

The Montlake Cut

A Publication of the Department of Neurological Surgery
UW Medicine Health Care



Richard G. Ellenbogen
M.D., F.A.C.S.

A View From Puget Sound

Welcome to the latest issue of *The Montlake Cut*.

In this issue we are pleased to bring you news of another successful year for our Neurological Surgery Summer Neuroscience Student Program, and thank all of our faculty and staff for providing outstanding experiences for these exceptional young students in our labs, ORs and the Department overall. We are pleased to introduce new faculty, and celebrate a new addition to our Department's extended family, two recent NIH R01 awards, and current research in Dr. Bob Rostomily's lab. In addition, we relate the saga of our annual Hike to the Heavens. Importantly, we profile the Department by asking the question "What in the World is World Class?" One immediate answer to this question is found in our celebration of the career and achievements of Dr. George Ojemann, which brought together both basic science and clinical luminaries from the US and Europe for a day-long symposium at the UW's South Lake Union Orin Smith Auditorium.

Finally, we bring you another of Dr. Minku Chowdhary's ingenious and challenging Puzzlers. As always, we welcome your feedback and thank you for your support.

Sincerely,

Richard G. Ellenbogen, MD, FACS
Professor & Chairman, Department of Neurological Surgery

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The Department of Neurological Surgery Celebrates the Career and Achievements of Dr. George A. Ojemann

On Friday, September 26, the Department held an all day celebration at the UW South Lake Union Orin Smith Auditorium honoring Professor Emeritus George Ojemann's long UW career. After receiving his undergraduate and medical degrees at the University of Iowa, Dr. Ojemann completed his neurological surgery residency at the University of Washington, and in 1966 joined the faculty as a neurosurgeon and researcher specializing in epilepsy. He retired from clinical practice in 2005 but has continued his research and teaching activities.

For some forty years, Dr. Ojemann's clinical interests have focused on the surgical therapy of medically refractory epilepsy and brain tumors in functionally eloquent cortical areas. His research addressed the neurobiology of human cognition, particularly cortical organization for language and memory, investigated in the context of awake operations done under local anesthesia. These studies utilized techniques ranging from electrical stimulation mapping to recording of activity in single neurons, and have resulted in methods for reducing the risk of cortical resections for epilepsy and tumors, further understanding of mechanisms of speech and language, as well as basic science studies on individual human neurons.

This work has achieved substantial national recognition, including the 1984 Grass Prize from the Society of Neurological Surgeons, a Javitts award from the National Institute of Neurological Diseases and Stroke, an honorary Doctor of Science degree from the Medical College of Ohio in 1998, the Zulch Prize from the Max Planck Society and Gertrude Reemtsma Foundation in 2000, and the 2003 Cloward Medal of the Western Neurosurgical Society. In 1991, his medical school honored him as a distinguished alumnus. He was President of the American Academy of Neurological Surgery in 1999-2000.

Dr. Ojemann has spoken at medical conferences around the world, including many visiting professorships and named lectureships. He is the author of over 325 peer-reviewed articles and book chapters, including two works of non-fiction for the general public co-authored with William Calvin: *Inside the Brain* (1980) and *Conversations with Neil's Brain* (1994). He continues to have an exceptionally productive research career and shows no sign of slowing down even at the 50th anniversary of his UW Residency graduation. Indeed, he has had over 40 publications since his retirement from clinical practice. In addition to sheer numbers is the impact of these contributions. Dr. Ojemann's publications have been cited over 9,000 times in other scientific literature, and include many classic articles referenced over 200 times, with one topping 750 citations. He has had a major impact on both clinical treatment and understanding of the brain as evidenced by his exceptionally high H-Index of 51. In addition to his own publications, he has carried substantial editorial responsibilities over the course of his career through service on the editorial boards of 9 major journals, including a 40-year tenure on *Brain and Language*.

Just as significant, he has been deeply involved in research and clinical education for dozens of students ranging from pre-baccalaureate undergraduates through post-doctoral fellows. Many of his former residents and fellows are now on the faculty of this and other institutions including two who serve as chairmen of neurological surgery at their universities. He has made additional educational impact through invited lectures and some 35 Visiting Professorships.

