune encephalitis. Dr. Esper completed his requirements for a Master's degree in science and medical education. He graduated on June 2nd of this year. He 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.

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 Neurology Division Chief for UPMC Hamot during the 2012-2013 academic year. She 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 PREFERMS.

Dr. Grazioli is active in medical education. She completed a Master of Science Degree in Medical Education from the Lake Erie College of Osteopathic Medicine which was awarded in June of 2013. Her master's thesis project detailed the development of a multiple sclerosis fellowship curriculum for osteopathic neurology graduates. She has implemented this curriculum and now serves as director of the Northshore Neurology Multiple Sclerosis Fellowship. The program's first multiple sclerosis fellow began her training in January 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.

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 management. She performs EMG studies in the UPMC Hamot EMG Laboratory. Dr. Stevens is active in Neurology resident and LECOM medical student education, providing monthly lectures on various Neuromuscular topics and mentoring students on a nearly daily basis in the clinic.

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, ZRG1 MDCN-G (91) Special Emphasis Panel "Neurodegeneration Mechanisms"
United Mitochondrial Disease Foundation
Michael J. Fox Foundation-Rapid Response Innovation Award Program

Advisory Committees

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

Richard Brenner, MD

Advisory Board

Epilepsy Foundation – Western Pennsylvania

Edward Burton, MD, DPhil

Advisory Committees

Michael J Fox Foundation
Dystonia Medical Research Foundation
Department of Veterans' Affairs

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
- Neurohospitalist Program Project

Guodong Cao, PhD

Study Sections

American Heart Association study section – Brain3/stroke Basic Science
Scientific Reviewer, VISN4 Competitive Pilot Project Fund, The Department of Veterans Affair

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

VA Cellular and Molecular Medicine Study Section (CAMM); permanent member
Muscular Dystrophy Association Medical Advisory Committee
Muscular Dystrophy Association Human Clinical Trial Review, submit online
CDC-DD-13-002 grant review, 'Evaluation of Treatments and Services to People with Duchenne Muscular Dystrophy
Jesse's Journey grant review
VA VISN 4 Competitive Pilot Project Fund (DPPF) grant review
NIH NCATS CTSA 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, Scientific Advisory Committee for Paul D. Wellstone Muscular Dystrophy Cooperative Research Center (MDCRC), University of Rochester, Rochester, NY Chair
Cooperative International Neuromuscular Research Group (CINRG) Chair,
Publications Committee; Member, Executive Committee; Medical Director
Member, External Training Committee for the Ohio State University Muscle Group Training Program
University of Pittsburgh School of Medicine
Member, Biochemistry and Molecular Genetics Graduate Training Program
Member, MD/PhD Student Advisory Committee, University of Pittsburgh
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

Jan Drappatz, MD

Advisory Committee

University of Pittsburgh Internal Review Board
UPMC Cancer Center, Data Safety Monitoring Committee
Harvard Catalyst, Clinical and Translational Science Center, NIH grant
University of Pittsburgh Data Safety Management Committee

Jeffrey Esper, DO, MS (Med Ed)

Advisory Committee

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

Steven H. Graham, MD, PhD

Study Sections

NIH CSR Brain Injury and Neurovascular Pathology Review Committee

Advisory Committees

University of Pittsburgh School of Medicine
- Chair, Promotions Committee, Department of Neurology
- Member, Executive Committee, Neurology Department
- Internal Advisory Committee, NINDS P01 "Mitochondrial Proteins in Parkinson's Disease"
- Internal Advisory Committee, NIA P01 "Molecular and Cellular Basis of Age-Related Degeneration"

Department of Veterans Affairs
- Chair, Stroke Committee, VA Pittsburgh Healthcare System
- Chair, Dementia Committee, VA Pittsburgh Healthcare System
- Member, VA Pittsburgh Healthcare System, Medical Executive Board
- Member, VA Pittsburgh Healthcare System, Executive Leadership Board
- Member, Advisory Board, VA Center for Health Equity Research and Promotion
- Member, GRECC Director's Association
- Member, VA VISN 4 Research Roundtable
- Member, VA VISN 4 Academic Affairs Committee
- Member, Veterans Research Foundation of Pittsburgh Board of Directors

Erica Grazioli, DO

Advisory Committees

Clinical Advisory Committee, National MS Society, Hamot

UPMC Hamot Women's Services

J. Timothy Greenamyre, MD, PhD

Study Sections

Parkinson's Disease Society, London, UK

Chair, NOMD Study Section

Advisory Boards

National Advisory Boards
- Member, Scientific Advisory Board, Parkinson's Action Network
- 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 and Chair, NOMD Study Section

University of Pittsburgh
- School of Medicine AOC Committee
- School of Medicine MSTP Steering Committee
- School of Medicine Health Sciences Research Advisory Committee
- Department of Neurology, Executive Committee
- Department of Neurology, Promotions Committee

Department of Neurology, Recruitment Committee

Max Hammer, MD

Advisory Committees

Member, 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 of Stroke Services, UPMC Mercy Hospital
Director of Neurosonology Laboratory, Department of Neurology
Co-Director of the Annual Stroke Update Conference, Department of Neurology, Stroke Institute

Teresa Hastings, PhD

Study Sections

CMRF grant review committee, April 2013
NIH, ZRG1 BCMB-A (51) R, NIH director's Transformative R01, Jan 2013

Advisory Committees

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

Rock Heyman, MD

Advisory Committees

National Committees
National Multiple Sclerosis Society
Council of Clinical Advisory Chairmen, Chairman
Medical Advisory Board, Executive Committee
Task Force Regarding Comprehensive Care Center Affiliations
Consortium of Multiple Sclerosis Centers
Coordinator, Consensus Conference Development
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

David Hinkle, MD, PhD

Advisory Committees

Medical Student Curriculum Committee, University of Pittsburgh, Neurology Department

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 Scoiety of Neuroimaging
Executive Committee, IMS 3
Executive Committee RETRIEVE Trail
Executive Committee and Project Work Group Leader, American Academy of Neurology, Interventional Neuology section
Member, SWIFT PRIME, Steering Committee
Member, ESCAPE, Steering Committee
Member, MR RESCUE, Steering Committee
Member, Covidien Vascular, Global Advisory Board
Member, Solitaire Flow Restoraiton in Acute Sroke 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, Neurology Clerkship 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

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

Erek Lam, MD

Advisory Committees

Value Based Reimbursement Committee, UPMC

Frank Lieberman, MD

Advisory Committees

Clinical Trials Advisory Board for the national Neurofibromatosis Foundation
International Chordoma Foundation: Advisory Committee
Vice Chair, IRB (Oncology/Neuroscience)
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

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
National Alzheimer's Disease Coordinating Center Steering Committee member
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).
External Advisor: Aging Brain Program Project (P.I. H Chui, 1P01-AG12435)

Eric McDade, DO

Advisory Committees

Therapeutic Trial Unit – Dominantly Inherited Alzheimer Network
University of Pittsburgh Medical Center Rare and Chronic Disease Initiative
Steering Committee Member – Dominantly Inherited Alzheimer Network

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
Retention Committee, UPSOM
Student Promotions Committee, UPSOM
Clinical Procedures Course Design Group, UPSOM
Department of Neurology Education Committee
Curriculum Committee, UPMC

Jullie Pan, MD, PhD

Study Sections

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

Lori Shutter, MD, FCCM

Study Section and Advisory Committee Membership

NIH SBIR Review Panel
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
CCM Medical Education Journal Club
CCM Grenvik Chair Committee
Safer Symposium Annual Program Committee
Neurology Executive Committee, UPMC
Neurology Residency Curriculum Committee
Neurology Epilepsy Task Force
Internal Medicine Neurology Rotation Task Force

Amanda Smith, PhD

Study Section and Advisory Committee Memberships

Chronic Dysfunction and Integrative Neurodegeneration
Ad hoc reviewer CDIN study section
VA IACUC Member
VA IACUC Chair
VA Research and Development Committee

Beth Snitz, PhD

Advisory Committee
Reviewer, Western Psychiatric Institute and Clinic Research Committee

Dandan Sun, MD, PhD

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

Anne Van Cott, MD

Advisory Committees
National
Member of VA/DoD **Qu**ality **I**ndicators for **E**pilepsy **T**reatment in the VA (QUIET-VA) Expert Panel
University and Medical School
Neurology Medical Student Curriculum Committee
Neurology Residency Selection Committee
Neurology Research Review Committee
VA Professional Committees
Member, VA Epilepsy Consortium
Treatment In Geriatric Epilepsy Research (TIGER) VA Project
VAPHS Medical and Surgical Clinic Expansion
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
Member, DSMB, DIAS 3 / 4
Member, Board of Directors, American Society of Neuroimaging
Member, Scientific Sessions Program Committee, American Stroke Association
Member, Practice Committee, American Academy of Neurology
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, McKinney Award Committee, American Society of Neuroimaging
Steering Committee CLOSURE Trial
Steering Committee, ACT I 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

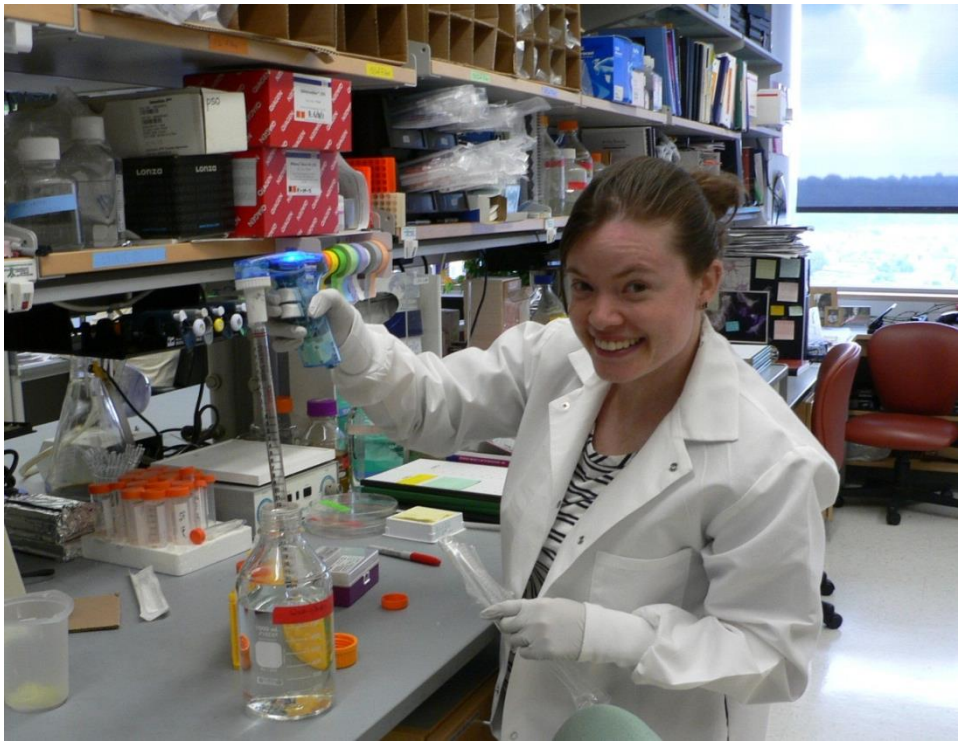
Michael J. Zigmond, PhD

Advisory Committees
National Advisory Boards:
Chair, Scientific Advisory Committee, Universidad Central del Caribe
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, 2001-