A giant in the field of both neurological surgery and neuroscience, George Ojemann has helped define and shape both disciplines. His superb care of individuals with epilepsy and brain tumors coupled with pioneering clinical research on cortical mapping and language localization has affected countless lives globally. He has been an influential leader at the national level including service on NIH Council and our national accrediting and education boards. And through his publications and teaching he has dramatically influenced innovation in neurosurgical care and neuroscience research.

In June of this year, Dr. George Ojemann was honored with the UW School of Medicine's 2014 Distinguished Alumni Award for his contributions in the fields of neurological surgery and the neurosciences. He has enhanced science, patient care, and the educations of generations of UW medical students and residents. We are all, current faculty and residents as well as former, enormously grateful to him for his gifts to us. The Ojemann legacy will stand in perpetuity for the good it has brought to our greater community of medicine and science.

On a personal note, Dr. Ojemann is a man of great integrity. He has been a role model of honor and honesty for decades to his colleagues and students. He is a loving husband, and father of 3 highly productive, wonderful children. All three offspring of George and Linda are physicians. Jeff is a Professor Neurological Surgery at UW Medicine, Steve is an Associate Professor of Neurological Surgery at the University of Colorado, and Ann is a leader in the ER service at Swedish Hospital.



**Dr. Richard Ellenbogen &
Dr. George Ojemann**



The Ojemann Family



**Left: Guest speaker Dr. Johannes Schramm,
Professor of Neurosurgery,
University of Bonn, Germany
Right: Dr. George Ojemann**



**Left: Dr. George Ojemann, Center: Guest speaker
Dr. Theodore H. Schwartz, Professor of Neuro-
surgery, Weill Cornell Brain & Spine Center Right:
Dr. Linda Ojemann**

Neurological Surgery 2014

Summer Neuroscience Program



Dr. Richard Ellenbogen and student Joshua Lim

Every summer, the Department of Neurological Surgery invites a group of college and high-school students to observe leading-edge neurosurgical care while being mentored by world-class scientists. In doing so, we want to inspire and educate students in ways that will ignite their passion for exploration and discovery. Our aim is to inspire students to be so enthused about what they have learned that they will pursue an academic career in research, medicine or nursing - careers needed to support our nation's healthcare system.

The Student Experience

Founded in 2008 by Richard Ellenbogen and Administered by Jim Pridgeon, the Neurological Surgery Summer Neuroscience Program is a transformative and inspiring eight-week session that encompasses research, lectures and surgical observations. At its conclusion, students describe their experiences in a presentation made to faculty, fellow students and family.

Our Students, Today

To date, 73 high-school students and college undergraduates from 49 different schools nationwide have taken advantage of the program. Our “graduates” have demonstrated remarkable energy and enthusiasm and we are proud of their subsequent success, based, in part, on their participation in our Program. Several of them from our earliest classes have been accepted into graduate school in science, medicine and nursing. Many high-school students have pursued neuroscience majors or other science majors in college, and plan to pursue a career in science or medicine.

Program History 2008 - 2014

- 73 students
- 49 different schools
- 8 Rainier Scholars
- 18 different summer speakers
- 15 different faculty mentors
- 11 surgeons hosting observations

This summer, students were placed in the following labs:

Tiara Adler – Horner Lab
Olachi Anamelechi & Lauren Honican – Hevner Lab
Mimi Chen – Morrison Lab
Lauren Ellis –Rostomily Lab
Anna Thompson & Josh Lim –Zhang, Kievit, Ellenbogen Lab
Tamina Ramirez & Danait Yemane –Kalume Lab
Annabeth Rodriguez - Felix Darvas, Lab
Smrithi Sukumar -Ramirez Lab
Adam Vesole - Ferreira Lab
Justin Coskey -Mac Donald Lab

We want to thank our 2014 Program Guest Lecturers
and Lab Mentors:

Program Guest Lecturers

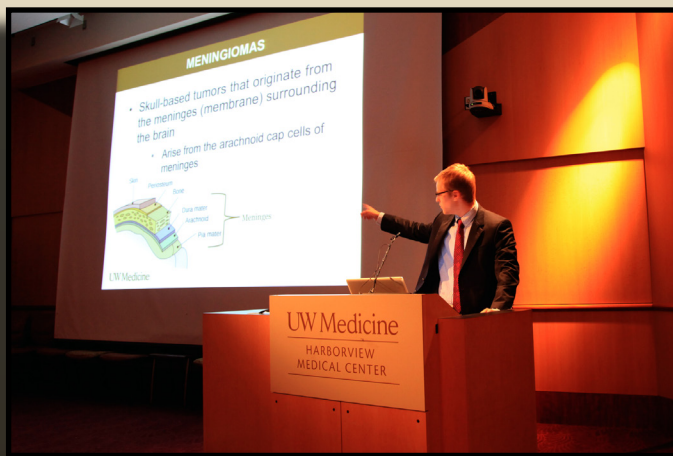
Richard G. Ellenbogen, MD, FACS, Richard Adler, JD, Samuel R. Browd, MD, PhD,
Courtney Crane, PhD, Robert F. Hevner, MD, PhD, Forrest Kievit, PhD, Christine Mac Donald, PhD

Program Lab Mentors

Richard G. Ellenbogen, MD, FACS, Felix Darvas, PhD, Manuel Ferriera Jr., MD, PhD, Robert Hevner, MD, PhD,
Philip Horner, PhD, Franck Kalume, PhD, Forrest Kievit, PhD, Christine Mac Donald, PhD, Andrei Mikheev,
PhD, Richard Morrison, PhD, Nino Ramirez, PhD, Robert Rostomily, MD, Miqin Zhang, PhD



**Left: Student Olachi Anamelechi
Center: Dr. Bob Hevner
Right: Student Lauren Honican**



Summer Student Adam Vesole



**Christine Mac Donald, PhD,
and summer student Justin Coskey**



Christoph Hofstetter, MD, PhD

Assistant Professor Christoph Hofstetter, MD, PhD Comes to UWMC

Christoph Hofstetter has joined the Department of Neurological Surgery at the University of Washington. He specializes in complex spine surgery with an emphasis on minimally invasive techniques. His primary clinical focus is the surgical treatment of degenerative spinal disorders, including disc herniation, lumbar spondylolisthesis, and cervical myelopathy, as well as spinal oncology.

Dr. Hofstetter received his MD from the University of Vienna, Austria, then earned a PhD at the Karolinska Institute in Stockholm, Sweden, investigating experimental treatment strategies for traumatic spinal cord injuries. He did a surgical internship and neurosurgery residency at New York-Presbyterian/Weill Cornell Medical Center and Memorial Sloan Kettering Cancer Center, then a clinical fellowship at the Mayo Clinic and a spine fellowship in complex minimally invasive spine surgery at the University of Miami.

Dr. Hofstetter is also a faculty member in the UW Institute for Stem Cell & Regenerative Medicine. His lab investigates the experimental treatment strategies to enhance nerve fiber plasticity and regeneration following spinal cord injury, including electrical stimulation to enhance signaling of remaining nerve fibers, replacement of lost neural cells via stem cell-based transplantation, and the promotion and guidance of nerve fiber regeneration utilizing scaffolds. His clinical research focuses on the development of novel minimally invasive motion preserving spinal procedures, in particular the use of endoscopic techniques for the treatment of disc herniations and foraminal stenosis. Dr. Hofstetter has extensive research experience in both clinical and basic science research, and was awarded a prestigious NREF grant for his research efforts. He has authored over 50 peer-reviewed publications and numerous textbook chapters. He is a reviewer for several journals in neurosurgery and neuroscience.

Outside the lab and hospital, Christoph enjoys hiking, biking, yard and house work, playing the violin, and cooking - like a proper Northwesterner and global citizen. He is married and has three children.

Welcome Richard Mesher, MD

This fall, Richard Mesher joins the neurohospitalist team as an additional mentor for the UW medical students on the 4th year neurological surgery elective. Dr. Mesher is a Seattle native, a graduate of Franklin High School and then an undergrad at Stanford. He began to do research in Allan Wyler's lab in our department when he was a UW medical student himself in the mid 1970s. He then completed his neurology residency here about the same time as Dr. Longstreth. Dr. Mesher was for many years Chief of Neurology at Group Health, and has for some time been on the clinical faculty in neurology at HMC. He is perhaps better known as PGY- 4 General Surgery resident Andrew Mesher's father and medical oncology research manager Audrey Mesher's father-in-law.