Saša Živković, MD

Advisory Committees
National
American Association for Neuromuscular and Electrodiagnostic Medicine
AANEM Monograph Review Committee
Inflammatory Neuropathy Consortium (INC)
University and Medical School
University of Pittsburgh Senate, Bylaws and Procedures Committee
Risk Management Review Committee
Interview Committee

Research Grants, Funding and Collaborations



Research Grants and Contract Activity

Federal Grants: Public Health Service Program Project Grants

Last Name	Agency Name	Title	Annual DC	Annual IDC
Bagic	NIH	Reading and the Right Fusiform	$5,640.58	$2,896.41
Bagic	NIH	Magnetoencephalography as a biomarker for HIV-Associated neurocognitive disorder	$2,772.00	$1,455.30
Bagic	Univ of Calif San Fran	Radiosurgery vs Lobectomy for Temporal Lobe Epilepsy (Rose Trial)	$22,156.99	$11,367.17
Bagic	Emory University	Maternal Outcomes and Neurodevelopmental Effects of Antiepileptic Drugs	$9,155.40	$4,806.59
Berman	NIH	Mitochondrial Dynamics in Neurodegeneration	$5,938.36	$475.18
Berman	NIH	Neuronal regulation of mitochondrial dynamics in models of Parkinson's Disease	$143,567.98	$75,373.24
Cao	NIH	Mitochondrial Proteins in Parkinson's Disease - Core B PPG	$1,028.00	$529.43
Cao	NIH	Mitochondrial Proteins in Parkinson's Disease - Core B PPG	$141,766.54	$72,638.46
Chen	NIH	Neuroprotective effect of HSP27 in Cerebral Ischemia"	$4,985.61	$23.95
Chen	NIH	Inducible DNA Repair in Cerebral Ischemia	$178,624.58	$89,426.49
Chen	NIH	Neuroprotection Against Parkinsonian Cell Death	$126,155.13	$51,344.99
Chen	NIH	Mitochondrial Proteins in Parkinson's Disease - Project 3 PPG	$463.37	$238.64
Chen	NIH	Na+-K+C1-Contransporter in Cerebral Ischemia	$2,269.25	$1,168.62
Chen	NIH	Neuroprotection in Models of Cerebral Ischemia	$137,230.84	$65,953.03
Chen	NIH	Mitochondrial Proteins in Parkinson's Disease - Project 3 PPG	$153,540.26	$79,067.59
Chen	NIH	The Role of Na+/H+ Exchanger in Cerebral Ischemia	$14,286.05	$7,357.32

Chen	NIH	Neuroprotection Against Parkinsonian Cell Death	$83,609.40	$39,601.53
Chen	NIH	Na+-K+C1-Contransporter in Cerebral Ischemia	$10,633.49	$5,476.22
Chen	NIH	Neuroprotection in Models of Cerebral Ischemia	$100,236.53	$33,474.10
Chen	NIH	Mechanisms of Exercise-Induced Protection and Rescue in Models of Dopamine Loss	$20,145.76	$6,860.81
Clemens	NIH	University of Pittsburgh, Clinical & Translational Science Institute	$1,970.67	$1,971.00
Clemens	NIH	University of Pittsburgh, Clinical & Translational Science Institute	$1,971.67	$1,972.00
Graham	NIH	Emerging Therapeutics for TBI: Acute to Chronic Changes	$5,467.24	$2,651.62
Graham	NIH	Cylooxygenanse 2 and Ischemic Neuronal Injury	$102,168.90	$43,419.08
Greenamyre	NIH	Gene-environment interactions in transgenic rat models of Parkinson disease	$8,791.56	$4,209.61
Greenamyre	NIH	MtDNA Damage as a Biomarker for Environmental Mitochondrial Toxicity	$52,779.16	$27,181.30
Greenamyre	NIH	Oxygenated Species of Cardiolopins as Biomarkers of Mitochondrial Dysfunction	$340.28	$175.26
Greenamyre	NIH	Mitochondrial Proteins in Parkinson's Disease - Project 1 PPG	$231,631.05	$117,279.72
Greenamyre	NIH	Mitochondrial Proteins in Parkinson's Disease - Admin Core (Core A) PPG	$26,038.40	$13,198.66
Greenamyre	NIH	Oxygenated Species of Cardiolopins as Biomarkers of Mitochondrial Dysfunction	$20,999.00	$10,814.44
Greenamyre	NIH	MtDNA Damage as a Biomarker for Environmental Mitochondrial Toxicity	$213,674.46	$110,006.25
Greenamyre	NIH	Effects of Insulin-like signaling, aging and ubiquinone on C. Elegnas muscle	$5,757.57	$3,022.74
Hammer	U of Cincinnati	STOP-IT	$19.06	$9.82

Hammer	Yale University	IRIS	$512.86	$264.12
Hammer	U of Cincinnati	STOP-IT	$9,175.88	$4,725.57
Hammer	Yale University	Insulin Resistance intervention after Stroke (IRIS) Trial	$5,209.22	$2,682.76
Hastings	NIH	Mitochondrial Proteins in Parkinson's Disease - Project 4 (PPG)	$1,891.42	$974.08
Hastings	NIH	Mitochondrial Proteins in Parkinson's Disease PPG	$217,001.43	$111,269.65
Hinkle	NIH	The Potential Role of DJ-1 in Astrocyte-Medicated Neuroprotection	$55,003.15	$4,400.46
Hinkle	NIH	DJ-1 in Astrocyte-Mediated Neuroprotection against Complex 1 Inhibitors	$64,622.80	$33,280.76
Hinkle	NIH	DJ-1 in Astrocyte-Mediated Neuroprotection against Complex 1 Inhibitors	$197,000.75	$101,455.45
Horowitz	NIH	GATA2 as a therapeutic target in Parkinson's disease	$1,836.00	
Ikonomovic	NIH	Establishing the In Vivo Threshold for Amyloid Deposition in Normal Aging	$16,184.74	$8,335.16
Ikonomovic	NIH	In Vivo PiB PET Amyloid Imaging: Normals, MCI & Dementia Project 6	$2,001.17	$1,030.62
Ikonomovic	NIH	Amyloid Lowering Small Molecule AB Binding Agents in AD	$12,363.73	$5,996.36
Ikonomovic	NIH	Emerging Therapeutics for TBI-Acute to chronic changes.	$303.60	$147.16
Ikonomovic	NIH	Therapeutic Use of Autophagy Enhancer Drugs for Alzheimer's Disease	$2,812.01	$1,448.19
Ikonomovic	NIH	Amyloid Pathology and Cognition in Normal Elderly	$2,508.81	$1,292.09
Ikonomovic	NIH	Therapeutic Use of Autophagy Enhancer Drugs for Alzheimer's Disease	$32,652.40	$16,816.00
Ikonomovic	NIH	Establishing the In Vivo Threshold for Amyloid Deposition in Normal Aging	$49,281.98	$25,380.20
Ikonomovic	NIH	In Vivo PiB PET Amyloid Imaging: Normals, MCI & Dementia Project 6	$77,748.79	$36,388.06
Ikonomovic	Rush / Presbyterian Hospital	Neurobiology of Mild Cognitive Impairment in the Elderly	$38,724.81	$7,515.83

Ikonomovic	Rush University Medical Center	Neurobiology of Mild Cognitive Impairment in the Elderly	$198,617.63	$40,512.67
Ikonomovic	U of Washington	National Alzheimer's Coordinating Center (NACC)	$4,862.78	$2,504.32
Jain	NIH	Multi-organ Autonomic Electrophysiology in Parkinson's Disease	$167,719.17	$13,417.55
Jain	U of Colorado	Exploratory Study of Different Doses of Endurance Exercise in People with Parkinson's Disease	$6,695.10	$3,448.00
Jovin	NIH	Sammpris Study	$5,386.00	$2,773.78
Lacomis	NIH	Clinical Trial of Ceftriaxone in Subjects with ALS	$30,353.64	$7,777.61
Lacomis	Massachusetts General	A Multicenter Study for the Discovery and Validation of Serial ALS Biomarkers	$9,483.26	
Lopez	NIH	Predictors of Alzheimer's Disease in Mild Cognitive Impairment (NCE)	$54,076.22	$20,770.70
Lopez	NIH	Donepezil to Promote Functional Recovery Post-Stroke (Sub to Whyte)	$2,837.92	$1,461.53
Lopez	NIH	In Vivo PiB PET Amyloid Imaging: Normals, MCI & Dementia Project 4	$8,237.50	$1,274.15
Lopez	NIH	In Vivo PiB PET Amyloid Imaging: Normals, MCI & Dementia Project 5	$1,627.50	
Lopez	NIH	ACISR for Late-life Depression Prevention	$959.97	$494.39
Lopez	NIH	ACISR for Late-life Depression Prevention	$1,204.18	$620.20
Lopez	NIH	ADRC - Admin Core A	$143,532.83	$71,793.49
Lopez	NIH	Alzheimer's Disease Research Center-Outreach Core B Satellite	$66,675.14	$34,337.74
Lopez	NIH	Alzheimer's Disease Research Center - Project 1	$83,881.24	$19,453.25
Lopez	NIH	ADRC Core F	$28,877.01	$14,871.68
Lopez	NIH	ADRC Project 2	$46,820.38	$24,112.52
Lopez	NIH	Resilience to Mobility Impairment: Neural Correlates and Protective Factors	$4,188.75	$2,157.15