We welcome Rich Mesher to the neurohospitalist team. Anyone who never met Dr. Mike Copass can ask Rich to do his impression of Mike, which is as good as the real thing.



Richard A. Mesher, MD



Two New R01 Grants

Louis Kim (Principal Investigator), recent residency graduate Michael Levitt (Co-Investigator), and Alberto Aliseda (Co-Investigator, Department of Mechanical Engineering) were recently awarded a \$1.6MM NIH/NINDS R01 level grant for their project entitled, “Predicting cerebral aneurysm recurrence using Doppler guidewire measurements”. This innovative research seeks out hemodynamic predictors of aneurysm treatment success or failure after endovascular surgery. Dr. Kim states that the funded work will dramatically improve our ability to determine the most effective endovascular intervention for aneurysms prior to treatment. These measurements allow for the proper application of the right tools for the right aneurysm. The grant is bolstered by the tremendous collaborative efforts of key individuals in the Departments of Neurological Surgery and Mechanical Engineering, including Pierre Mourad, Nancy Temkin, and Patrick McGah. Due to extraordinary competition, NIH R01 level funding for academic neurosurgeons is exceptionally rare nationally. Yet our Department has several concurrent recipients, including Robert Rostomily, Jeffrey Ojemann, Randall Chesnut, Richard Ellenbogen, and Louis Kim. Congratulations to the brain aneurysm research team!

Microfluidic Device to Profile Chemosensitivity in Glioma Slice Cultures: New Research from the Rostomily Lab

Professor of Neurological Surgery Robert Rostomily and co-investigators Ray Monnat (Pathology/Genome Sciences) and Albert Folch (Bioengineering) have been awarded an RO1 worth 1.8 million.

Pre-clinical assays are needed to complement molecular tumor profiling and inform individualized therapy for patients with the lethal brain cancer Glioblastoma Multiforme (GBM). Rostomily, Monnat, and Folch propose a novel microfluidic platform utilizing patient-derived tumor slice cultures that are adaptable to multiplexed drug testing. This approach has potentially great advantages over existing options of cell culture systems and animal tumor models by incorporating the native tumor environment and achieving cost-effective readouts in a time-frame required for real-time therapeutic decision-making.

The research goal is to develop a therapeutic screening platform that rapidly determines the response of intact human tumor samples to many potential therapies in parallel by identifying the subset of therapies of greatest potential value to individual patients quickly. Utilizing a microfluidic perfusion system that maintains intact primary tumor slice tissue in culture enables the delivery of large numbers of different drugs, drug combinations or drug regimens to anatomically-defined regions of the tumor. The system improves upon existing models for screening chemotherapeutic drug activity (e.g. tumor cells in culture, mouse xenografts, or genetically engineered mouse models) because it uses intact tumor samples that retain the human tumor microenvironment and allows the generation of response data in a time frame that can guide decision-making for the initial phases of therapy.

The proposed research focuses on human malignant gliomas. These include Grade III malignant gliomas and the more common Grade IV glioblastoma multiforme (GBM). The team argues that an important way to make progress in treating these lethal, refractory tumors is to develop a way to rapidly test many potential therapeutic agents or regimens in parallel on intact GBM specimens from individual patients. Tumor response to drugs will be measured by imaging of markers for cell death and viability. As individual tumor samples are often heterogeneous, it is key that the microfluidic system enables multiplexed drug testing across different regions of the sample. Positive drug responses should be consistent and specific across the tumor. The multiplexed platform will also enable investigation of specific drug combinations and dosages that might be therapeutically useful.

What In The World is World Class?

What does it mean to call your service “world class?” In the information age, the historical moment of open access to everything on the Internet and of relaxed requirements for proof of much, it means that evidence is demanded in support of what is claimed. It won’t do for someone to simply make an assertion of superiority.

That is called advertising.

The Department of Neurological Surgery at UW offers proof for a claim to being a world class center of excellence through a variety of metrics in support of the contention. For example, how many papers are published yearly in the department, and what is their impact? How many books and book chapters? How many faculty members serve on editorial boards of major publications, and how many hold leadership positions in national organizations? How many operations are done yearly in our several hospitals, and how many patients are seen in our clinics? What kind of independent local, national and international recognition have our institutions received? How many applicants are there per year for residency positions? This is the sort of evidence required to make a claim for being a world class center of excellence.