Lopez	NIH	Amyloid white matter hyperintensities and outcomes of late life depression	$7,510.11	$3,867.70
Lopez	NIH	In Vivo PIB PET Amyloid Imaging Normals MCI & Dementia-Admin	$64,240.46	$33,083.85
Lopez	NIH	In Vivo PiB PET Amyloid Imaging: Normals, MCI & Dementia Project 4	$144,141.90	$16,836.03
Lopez	NIH	In Vivo PiB PET Amyloid Imaging: Normals, MCI & Dementia Project 5	$33,710.72	$17,361.01
Lopez	NIH	Enhancing Rehabilitation after Stroke	$3,604.11	$1,856.12
Lopez	NIH	ADRC - Admin Core A	$33,394.66	$16,784.22
Lopez	NIH	Alzheimer's Disease Research Center-Clinical Core B	$89,708.54	$46,199.87
Lopez	NIH	Alzheimer's Disease Research Center-Outreach Core B Satellite	$18,517.63	$9,536.59
Lopez	NIH	ADRC - Core E	$24,161.44	$12,443.13
Lopez	NIH	Alzheimer's Disease Research Center - Project 1	$21,197.99	$412.00
Lopez	NIH	ADRC Core F	$3,691.04	$1,900.88
Lopez	NIH	ADRC Project 2	$6,543.10	$3,369.69
Lopez	NIH	ACISR for Late-life Depression Prevention	$436.33	$224.72
Lopez	UCSD	Alzheimer's Disease Neuroimaging Initiative II - ADNI-II	$77,288.52	$19,322.20
Lopez	U of Florida	Lifestyle Interventions for the elderly	$6,675.85	$3,438.07
Lopez	U of Washington	NACC Minimum Data Set (MDS) Project	$1,255.51	$646.56
Lopez	U of Washington	CHS Events Follow-up Renewal	$13,741.03	$7,076.63
Lopez	U of Washington	NACC Minimum Data Set (MDS) Project	$7,072.84	$3,642.47
Lopez	U of Florida	Lifestyle Interventions for the elderly	$12,217.37	$6,291.99
Lopez	U of Washington	CHS Events Follow-up Renewal	$9,773.86	$5,033.55
McDade	NIH	Magnetoencephalography as a Biomarker for HIV-Associated Neurocognitive Disorder	$4,620.04	$2,425.51

McDade	NIH	Alzheimer's Disease Research Center Pilot Project 30-2	$3,316.62	$1,708.08
McDade	U of Washington	Dominantly Inherited Alzheimer Network	$82,383.63	$28,834.30
McDade	U of Washington	Dominantly Inherited Alzheimer Network	$45,446.39	$15,906.24
McDade	Washington Univ in St. Louis	DIAN STUDY	$2,660.28	
McDade	Washington Univ in St. Louis	Dominantly Inherited Alzheimer Network	$4,603.84	
Pan	NIH	Multiplexed Multiband MR at 7T: Studies of Mild Traumatic Brain Injury	$12,289.20	$6,451.84
Pan	NIH	7T MR Spectroscopic Imaging for Human Epilepsy	$14,337.39	$7,527.13
Reddy		Virtual Continuity and its Impact on Complex Hospitalized Patients' Care	$2,053.34	$1,057.48
Reddy	Stanford Univ	CRISP STUDY-YR 1	$1,271.44	$51.69
Reddy	Stanford Univ	CRISP STUDY -YR 2	$13,316.72	$6,755.87
Saxton	NIH	Amyloid Pathology & cognition in normal elderly	$4,089.47	$2,106.08
Saxton	NIH	In Vivo PIB PET Amyloid Imaging Normals MCI & Dementia-Core B	$395.26	$203.55
Saxton	NIH	ADRC CORE B SATELLITE	$304,008.71	$145,632.42
Saxton	NIH	ADRC CORE B SATELLITE	$72,205.48	$37,185.80
Saxton	NIH	Resilience to Mobility Impairment: Neural Correlates and Protective Factors	$6,313.40	$3,251.41
Saxton	NIH	Amyloid Pathology & cognition in normal elderly	$12,268.41	$6,318.19
Saxton	NIH	Imaging Biomarkers of Accelerated Brain Aging in Type-1 Diabetes	$4,546.05	$2,341.22
Snitz	NIH	Subjective Cognitive Complaints, Cognitive Decline and B-Amyloid Deposition in Non-Demented Older Adults	$37,653.63	$3,012.28
Snitz	NIH	In Vivo PIB PET Amyloid Imaging Normals MCI & Dementia-Core B	$70,277.06	$36,192.65

Snitz	NIH	Subjective Cognitive Complaints, Cognitive Decline and B-Amyloid Deposition in Non-Demented Older Adults	$76,939.20	$6,155.12
Snitz	NIH	Mild Cognitive Impairment A Prospective Community Study	$256.66	$132.18
Sun	NIH	Na-K-CL contransporter (NKCC1) in Gilioblastoma Multiforme	$154,869.46	$56,945.78
Sun	NIH	Contrasporter in Cerebral Ischemia	$92,124.21	$47,443.98
Sun	NIH	The role of Na+/H+ exchanger in Cerebral Ischemia	$85,015.43	$43,782.94
Sun	NIH	Neuroprotection in Models in Cerebral Ischemia	$14,098.46	$7,260.69
Sun	NIH	Na-K-CL contransporter (NKCC1) in Gilioblastoma Multiforme	$131,675.84	$20,299.75
Sun	NIH	The role of Na+/H+ exchanger in Cerebral Ischemia	$85,706.36	$43,988.74
Sun	NIH	Contrasporter in Cerebral Ischemia	$84,028.74	$39,905.49
Sun	NIH	Neuroprotection in Models in Cerebral Ischemia	$26,727.25	$13,764.50
Suski	NIH	2 Care Study	$1,704.53	$826.70
Suski	Massachusetts General	CREST-E	$4,502.58	$2,318.80
Wechsler	NIH	NEURO NEXT-YR. 1	$23,557.16	$12,131.92
Wechsler	NIH	Neurological Emergencies Treatment Trial (NETT) Network Pittsburgh Clinical Hub	$4,928.00	$2,537.91
Wechsler	NIH	NEURO NEXT-YR. 2	$143,427.53	$69,884.18
Wechsler	UMDNJ	Crest	$36,335.20	$8,720.49
Wechsler	Johns Hopkins University	MISTIE Study	$35,619.00	$18,343.78
Wechsler	Stanford Univ	Defuse II	$21,410.93	$11,026.64
Wechsler	Johns Hopkins University	NEURONEXT-YR 1	$15,138.24	$7,796.18
Wechsler	U of Cincinnati	IMS III Study	$42,343.33	$21,271.26

Wechsler	Johns Hopkins University	Clear III	$18,295.45	$9,211.38
Wechsler	U of Michigan	SHINE PROJECT YEAR 2 ** C.L. Trial revenue based on patient enrollment	$89.51	$46.99
Zigmond	NIH	Survival Skills and Ethics Workshops for Neuroscientists	$17,526.99	
Zigmond	NIH	Mechanisms of exercise-induced protection and rescue in models of dopamine loss	$230,059.90	$24,251.42
Zigmond	NIH	Training Faculty to Teach Responsible Conduct of Research and Professional Skills	$2,843.54	
Zigmond	NIH	Training faculty to teach responsible conduce of research and professional skills	$4,161.83	
Zigmond	NIH	Mechanisms of exercise-induced protection and rescue in models of dopamine loss	$267,865.13	$71,778.55
		Federal Grants: Public Health Service Training Grants		
Zigmond	NIH	Training in the Neurobiology of Psychiatric Disorders	$215.00	$17.20
Zigmond	NIH	Training in the Neurobiology of Neurodegenerative Disease	$1,199.51	$95.96
Zigmond	NIH	Training in the Neurobiology of Neurodegenerative Disease	$201,912.93	$16,153.04
		Other Federal Grants		
Burton	National Science Foundation	Towards Assessing and Mitigating the Toxicity of Metal Nanoparticles	$1,876.90	$985.37
Clemens	Department of Defense	Clinical trial of Coenzyme Q10 and Prednisone in Duchenne M.D.	$24,712.61	$6,178.23
Clemens	Department of Defense	Infrastructure for Clinical Trials in Duchenne Dystrophy	$2,856.69	$714.14
Clemens	Department of Defense	Infrastructure for Clinical Trials in Duchenne Dystrophy	$249.47	$62.99
Clemens	Department of Defense	P50 Project 3	$15,100.26	$7,776.64
Clemens	Department of Defense	P50 Admin Core	$1,580.21	$813.81

Clemens	Department of Defense	P50 Project 3	$33,161.44	$17,078.11
Clemens	Department of Defense	P50 Admin Core	$6,237.74	$3,212.44
Jain	National Science Foundation (CMU)	Pittsburgh Science of Learning Center: Studying Robust	$1,283.33	$660.93
		Society and Foundation Funding		
Bagic	Craig H. Neilsen Foundation	Human Motor Cortical Activity During Observed Hand Movement for BCI	$2,103.36	$210.35
Baldwin	Duke University	Utility of intravenous lacosamide compared with fosphenytoin in the treatment of patients with frequent nonconvulsive seizures	$5,262.18	
Berman	Parkinson's Disease Foundation	Evaluating the role of Mitochondrial dynamics in Parkinson's Disease in an in vivo vertebrate model: Real-time live imaging of Mitochondrial dynamics in depamine neurons in whole zebra fish	$80,788.55	$8,078.99
Burton	UPMC Foundation	Zebrafish Parkinson's Disease Models for drug discovery and evaluation of the role of agining in pathogenesis	$17,055.29	
Burton	Bachmann Strauss Dystonia & Parkinson Foundation	Generation of tor 1 knockout zebrafish	$19,527.00	
Di Maio	RiMed Foundation	Cannabinoids Therapeutic potential in the prevention of chronic epilepsy	$23,721.15	$12,453.62
Greenamyre	American Parkinson Disease Assoc.	PET, Posturographic and Clinical Marker of Early PD	$49,560.81	
Greenamyre	Michael J. Fox Foundation	LRRK2 Transgenic rat Parkinson's Disease Model Characterization	$70,704.10	$17,676.12
Greenamyre	JPB Foundation	Pathogenic Mechanisms as Therapeutic Targets in PD	$264,576.26	$52,915.26
Greenamyre	RiMed Foundation	RiMed Foundation Fellow Award - Roberto DiMaio	$43,408.80	$21,053.33
Hu	American Heart Association	DHA post-treatment alleviates white matter injury after cerebral ischemia	$1,775.11	$177.51
Ikonomovic	Pittsburgh Foundation	Novel Amyloid-Targeting Therapies for Preserving Cognitive Function in Alzheimer's Disease	$38,616.98	

Jain	Michael J. Fox Foundation	Clinical Decision Making in the Pre-Motor Period of Parkinson's Disease	$28,832.54	$2,883.25
Klein		Women with Epilepsy: Pregnancy	$1,288.31	
McDade	Pittsburgh Foundation	To Conduct Early State Research to Explore the Relationship between Vascular Disease and Dementia	$3,444.88	
VanLaar	Parkinson's Disease	The effects of parkin on neuronal mitochondrial dynamics in a chronic model of Parkinson's Disease	$44,767.95	
Zhang	American Heart Association	Omega-3 fatty acids protect against cerebral ischemia via Nrf2/HO-1 pathway	$68,314.49	$6,831.42
Zigmond	Prometheus, Inc. (MJFF)	Targeting System Xc- for the Treatment of Parkinson's Disease	$55,512.43	$5,551.24
Zivkovic	GBS/CIDP Foundation Int'l	International Guillain-Barre Syndrome Outcome Study (IGOS)	$138.82	

Veterans Administration Medical Center Grants

Cao	Veterans Affairs	IPA Kian-Fong Liou	$13,551.98
Cao	Veterans Affairs	IPA Zheng Jing	$60,895.89
Cao	Veterans Affairs	IPA Kian-Fong Liou	$36,138.60
Chen	Veterans Affairs	IPA Lili Zhang	$14,684.63
Chen	Veterans Affairs	IPA Stetler	$34,495.95
Chen	Veterans Healthcare System	IPA Lili Zhang	$15,272.00
Chen	Veterans Affairs	IPA Zhongfang Weng	$15,621.90
Chen	Veterans Affairs	IPA Xiaoming Hu	$19,404.00
Clemens	Veterans Healthcare System	IPA Dan Reay	$45,779.83
Clemens	Veterans Healthcare System	IPA Gabriela Niizawa	$34,766.23
Graham	Veterans Affairs	IPA Hao Liou	$73,920.00
Graham	Veterans Affairs	IPA Marie Rose	$72,328.14
Graham	Veterans Affairs	IPA Jordan Pascoe	$3,467.94

Graham	Veterans Affairs	IPA Dandan Sun	$70,630.56	
Graham	Veterans Affairs	IPA Wenjin Li	$65,573.86	
Ikonomovic	Veteran's Affairs	IPA Robert Sweet	$2,894.82	
Ikonomovic	Veterans Affairs	IPA Agreement for William Paljug	$72,432.14	
Ikonomovic	Veterans Affairs	IPA Agreement for Eric Abrahamson	$34,498.80	
Smith	Veterans Affairs	IPA Sandra-Castro-Scheirer	$19,095.05	
		Industry Research Funding		
Clemens	Biochem Genetics LLC	Parental Knowledge and Attitudes towards newborn screening for Muscular Dystrophy and Spinal Muscular Atrophy	$30,917.56	$16,231.73
Clemens	Genzyme Corporation	Center for the Study and Treatment of Lysosomal Storage Disorders	$13,719.36	
Ikonomovic	Fidelity Investments	Effects of Neramexane and Memantine on Neurological Outcome ir. Experimental Traumatic Brain Injury	$4,772.60	
Lopez	Elan Pharmaceuticals	ELAN 302	$16,190.49	$4,857.16
Lopez	Elan Pharmaceuticals	ELAN 301	$2,337.72	$701.34
Lopez	Janssen Al R&D	A Phase 3 Extension, Multicenter, Double-Blind, Long Term Safety and Tolerability Treatment Trial of Bapineuzumab (AAB-001, ELN115727) in Subjects with Alzheimer's Disease	$12,005.63	$3,601.70
Wechsler	SanBio, Inc.	A Phase 1/2A Study of the safety and efficacy of modified stromal cells in patients with stable ischemic stroke	$68,769.39	$24,069.30
TOTAL			$8,350,827	$2,797,785
		Industry Sponsor Trials		
Hammer	Aldagen	A Phase 2 Randomized, Controlled Study with a Phase 1 Safety Cohort testing ALD-401 Derived from Autologous Bone Marrow Delivered via Intracarotid Infusion in Subjects with Ischemic Stroke using Blinded Assessments	$20,742	
Jain	ICON Clinical Research Inc	Confident PD	$13,647	

Lacomis	Biogen	A Randomized, Double-Blind, Placebo-Controlled, Multi-Center Study of the Safety & Efficacy of Dexpramipexole in Subjects with Amyotrophic Lateral Sclerosis	$59,688
Lacomis	Biogen	An Open Label, Multicenter, Extension Study to Evaluate the: Long-Term Safety and Efficacy of Dexpramipexole (BIIB050) in Subjects with Amyotrophic Lateral Sclerosis	$74,058
Lacomis	Cytokenetics, Inc.	A Phase IIb, Multi-National, Double-Blind, Randomized, Placebo-Controlled Study to Evaluate the Safety, Tolerability and Efficacy of CK-2017357 in Patients with Amyotrophic Lateral Sclerosis	$12,300
Lopez	Elan Pharmaceuticals	A Prospective, Randomized, Double-Blind, Placebo-Controlled, Phase 2 Efficacy & Safety Study of Oral ELND005 for Treatment of Agitation & Aggression in Patients with Moderate to Severe Alzheimer's Disease	$13,000
Mitchell	Novartis	PPMS	$23,701
Mitchell	Biogen	A Dose-Blind, Multicenter, Extension Study to Determine the Long-Term Safety & Efficacy of Two Doses of BG00012 Monotherapy in Subjects with Relapse-Remitting Multiple Sclerosis	$25,293
Mitchell	Biogen	Multicenter, Double-blind, Randomized, Parallel group, Monotherapy, Active-control Study to Determine the Efficacy & Safety of Daclizumab High Yield Process (CAC HYP) versus Avonex	$29,333
Mitchell	Novartis	OCRELIZUMAB	$53,015
Mitchell	Osmotica Pharmaceuticals	Phase IIb, Multi-National, Double-Blind, Randomized, Placebo-Controlled Study to Evaluate the Safety, Tolerability and Efficacy of CK-2017357 in Patients with Amyotrophic Lateral Sclerosis	$11,100
Oddis	Novartis	Fingolimod	$41,637
Reddy		Gore Reduce	$531
Reddy	H.Lundbeck Institution	DIAS	$7,091
Reddy	Covidien LP	SWIFT PRIME	$8,500
Wechsler	Abbott Vascular	ACT I	$7,725
Grand Total			**$401,361**

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G. Brandon Atkins, MD, PhD	Case Western Reserve University Department of Medicine
Michael B. Sporn , MD	University of Dartmouth Department of Medicine
Yanqin Gao, PhD	Fudan University State Key Lab of Neurobiology
R. Anne Stetler, PhD	University of Pittsburgh Department of Neurology
Rehana K. Leak, PhD	Duquesne University School of Pharmacy
Baoliang Sun, MD, PhD	Tanshan Medical University
Xiaoming Hu, MD, PhD	University of Pittsburgh Department of Neurology
Bryan N. Brown, PhD	McGowan Institute for Regenerative Medicine, University of Pittsburgh
Hongqu Yan	University of Pittsburgh Department of Neurosurgery
Stephen F. Badylak, MD, PhD	University of Pittsburgh School of Medicine, Department of Surgery
C. Edward Dixon, PhD	University of Pittsburgh Department of Neurosurgery
Xinyan Tracy Cui, PhD	University of Pittsburgh Department of Bioengineering

Michael Zigmond, PhD

Judy Cameron, PhD	University of Pittsburgh Department of Psychiatry
Barry Hoffer, PhD	Case Western Reserve University
Jun Chen, MD	University of Pittsburgh Department of Neurology
Jan Cavanaugh, PhD	Duquesne University
Mart Saarma, PhD	University of Helsinki
Richard Smeyne, PhD	St. Jude Children's Hospital

Sasa Zivkovic, MD

Ahmed El-Dokla, MD, MSc	University of Pittsburgh Department of Neurology
Guilherme Costa, MD	University of Pittsburgh Thomas Starzl Transplantation Institute
Suzanne Lentzsch, MD PhD	Pittsburgh Cancer Institute
Elsa Strotmeyer, PhD	University of Pittsburgh Graduate School of Public Health

Faculty Honors, Editorial Service, and Professional Affiliations

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

Membership in Professional and Scientific Societies

National and International
American Academy of Neurology (AAN)
American Academy of Sleep Medicine
American Clinical MEG Society (ACMEGS), Board of Directors, Founding member
American Clinical Neurophysiology Society (ACNS)
American Epilepsy Society (AES)
American Medical Association (AMA)
International Society for the Advancement of Clinical MEG (ISACM) 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
Croation 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

Invited Guest Editor, *Neurobiology of Disease* Special Issue:
Mitochondrial Dynamics and Quality Control in Neuropsychiatric Disease

Ad hoc reviewer

American Journal of Pathology
Antioxidants & Redox Signaling
Biochimica et Biophysica Acta – Molecular Basis of Disease
Cell Death and Differentiation
Journal of Neurochemistry
Journal of Neuroscience
Journal of Neurochemical Research
Journal of Visualized Experimentation
Mitochondrion
Molecular Cell
Neuroscience Letters
Neurobiology of Disease
PLOS One

Membership in Professional and Scientific Societies

American Academy of Neurology
American Association for the Advancement of Science
Movement Disorders Society
Parkinson Study Group
Society for Neuroscience

Richard Brenner, MD

Editorial Service

Editorial Board

Journal of Clinical Neurophysiology

Ad hoc reviewer

Clinical Neurophysiology
Seizure

Membership in Professional and Scientific Societies

American Academy of Neurology
American Clinical Neurophysiology Society
American Epilepsy Society