Since 2004, members of the department have authored a total of more than 1,200 scientific papers in peer-reviewed journals, or an average of more than 100 papers/year. Many of these are cited hundreds of times, and have very high impact. Current faculty members have collectively published a total of more than 2,500 articles, books, and book chapters.

That’s world class.

Extraordinary scientific achievement and professional leadership are also a hallmark of the UW Department of Neurological Surgery. Among the currently appointed faculty there are a minimum of 189 editorial positions on major journal editorial boards. Faculty members hold leadership positions in approximately 700 major clinical and scientific societies. Our current faculty members have been asked to deliver at least 2,429 invited lectures and have been recognized with at least 616 honors and awards. Four faculty members have lectureships named for them. Seven of our faculty members or resident graduates have become Chairs of other neurological surgery departments, 3 have been associate or assistant deans in academic institutions and 1 was the Dean at UC San Diego.



University of Washington Medical Center



Harborview Medical Center

These accomplishments also denote a department that is world class.

News from US News and World Report also acknowledges the UW Department of Neurological Surgery is world class. The Residency Navigator 2014 Top Medical Residency Programs from Doximity and U.S. News & World Report provide a transparent look at U.S. medical residency programs. In a just released article, the UW Neurological Surgery residency program is rated #8 in the United States:

https://www.doximity.com/residency_navigator/programs#residency_specialty_id=46

These recognitions also denote world class.

The UWMC, which our department serves, is routinely recognized as the best hospital in the state. Harborview Medical Center continues to serve the badly injured citizens of the 5 states in the WAMMI Region that geographically constitute nearly 30% of the US, as well as to provide the majority of care for the underserved, poor and disenfranchised. Children's Hospital is the recognized pediatric leader in the region. We operate on thousands of patients every year, and see thousands more in the outpatient departments of our six affiliated hospitals. The clinical programs at these hospitals are all "world class."

In addition, our residency program has roughly 300 applicants each year for the 3 coveted R-1 positions, and our several fellowship programs are equally sought after by applicants from around the country and the world. Our neurological surgery elective for the fourth year medical students is a prized rotation that allows us to prepare the next generation of American doctors to continue to be world class.

On the basis of contributions to the scientific literature, innovation, and to patient care, the University of Washington Department of Neurological Surgery is world class. Our faculty members have provided leadership in local, regional, national and international organizations. Several current faculty members have authored important textbooks, and many of them are recognized national leaders in various neurosurgical subspecialties. We are heavily involved in the education of medical students, residents, fellows and allied health care providers. The care provided to our patients has been innovative, inclusive, and compassionate. By whatever criteria chosen, UW Neurological Surgery is "world class."



Northwest Hospital



Seattle Children's Hospital



VA Puget Sound Healthcare System



Valley Medical Center

Seventh Annual Hike to the Heavens

This year iron man Dr. Louis Kim made the annual forced march with residents, family and staff in the Olympic National Park on August 9th. The Heather Park Trail rises from 2850 to 6000 feet along the Lake Angeles Loop at Khalane Ridge.



That's resident Brian Hanak swimming by himself, in the middle of the lake, without a wet suit in what was certainly very cold water!

Birth Announcement

A very belated congratulations to Jackie Chapman and husband Damien as they welcomed **William (Will) Thomas Chapman**: Born May 1, 2014, weighing in at 9 lbs, 2 oz. Big sister Catherine is doing great, showing Will the ropes, and helping out with Baby Brother (as she lovingly calls him). Mom and dad are a bit sleep-deprived, but enjoying the happy new addition!





Dr. Minku Chowdhary
Chief, Neurosurgery
Overlake Hospital



New Puzzler: What connection does the ancient city of Thebes have with management of head injury?

Previous Puzzler: What is the common condition that links a concept discovered by Watson and Crick, with the work of one of the most famous psychoanalysts?

Answer: Depression “Double-Helix” Theory

http://www.nytimes.com/2014/05/19/us/sidney-j-blatt-dies-at-85-developed-double-helix-theory-of-depression.html?_r=0

We remain eager to publish stories and photos about all aspects and activities of the Department. Please share your memories, ideas and suggestions for stories and news items that expand our common ground. Please contact us at these email addresses:

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