Edward Burton, MD, DPhil, FRCP

Honors

2013 Best Doctors.com, Elected for inclusion in *Best Doctors in America* 2013-2014
2013 *Pittsburgh Magazine*, Listed as one of 19 *Top Doctors* in the region for neurology

Editorial Service

Ad hoc reviewer

Brain
Developmental Biology
Journal of Biological Chemistry
Neurobiology of Disease
PLOS One
Science
The Journal of Neuroscience

Grant review

Department of Veterans' Affairs

Membership in Professional and Scientific Societies

Association of British Neurologists
Royal College of Physicians of London
Movement Disorders Society
The Society for Neurosciences

Neil Busis, MD

Honors

Best Doctors, Neurology in Pittsburgh Magazine 2012 and 2013

Editorial Service

Editor, *Medpedia* (www:URL:http://www.medpedia.com/)
Editorial Board, *Medscape Reference*, Neurology (wwwURL:http://emedicine.medscape.com/neurology)
Editorial Board, *Neurology Today*
Ad hoc reviewer
Archives of Neurology
Clinical Neurophysiology
European Journal of Neurology
Journal of Neurology, Neurosurgery, and Psychiatry
Journal of the American Medical Association
Journal of the Neurological Sciences
Medscape General Medicine
Muscle & Nerve
Neurology
The Neurologist
Grant Reviewer
Center for Medicare and Medicaid Innovation, Baltimore, MD

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
Neurocritical Care 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
Reviewer Committee, Neural Regeneration Research
Ad hoc reviewer
Annals of Neurology
Brain Research
Cell Death and Differentiation
CNS Neuroscience and Therapeutics
Drug Delivery Letters
European Journal of Pharmacology
Journal of Cerebral Blood Flow and Metabolism
Molecular Biology Reports
Neurochemical Research
Neuropharmacology
Neurochemistry International
Neuroscience
Neurotoxicity Research
Pediatric Research
Stem Cell
Translational Stroke Research

Membership in Professional and Scientific Societies

American Heart Association
International Symposium on Cerebral Blood Flow & Metabolism
Society for Neuroscience

Jun Chen, MD

Honors -

Changjiang Endowed Professorship, Chinese Education Commission 2009-2012
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
Journal of Neurochemistry
Journal of Neuroscience
Molecular Brain Research
Molecular Neurobiology
Molecular Therapy
Nature Medicine
Nature Neuroscience
Neurobiology of Aging
Neurobiology of Disease
Neurochemistry International
Neuroscience
Neuroscience Letters
Neuroscience Research
Nucleotide Acid Research
PNAS USA
Progress in Neurobiology
Stroke

Membership in Professional and Scientific Societies -

American Heart Association Stroke Counsul
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
Lancet Neurology
Muscle & Nerve
PLOS One

Membership in Professional and Scientific Societies

American Academy of Neurology
American Neurological Association
American Society of Gene and Cell Therapy

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

John Doyle, MD

Membership in Professional and Scientific Societies

American Academy of Neurology

Jan Drappatz, MD

Honors

Who's Who In America
Best Doctors
Patient's Choice Award, Vitals.com

Editorial Service

Ad Hoc Reviewer

American Journal of Palliative Care
Drug Target Insights
Expert Reviews of Anticancer Therapy
Neuropsychiatric Disease and Treatment
International Journal of Radiation Oncology, Biology, Physics
Drug Discovery Today
Medical Science Monitor
BMC Cancer
British Journal of Cancer
Future Oncology
Journal Watch Neuro-oncology
Clinical Colorectal Cancer

Grant Review

Neurological Foundation of New Zealand
Qatar National Research Fund (QNRF)
Samantha Dickson Brain Tumour Trust, UK

Membership in Professional and Scientific Societies

American Academy of Neurology
American Association for Cancer Research
American Medical Association

BRAIN
Harvard Consortium for Neuropathies Studies
International Meningioma Society
Massachusetts Medical Society
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)

Honors
Teacher of the year – UPMC Hamot Neurology Residency 2013

Membership in Professional and Scientific Societies
American College of Osteopathic Neurology and Psychiatry, Fellow
American Association of Neuromuscular and Electrodiagnostic Medicine, Fellow

Gena Ghearing, MD

Editorial Service
Ad hoc reviewer
Epilepsia
Neurology

Membership in Professional and Scientific Societies
Allegheny County Medical Society
American Academy of Neurology
American Clinical Neurophysiology Society
American Epilepsy Society
American Medical Association
Pennsylvania Medical Association

Steven Graham, MD, PhD

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

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
National Stroke Council, American Heart Association
Society for Neuroscience

Erica Grazioli, DO

Honors
UPMC Hamot Guardian Angel Award
Keynote 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
Chair, *Neural Oxidative Metabolism and Death* (NOMD)

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
Journal of Neuroscience
Journal of Neuroscience Research
Journal of Neurophysiology
Journal of the Neurological Sciences
J. Pharmacology and Experimental Therapeutics
The Lancet
Life Sciences
Mechanisms of Aging and Development
Molecular and Chemical Neuropathology
Molecular Pharmacology
Molecular Therapeutics
Movement Disorders
Nature
Nature Medicine
Nature Neuroscience
Neurobiology of Aging

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
Neurobiology of Disease
Neurodegeneration
Neurology
Neuron
Neuropharmacology
Neuroscience
Neuroscience Letters
Neuro Toxicology
Parkinson's Disease
Physiology & Behavior
Proc. Natl. Acad. Of Science (U.S.A.)
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

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
Journal of Neuroscience
Neurobiology of Disease

Membership in Professional and Scientific Societies

American Academy for Advancement of Science
International Society for Neurochemistry
New York Academy of Sciences
Society for Free Radical Biology and Medicine
Society for Neuroscience

Rock Heyman, MD

Honors/Recognition

Best Doctors in America, Woodard/White, Inc.
Pittsburgh's Top Doctors, Neurology, Sleep Medicine
UPMC ACE Award (Award for Commitment and Excellence in Services) 2012

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

David Hinkle, MD, PhD

Faculty Honors

Recipient of National Institutes of Health R01 grant
Best Doctors in America (Neurology/Movement Disorders)
Best Doctors in Pittsburgh (Neurology)

Editorial Service

Ad hoc reviewer

Antioxidants and Redox Signaling
Biochemistry
Brain Research Bulletin
Glia
Journal of Cerebral Blood Flow and Metabolism
Journal of Neurochemistry
Journal of Neuroinflammation
Journal of Neuroscience
Movement Disorders
Neurobiology of Disease
Neurochemistry International
Neuropathology
Neuroscience
Neurotoxicology
PloS ONE
Stroke

Membership in Professional and Scientific Societies

American Academy of Neurology
American Association for the Advancement of Science
American Neurological Association
Movement Disorder Society
Parkinson Study Group
Society for Neuroscience

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
Neuropsychopharmacology
Neuroscience
Neuropharmacology
Psychopharmacology

Membership in Professional and Scientific Societies

American Academy of Neurology
Movement Disorder Society
Society for Neuroscience

Xiaoming Hu, MD, MS, PhD

Honors

AHA Postdoctoral Fellowship (American Heart Association)

Milos Ikonomovic, MD

Editorial Service

Cardiovascular Psychiatry and Neurology – Associate Editor

Ad hoc reviewer

American Journal of Pathology
Alzheimer Disease and Associated Disorders
Annals of Neurology
Archives of Neurology
Brain
Experimental Neurology
Journal of Alzheimer's Disease
Journal of Comparative Neurology
Journal of Gerontology
Journal of Neurotrauma
Nature
Neurobiology of Aging
Neurology
Neuroscience

Grant reviewer

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

Membership in Professional Societies

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

Samay Jain, MD

Editorial Service

Guest Editor

Neurobiology of Disease

Reviewer Board

Journal of Pediatric Neurology

Ad hoc grant reviews

VISN 4 Competitive Pilot Project Fund Medical Research Council
Western Psychiatric Institute and Clinic Research Committee

Ad hoc reviewer

Case Reports and Clinical Practice Review
Clinical Neurology and Neurosurgery
European Journal of Neurology
Expert Review of Neurotherapeutics
International Journal of Psychophysiology
Journal of American Geriatrics Society
Journal of Pediatric Neurology
Movement Disorders
The American Journal of Managed Care
The Neurohospitalist

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
Lancet Neurology
Neurology
Neurosurgery
NINDS grant submissions
Stroke

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

Honors

2012 Excellence in Teaching Award, Department of Neurology

Editorial Service

Assistant Editor, *Headache*
Abstracts Editor, *Headache*
Ad hoc reviewer

Cephalalgia

Membership in Professional and Scientific Societies

American Academy of Neurology
American Council for Headache Education
American Headache Society
International Headache Society

Kelly Kay, DO

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

Simin Khavandgar, MD

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

Daniel Kinem, DO

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
Ad hoc reviewer
Journal of Stroke and Cerebrovascular Diseases

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

David Lacomis, MD

Honors -
"Top Doctors," Pittsburgh Magazine, 2013
"America's Top Doctors," Castle Connolly Medical Ltd., 2013
"Best Doctors in America" (Woodward/White, Inc.), 2013
"Patients' Choice (MDx Medical, Inc.)

Editorial Service
Member, Editorial Board, *Journal of Clinical Neuromuscular Diseases*
Section Editor, "What's in the Literature?" *Journal of clinical Neuromuscular Diseases*
Ad hoc reviewer:
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
American Medical Association
Mayo Clinic Alumni Association

Frank Lieberman, MD

Editorial Service

Ad hoc reviewer

Annals of Neurology
Cancer Chemotherapy and Pharmacology
Clinical Cancer Research
Journal of Neuroimaging
Lancet

Membership in Professional and Scientific Societies

American Association of Cancer Research
American Academy of Neurology – Neuro-Oncology Section
American Society of Clinical Oncology
Radiation Therapy Oncology Group-CNS Tumors Committee
Society for Neuro-Oncology

Anthony K.F. Liou, PhD

Membership in Professional and Scientific Societies

Editorial Board member of *Neurology Research International*
Society for Neuroscience

Hao Liu, MD, PhD

Editorial Service

Ad hoc reviewer

Mediators of Inflammation
Prostaglandins and Other Lipid Mediators
Journal of Neuroinflammation
Brain Research

Membership in Professional and Scientific Societies

American Society for Biochemistry and Molecular Biology (ASBMB)
Inflammation Research Association, USA
International Society for Cerebral Blood Flow and Metabolism (ISCBFM)
Sigma Xi, The Scientific Research Society
Society for Neurosciences (SFN)

Oscar Lopez, MD

Honors

Professor Honoris Causa (2012), Universidad Reneé Favalore, Buenos Aires, Argentina
Honoree, University of Pittsburgh 37th Honors Convocation (2013), Pittsburgh, PA
Best Doctors in Town, *Pittsburgh Magazine*, 2012, Pittsburgh, PA

Editorial Service

Editorial Board, *Frontiers in Neuroscience, Alzheimer – Realidades e Investigacion en Demencias (Barcelona, Spain)*

Editorial Founding Member of the *American Journal of Neurodegenerative Disorders*
Ad hoc reviewer

Acta Neurologica Scandinavica
Acta Neuropathologica
Acta Psychiatrica Scandinavica
Alzheimer's & Dementia
Alzheimer's Disease and Related Disorders
Alzheimer's Disease and Therapy
American Journal of Hypertension
Annals of Neurology
Antioxidant & Redox Signaling
Archives of General Psychiatry
Archives of Internal Medicine
Archives of Neurology
Atherosclerosis, Thrombosis & Vascular Biology
Behavioral and Brain Function
Biological Psychiatry
Brain
CSN Drugs
Cognitive and Behavioral Neurology
Cortex
Dementia and Geriatric Cognitive Disorders
Drugs and Aging
European Journal of Neurology
European Neurology
Expert Review in Molecular Diagnostics
Frontiers in Neuroscience
Functional Neurology, Italy
International Journal of Geriatric Psychiatry
International Psychogeriatrics
Journal of Clinical Epidemiology
Journal of Clinical Psychiatry
Journal of Cognitive and Behavioral Neurology
Journal of Gerontology: Medical Sciences
Journal of Herbal Pharmacology
Journal of Neurology, Neurosurgery & Psychiatry
Journal of Neural Transmission
Journal of Neuropsychiatry and Clinical Neurosciences
Journal of Neurochemistry
Journal of Neuropsychiatry, Neuropsychology, and Behavioral Neurology
Journal of the American Geriatrics Society
Journal of the International Neuropsychological Society
Liver Transplantation and Surgery
Molecular Medicine
Nature- Clinical Practice Neurology
Neurobiology of Aging
Neurology
Neuroepidemiology
Neurology-India
Neuropsychiatric Disease & Treatment
Neuropsychologia
Neuropsychology
Psychiatric Research
Psychiatrics-Turkey
The American Journal of Cardiology
The American Journal of Geriatric Psychiatry
The American Journal of Psychiatry
The Canadian Journal of Neurological Sciences
The Journal of Psychological Assessment
The Lancet
The Middle East Journal of Medical Genetics

Angela Lu, MD

Membership in Professional and Scientific Societies
American Academy of Neurology

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
Co-Author – *Mild Cognitive Impairment – UpToDate Inc*.

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

Galen Mitchell, MD

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

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*
Annual Meeting reviewer
International Society for Magnetic Resonance in Medicine

Alexandra Popescu, MD

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

Vivek Reddy, MD

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

Jingzi Shang, MD, PhD

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

Lori Shutter, MD, FCCM

Honors
Faculty of the Year, Department of Critical Care Medicine

Editorial Service
Periodicals
Neurocritical Care

Critical Care Medicine
Journal of Neurosurgery, Neurology and Psychiatry
Neurosurgery

Professional Organizations

Brain Trauma Foundation Guidelines Development
National Institutes of Health Review Panel
Drug Safety & Monitoring Committee (Chairman), Neuren Pharmaceutical

Membership in Professional and Scientific Societies

American Medical Association
American Academy of Neurology
Critical Care and Emergency Neurology Section Member
National Neurotrauma Society
Women in Neurotrauma
Western Neurosurgical Society
Neurocritical Care Society (NCS)
Communications Committee
Guidelines Committee
Coordinator, Reviews of External Guideline
Annual Conference Abstract Reviewer
NCS Board of Directors
Women in Neurocritical Care (WINCC) member
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

Amanda Smith, PhD

Membership in Professional and Scientific Societies

Society for Neuroscience

Editorial Service

Ad hoc reviewer

Brain Research
Experimental Neurology
Neuroscience
Pharmacology, Biochemistry and Behavior
Physiology and Behavior

Beth Snitz, PhD

Editorial Service

Ad hoc reviewer

Aging and Mental Health
Alzheimer's and Dementia
Biological Psychiatry
Gerontology
International Psychogeriatrics
Journal of the American Geriatric Society
Journal of the International Neuropsychological Society
Neuropsychology

Membership in Professional and Scientific Societies

American Psychological Association, Division 40 Clinical Neuropsychology
International Neuropsychological Society

Ruth Anne Stetler, PhD

Editorial Service

Ad hoc reviewer

Brain Research
Brain Research Bulletin
CNS & Neurological Disorders-Drug Targets
Journal of Neuroscience
Journal of Neuroscience Research
Leukemia
Neurochemistry International
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

Honors

UPMC Hamot Guardian Angel Award

Membership in Professional and Scientific Societies

American Association of Neuromuscular and Electrodiagnostic Medicine
American College of Osteopathic Neurologists and Psychiatrists
American Osteopathic Association

Dandan Sun, Md, PhD

Honors

Endowed Professor in Department of Neurology, University of Pittsburgh

Editorial Service

Frontiers in Membrane Physiology
Editorial Board - International Journal of Physiology, Pathophysiology and Pharmacology
Ad hoc reviewer – National Science Foundation grants

Journal of Cerebral Blood Flow and Metabolism
Journal of Neurochemistry
Journal of Neuroscience
Neurology
Stroke

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

Membership in Professional and Scientific Societies

American Academy of Neurology
American Medical Association
American Osteopathic Association

Huntington's Study Group
Movement Disorders Society
Parkinson's Study Group

Anne Van Cott, MD

Honors

Best Doctors (Neurology) 2013, *Pittsburgh Magazine*

Editorial Service

Ad hoc reviewer

Aging Health
Epilepsia
Epilepsy and Behavior
Epilepsy Research
Journal of Neurology
Pharmacoepidemiology and Drug Safety
The American Journal of Geriatric Pharmacotherapy

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

Fellow, American Academy of Neurology
Fellow, American Clinical Neurophysiology Society
American Epilepsy Society

Barbara Vogler, MD

Honors

America's Top Physician for Consumers' Research Counsel of America

Editorial Service

Ad hoc reviewer

Headache Journal
Headache Currents

Membership in Professional and Scientific Societies

American Academy of Neurology
American Headache Society

Janet Waters, MD, MBA

Membership in Professional and Scientific Societies

American Academy of Neurology
Beta Gamma Sigma Society

Lawrence Wechsler, MD

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 Medical Association
American Neurological Association
American Society of Neuroimaging
Society for Neuroscience

Islam Zaydan, MD

Honors

Nominated amount the Pittsburgh Best physicians

Membership in Professional and Scientific Societies

American Academy of Neurology
American Medical Association
Egyptian Medical Professional Syndicate
North American Neuro-Ophthalmologic Society
Virginia Neurological Society
Virginia Medical Society
Virginia Ophthalmology 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
Mini-review of Medical Chemistry
Molecular Biology Reports
Neurological Research
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

Mika Salpeter Award for Lifetime Achievement from Society for Neuroscience

Editorial Service

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

Membership in Professional and Scientific Societies

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

Saša Živković, MD

Honors

"Best Doctors in America" 2005 - 2014

Editorial Service

Editorial consultant, ACP PIER online module "*Myasthenia Gravis*" (author *M. Meriggioli*)
Member, Editorial Advisory Board, *World Journal of Hepatology*
Member, Monograph Review Committee, *AANEM/Muscle Nerve*
Ad hoc reviewer
BMC Research Notes
Clinical Neurology and Neurosurgery
Journal of Neurology, Neurosurgery and Psychiatry
Postgraduate Medical Journal

Membership in Professional and Scientific Societies

ALS Research Group
American Academy of Neurology
Inflammatory Neuropathy Consortium (INC)
National VA ALS Consortium
North East Amyotrophic Lateral Sclerosis Consortium (NEALS)

Faculty Mentoring and Teaching

Members of the Faculty 2012-2013

Anto Bagić, MD, PhD	Associate Professor
Marie Baldwin, MD	Assistant Professor
Sarah Berman, MD, PhD	Assistant Professor
Richard P. Brenner, MD	Clinical Professor
Edward A. Burton, MD, DPhil, FRCP	Assistant Professor
Guodong Cao, PhD	Associate Professor
Jun Chen, MD	Professor
Paula R. Clemens, MD	Professor
John J. Doyle, MD	Associate Professor
Jan Drappatz, MD	Visiting Associate Professor
Ahmed El-Dokla, MD	Assistant Professor
Kathy Gardner, MD	Assistant Professor
Gena Ghearing, MD	Assistant Professor
Steven H. Graham, MD, PhD	Professor
J. Timothy Greenamyre, MD, PhD	Professor
Maxim Hammer, MD	Assistant Professor
Teresa G. Hastings, PhD	Associate Professor
Hassan Hassouri, MD	Clinical Associate Professor
Rick Hendrickson, PhD	Assistant Professor
Rock A. Heyman, MD	Associate Professor
David Hinkle, MD, PhD	Assistant Professor
Eric Hoffman, PhD	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
Laurie Knepper, MD	Clinical Associate Professor
Autumn Klein, MD, PhD	Assistant Professor
David Lacomis, MD	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
Galen Mitchell, MD	Associate Professor
Eric Ogren, MD	Assistant Professor
Alexandra Popescu, MD	Assistant Professor
Vivek Reddy, MD	Assistant Professor

Lori Shutter, MD	Visiting Professor
Amanda Smith, PhD	Research Assistant Professor
Beth Snitz, PhD	Assistant Professor
Ruth Ann Stetler, PhD	Research Assistant Professor
Dandan Sun, MD, PhD	Professor
Valerie Suski, DO	Assistant Professor
Barbara Swenson, MD	Clinical 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

Faculty Member	**Previous Appointment**
Neil Busis, MD	Clinical Associate Professor, Dept. of Neurology, University of Pittsburgh School of Medicine
James DeMatteis, MD	Division Chief, Neurology, UPMC Hamot Medical Center
Jeffrey Esper, DO	Osteopathic Director of Medical Education, UPMC Hamot Medical Center
Erica McQuone Grazioli, DO	Chief, Division of Neurology UPMC Hamot Medical Center
Houman Homayoun, MD	PCP & Research Section Supervisor, Shahriar Health Center, Iran University of Medical Science, Iran
Simin Khvandgar, MD	Center for Neurological Diseases (private practice), Crest Hill, Illinois
Daniel Kinem, DO	Neurology Resident, UPMC Hamot Medical Center
Erek Lam, MD	Fellow, Sleep Medicine, Mayo Clinic
Jullie Pan, MD, PhD	Associate Professor, Yale University School of Medicine

Jingzi Shang, MD	Neurology Resident University of Pittsburgh School of Medicine
Michelle Stevens, DO	Fellow: Neuromuscular disease/EMG UPMC Presbyterian Hospital, Pittsburgh, PA

Faculty Departures

Faculty Member	**New Position and Rank**
Judith Saxton, PhD Professor	Retired
Lisa C. Roeske-Anderson, MD Assistant Professor	Denver, Colorado

Clinical Education 2012-2013

House Officers

PGY 4 Co-Chief Residents	**Medical Education**
Erin Canale, MD	Wayne State University School of Medicine
Amber Van Laar, MD	University of Pittsburgh School of Medicine
Nima Aghaebrahim, MD	University of South Carolina School of Medicine

PGY 4 Residents

Jigyasa Tewari	Dayanand Medical College, India
Nambuur Vidyashanker, MD	University of Massachusetts Medical School

PGY 3 Residents

Edilberto Amorim, MD	Escola de Medicina E Saude Publica
David Avila, MD	Universidad Catolica de Santiago de Guayaquil
David Campbell, MD	University of Miami Miller School of Medicine
Claire Casper, MD	University of Chicago Pritzker School of Medicine
Stacie Demel, DO	Michigan State University College of Osteopathic Medicine
Jennifer Han, MD	University of Maryland School of Medicine
Robert Hendry, MD	Medical University of South Caroline College of Medicine

PGY 2 Residents

Diana Mnatsakanova, MD	West Virginia University School of Medicine
Robyn Nadel, MD	University of Maryland School of Medicine
Kristen Regan, MD	Texas A&M University System HSC College of Medicine
Yumna Saeed, MD	State University New York Upstate Medical University

Thomas Shoemaker, MD	Rush Medical College
Chauncey Spears, MD	West Virginia University School of Medicine
Kara Wyant, MD	University of Toledo College of Medicine

Neurology Fellows	**Medical School Attended**	**Residency Training**
Anat Horev, MD	Semmelweis University, Hungary	Soroka Medical Center, Israel
Dan-Victor Giurgiutiu, MD	Carney Hospital	Partners MGH/BWH Neurology, Boston Massachusetts
Viktoria Totoraitis, MD	University of Vermont College of Medicine	University of Pittsburgh Medical Center
Sunanda Nanduri, MD	Siddartha Medical College, India	Allegheny General Hospital
William Freiberg, DO	Pennsylvania College of Osteopathic Medicine	University of Pittsburgh Medical Center
Joseph Diamond, MD	University of Miami	Jackson Medical Center
Ovictor leo Tesoro, MD	University of East (Toman Magsaysay Memorial Medical Center)	Brooklyn Hospital Center

Departing House Officers

Residents	**New Position**
Nima Aghaebrahim, MD	Vascular Neurology Fellowship – UPMC
Erin Canale, MD	Clinical Neurophysiology Fellowship – University Hospitals Case Medical Center
Jigyasa Tewari, MD	Clinical Neurophysiology Fellowship – UPMC
Amber Van Laar, MD	Movement Disorders Fellowship – UPMC
Nambiuur Vidyashanker, MD	Clinical Neurophysiology Fellowship – University of Massachusetts

Fellows	**New Position**
Dan-Victor Giurgiutiu, MD	Interventional Neurology - UPMC
Viktoria Totoraitis, MD	Neurology Faculty - UPP
Sunanda Nanduri, MD	Tufts Medical Center
William Freiberg, DO	Neurohospitalist & Clinical Neurophysiologist-Akron General Medical Center

Joseph Diamond, MD	Neurology Faculty - UPP

Fellowship Directors

Maxim Hammer, MD	Vascular Neurology
Samay Jain, MD	Movement Disorders
Tudor Jovin, MD	Vascular Neurology Fellowship program
	Director Neuroendovascular Fellowship program
David Lacomis, MD	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 Giurgiutiu, MD
	Sunanda Nanduri, MD
David Lacomis, MD	William Freiberg, DO
	Leo Tesaro
	Joseph Diamond

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.
Ruth Anne Stetler, PhD Research Assistant Professor	Investigating the molecular mechanism underlying ischemic brain injury and neuronal cell death.
Kiang Fong Liou, PhD Research Assistant Professor	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

J. Timothy Greenamyre, MD, PhD

Jason Canon	K99 Awardee
Samay Jain	K23 Awardee

Samay Jain, MD

Christian Agudelo	MS-III/IV, NIMH funded

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

Sarah Berman, MD, PhD

Victor VanLaar, 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

Guodong Cao, PhD

Bongrong Zhou, MD	Professor, Dept. of Neurology, 3rd Hospital, Guangzhou Medical College
Xinzhi Chen, MD, PhD	Research Assoc., 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

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

Julie M. Breckenridge, PhD	Neuroprotection by selenoproteins against toxin-induced cell death

David Hinkle, MD, PhD

Smita Mukhergee, PhD Postdoctoral fellow	Supervisory Teaching

Milos Ikonomovic, MD

Violetta Pivtoraiko, PhD Postdoctoral fellow	The Role of Truncated and Pyroglutamate Modified Aß in MCI and early Alzheimer's Disease
Zhiping Mi, PhD Postdoctoral fellow	Oxidized Phospholipids and Synaptic changes in Mild Cognitive Impairment
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 Zaidi, MD	Interventional Neuroradiology Fellowship

Jullie Pan, MD, PhD

James Ibinson, MD, PhD	"Imaging Human Pain Networks," Department of Anesthesiology, University of Pittsburgh
Patrice Pearch, PhD	"Rat models of epileptogenesis, Department of Neurology, University of Pittsburgh

Beth Snitz, PhD

Mamoonah Chaudhry	Dementia and genetics

Dandan Sun, MD, PhD

Wen Zhu Postdoctoral fellow	Study of chloride transporter in GBM tumor cells
Hui Yuan Postdoctoral fellow	Study of Intracellular Ca^{2+} rise in microglial migration
LiaoLiao Li Postdoctoral Fellow	Study of C1 transporters in Ischemic brain damage
Gulnaz Begum Postdoctoral fellow	Study DHA-medicated Neuroprotection after traumatic brain injury

Pre-Doctoral Mentoring

Sarah Berman, MD, PhD

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

Jun Chen, MD

Guohua Wang	PhD Candidates – graduated 2012
Peiying Li	PhD Candidates – graduated 2012

Steven Graham, MD

Jafar Sadik Bhasha Shaik	Graduate Student Committee member

Alexandra Popescu, MD

Ronak Dixit, MS3	Dean's Summer Research Program

Graduate Student Mentoring and Advising

Sarah Berman, MD, PhD

Annie Liu	Medical Scientist Training Program, June 2012-August 2012

Edward Burton, MD, DPhil

Kevin Mastro	Research laboratory rotation 8/2012 – 12/12
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

Dandan Sun, MD, PhD

Yejei Shi	Graduate Student

Damin Cong	PhD student

Undergraduate Mentoring

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

Rick Hendrickson, PhD

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

David Hinkle, MD, PhD

Michelle Wright	Neuroscience

Milos Ikonomovic, MD

Esther Park	2013 – University of Pittsburgh
Andrew Morrison	2013 – University of Pittsburgh
Ye Weon Ryu	2013 – University of Pittsburgh

Beth Snitz, PhD

Ellen Romich	Directed Research – Alzheimer's Disease
Kristen Breslin	Directed Research – Alzheimer's Disease

Dandan Sun, MD, PhD

Doung Kim	Study DHA-mediated 118europrotection after traumatic brain injury
Lloyd Harvey	Study DHA-mediated 118europrotection after traumatic brain injury
Amneet Shigh	Study DHA-mediated 118europrotection after traumatic brain injury

Medical Student Mentoring

Sarah Berman, MD, PhD

Nikita Roy	Research Mentor 9/12-6/13 – Parkin-Induced Mitophagy in Neurons

Edward Burton, MD, DPhil

Ritika Samanth	Scholarly project mentor 2010 – Present
Hubert Zhou	Tsinghau scholar mentor 2012 – Present

Paula Clemens, MD

Jeffrey Chung	Medical Student Scholarly Project
Corey Toocheck	Medical Student Summer Research

Max Hammer, MD

Elizabeth O'Neill	Research Project: "Hypertonic Salie Therapy for Patients with Malignant Stroke:

Robert Kaniecki, MD

Jody Manners	MS Advising
Weldon Miller	Summer Research Mentor and Scholarly Project Mentor: Clinical Predictors of Resource Utilization among Migraine Patients

Faculty Participation in Graduate Level Teaching, Mentorships, and Service

Jun Chen, MD	Lecture	Apoptosis-Cellular and Molecular Neurogiology MSNBIO
Teresa Hastings, PhD	7 Lectures	Cellular and Molecular Neurobiology
	Lecture	Neuropharmacology
Robert Kaniecki, MD	Lecture	Neuropharmacology- Headache Pharmacology
Michael Zigmond, PhD	Lecture	Ethics

Course Director

Teresa Hastings, PhD	Cellular and Molecular Neurobiology

Additional Graduate Student Mentoring and Advising

Sarah Berman, MD, PhD	MSTP Mentor 5/13-present	Niyathi Hedge
	MSTP Mentor 6/12-present	Annie Liu
	CNUP Mentor 6/12-8/12	Stephanie Aldrich
Edward Burton, MD, DPhil	MSTP Mentor 1/12 – 12/12	Gil Hoftman
	MSTP Mentor 7/12 – 6/13	Ritika Parris
Paula Clemens, MD	MSTP Mentor 7/12 – 6/13	Meghan Wilson

	MSTP Mentor 7/12 - 6/13	Annie Liu
Steven Graham, MD, PhD	MSTP Mentor 2009-present	Samuel Shin
	Graduate Student Committee member	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	Eric Strobl
Teresa Hastings, PhD	MSTP Academic Career Advisor	Daniel Wonjae Chung
	MSTP Academic Career Advisor	Adrienne Taren
	CNUP Graduate Advisor Committee	Zhenyu Liu

Committee Memberships

Sarah Berman, MD, PhD	Member, PSTP Admissions Committee Member, PSTP Steering Committee Member, MSTP Admissions Committee
Edward Burton, MD, DPhil	Member, FAST Advisory Committee
Teresa Hastings, PhD	Member, MSTP/CNUP Admissions Committee 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	Vivek Patel
Paula Clemens, MD	M.S.Thesis Committee	Rose Burns MaGee
	PhD Thesis Committee	Xiaomin Dong
Tim Greenamyre, MD, PhD	Honors Thesis Advisor	Collin Flannigan
	PhD Thesis Committee	Vivek Patel
	PhD Candidate	Wai Kan Chiu
Teresa Hastings, PhD	Chair -Dissertation Committee	Mahlon Collins
	Chair -Dissertation Committee	Meghan McCord
	Member –Dissertation and Comprehensive Committee	Hyunjung Oh
	Member –Dissertation Committee	Eser Yilmaz

David Lacomis, MD	Chair, Thesis Committee	Kristen Qutub
Oscar Lopez, MD	Member, Comprehensive Examination Committee	Andrea Metti

Faculty Participation in Medical School Teaching, Mentorships, and Service

Teaching

Anto Bagic, MD, PhD

Seizures and Epilepsies	Neurology Clerkship
Clinical Pharmacology of Antiepileptic Drugs	MS4: Clinical Pharmacology
EEG – Multiple Epilepsy related	MS1: Neuroscience

Sarah Berman, MD

Clinical Neurosciences (CNC)	MS3: Lecture

Edward Burton, MD, DPhil

Small Group	MS1: Localization
Small Group MS, Neoplasms, Hematomas, Headache	MS1: Multiple Sclerosis
Introduction to Hyperkinetic Movement Disorders	MS1: Lecture
Movement Disorders: Tics, Ataxias, Myoclonus	MS1: Lecture
Movement Disorders: 2 Lectures	MS3: Lecture

Neil Busis, MD

Mentored two medical students monthly	Neurology Clerkship

Paula Clemens, MD

Facilitator: Small Group	MS1: Methods and Logic in Medicine 1
Lecture: Neurology Core Topics	Neurology Core Topics Course
Lecture: Integrated Life Science	MSIV: 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

Lecture: Neuro-Oncologic Emergencies	MS4: ILS Neoplasia & Neoplastic Diseases

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
Huntington's disease – pathogenesis & treatment	MS1: Neuroscience
Lecture: Huntington's disease	Biological Basis of Neuropsychiatric Disease

Max Hammer, MD

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

Rock Heyman, MD

Lecture	MS1: Neuroscience
Problem Base Learning	MS1: Neuroscience
Clinical Conferences	MS1: Neuroscience
Facilitator: Small Group	MS1: Critical Appraisal MLM Course

David Hinkle, MD, PhD

Hypokinetic movement disorders: basal ganglia neuroanatomy and clinical phenomenology	MS1: Neuroscience
Parkinson's disease: clinical features and treatment	MS1: Neuroscience
Tremor and dystonia: pathophysiology and treatment	MS1: Neuroscience
Motor system degeneration	MS1: Neuroscience
Neurological Exam	MS1: Neuroscience
Movement Disorders	MS3: Clinical Neurosciences Clerkship

Samay Jain, MD

Parkinson's on Videotape: Phenomenology and Creativity	Neuroscience
Movement	Clinical Neurosciences Clerkship

Robert Kaniecki, MD

Cranial Nerves	MS1: Neuroscience
Headache	MS1: Neuroscience
Pharmacology of Headache Pain Management	MS1: Neuroscience

David Lacomis, MD

Lecture-MS, Neoplasma, Hematomas, Headaches	MS1: Neuroscience

Frank Lieberman, MD

Small Group	MS4: ILS Neoplasia Neoplastic Diseases
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

Eric McDade, DO

Dementia, 3 lectures	Clinical Neurosciences Clerkship
Alzheimer's Dementia and Other Dementias	Neuroscience
Executive Function of the Cerebral Cortex	Neuroscience
Delirium & Dementia	Neuroscience
Bedside Cognitive Testing	Neuroscience
Young Onset Dementia Syndromes, 1 lecture	Neurology Residency
Frontotemporal Dementia	Neuroscience

Galen Mitchell, MD

Multiple Lectures	Neuroscience
Course Director, Neurological Examination Lecture	Neurological Examination
Co-Director and Neurology Lectures	Clinical Neurosciences Clerkship

Anne Van Cott, MD

EEG Interpretation Lectures for MS & Neurology Residents	EEG Course

Sasa Zivkovic, MD

Localization of Dysfunction - conference	MS1: Neuroscience
MS, Neoplasms, Hematomas, Headaches - conference	MS1: Neuroscience
Syndromes Involving Brainstem and Cranial Nerves - conference	MS1: Neuroscience

Course Directors

Galen Mitchell, MD	Clinical Neurosciences

Medical Student Mentoring

Rick Hendrickson, PhD	Co-Mentored Scholarly Project	Ronak Dixit
Samay Jain, MD	Mentored Scholarly Project	Christian Agudelo
Alexandra Popescu, MD	Co-Mentored Scholarly Project	Ronak Dixit

Committee Service

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

John Doyle, MD	Course Design Group – Neuroscience
Galen Mitchell, MD	Promotions Retention Committee MS 3 & 4 Clinical Procedures Course Design Group Undergraduate Medical Education Teaching Coordinator
Anne Van Cott, MD	Course Design Group – Integrated Case Studies

Grand Rounds and Special Lectures

Department of Neurology Grand Rounds 2012-2013

2012

September 7	Daniel Lai, MD Residents' CPC Series "*Current Therapies for the Treatment of Leptomeningeal Carcinomatosis*"
September 21	J. Timothy Greenamyre, MD, PhD Professor of Neurology and Chief, Movement Disorders Division University of Pittsburgh School of Medicine *"What is Parkinson Disease and How Do You Model It?"*
September 28	David O. Okonkwo, MD, PhD Associate Professor of Neurological Surgery, University of Pittsburgh School of Medicine Clinical Director, Brain Trauma Research Center *"Modern Neuroimaging and Management of Traumatic Brain Injury"*
October 5	R. Mark Richardson, MD, PhD *Assistant Professor of Neurological Surgery,* University of Pittsburgh School of Medicine *Director*, Adult Epilepsy Surgery Program, UPMC *"New Directions in Epilepsy and Functional Neurosurgery at UPMC"*
October 12	Amber Van Laar, MD Resident, UPMC Department of Neurology *"Progressive Dementia and Chorea: What to do when the Huntington's Test is Negative"*
October 19	Autumn Klein, MD, PhD Assistant Professor of Neurology and Chief, Division of Women's Neurology University of Pittsburgh Department of Neurology *"Neurological Issues in Pregnancy"*
October 26	*"In-Patient and Out-Patient HOT Cases"* Moderated by: John Doyle, MD, Associate Professor Amber Van Laar, MD & Christopher Streib, MD University of Pittsburgh Department of Neurology
November 2	Richard Brenner, MD Clinical Professor of Neurology and Psychiatry, UPMC *"Electroencephalography-Past, Present, Future: An EEGer Reminisces"*
November 16	Jigyasa Tewari, MD Resident, UPMC Department of Neurology *"Review of Rituximab in Neuromuscular DS"*
November 30	Islam Zaydan, MD Assistant Professor, University of Pittsburgh Department of Neurology *"MS vs. The Eye"*
December 7	*"In-Patient and Out-Patient HOT Cases"* Moderated by: John Doyle, MD, Associate Professor Amber Van Laar, MD & Ashutosh Jadhav, MD *"Lazy Tongue and Floating Jaw" and "Acute Onset of Facial Dipegia with Ophthalmoplegia*"
December 14	Nima Aghaebrahim, MD Resident, UPMC Department of Neurology *"Time vs. Space in Acute Stroke: Beyond the 'Time is Brain' Paradigm"*

December 21 James T. Becker, Ph.D.
Professor of Psychiatry, Neurology and Psychology
University of Pittsburgh School of Medicine
"Preventing the Dementia of the Alzheimer's Type"

2013

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

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

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

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

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

February 15 Hideho Okada, MD, PhD
Associate Professor of Neurological Surgery, Surgery and Immunology
University of Pittsburgh School of Medicine; Co-Leader, UPCI Brain Tumor Program
"Type-1 Polarizing Vaccines for Adult and Pediatric Patients with Gliomas"

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

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

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

March 21 John Doyle, MD
Associate Professor of Neurology
Chief, Division of General Neurology
University of Pittsburgh Department of Neurology
"Encephalopathy Update"

March 28 Michael J. Aminoff, M.D., D.Sc.
Distinguished Professor and Executive Vice Chair, Department of Neurology
University of California, San Francisco
"Brown-Sequard: the Man and His Syndrome"

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

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

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

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

May 30 — Josif Stakic, MD
Resident, UPMC Department of Neurology
"Horton's Disease: An Overview of Clinical Presentation, Diagnosis and Treatment"

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

June 13 — Erin Canale, MD
Resident, UPMC Department of Neurology
"Neurologic Disorders and Driving"

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

Joint Neurology-Neurosurgery Conferences

September 14 — *"Unrelenting Neck Pain"*
- Douglas Kondziolka MD, MS, FRCSI
- David Hinkle MD, PhD, Donald Crammond, PhD

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

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

Neurological Surgery, University of Pittsburgh School of Medicine

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

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

Pittsburgh Institute for Neurodegenerative Diseases Special Event

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

Special Presentations

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

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

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

Faculty Bibliography

Departmental Bibliography 2011-2013

Cognitive and Behavioral Neurology Division

Oscar Lopez, MD, Professor and Division Chief

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