



THE MONTLAKE CUT

A PUBLICATION OF THE DEPARTMENT OF NEUROLOGICAL SURGERY



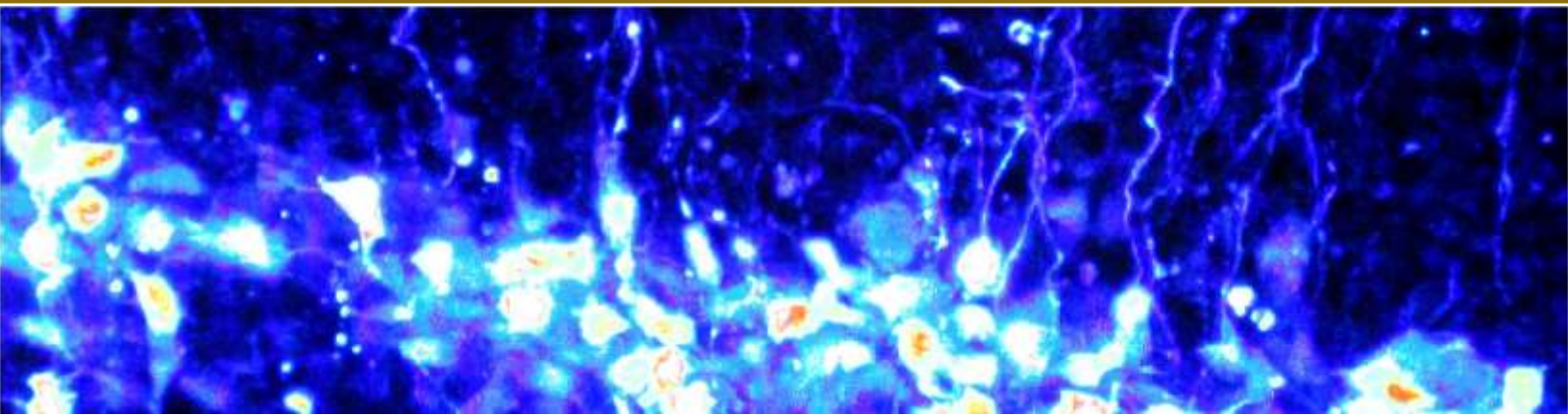
Our department, for over more than 5 decades, has been on the cutting edge of research and clinical applications of awake craniotomy for tumor or epilepsy treatment. So it comes as no surprise, that Jason Hauptman, MD at Seattle Children's Hospital has performed what seems to be the first recorded awake case with the intention of saving a patient's musicality while the patient was singing. An eighteen-year-old professional musician now is seizure (and tumor) free, but can still sing and read music.

Without even knowing about the award, R-4 neurosurgery resident Abdullah Feroze found himself among other future luminaries, honored in Forbes Magazine with a prize given to young investigators for medical innovation. Faculty members Jeff Ojemann, MD and Andrew Ko, MD were part of an innovative Allen Brain Institute single cell transcriptomics study led by the brilliant Ed Lein, PhD from our department and the Allen Institute. They described the cellular and molecular evolution of human neurons from those of the rodent.

Our former UW resident and current Chair of the Department of Neurological Surgery at the University of Massachusetts, Mark Johnson, MD, PhD, a renowned surgeon scientist, gave a lively and instructive Visiting Professor Grand Rounds about his novel study of normal pressure hydrocephalus with a molecular twist. At about the same time, our clinically talented cerebrovascular faculty established a Stroke and Applied Neuroscience Research Center, about which much more will be coming over the next few years. As a result, Assistant Professor Mike Levitt, MD and Professor and Chief (HMC), Louis Kim, MD have been travelling to Europe to collaborate with the physicists and intelligentsia from the Grenoble (ESRF) synchrotron trying to understand the fluid dynamics related to cerebral aneurysms. Professor Sam Browd, MD, PhD has been appointed the Director of the newly rebranded Sports Institute at UW Medicine whose goal it is to bring health and safety to our Sporting and activities of daily life.

R-6 Lynn McGrath and his wife Anika had their first child on September, and therefore did not make it to the wonderfully inclusive and successful Annual Holiday Party in December. Neither did Nora Evelyn Argo who was born the day before Christmas to Megan Schade, from our UW administrative team. Other new staff additions to the department staff include Julie Bould, Katrina Kovac and Kelsey Krupp. Dontay Smith has taken on the role of fellowship coordinator, Julie runs neurological surgery Grand Rounds, Katrina is our new UW Appointments and Promotions guru and Kelsey is our new budget supervisor.

Richard G. Ellenbogen, M.D., F.A.C.S.
Professor & Chairman Department of Neurological Surgery

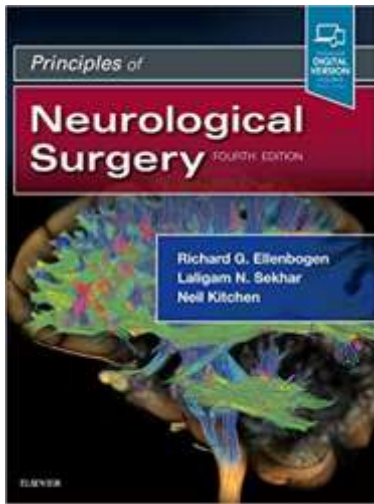


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PROFESSORS RICHARD G. ELLENBOGEN AND LALIGAM SEKHAR HAVE PUBLISHED A NEW EDITION OF THEIR NEUROSURGICAL SURGERY TEXTBOOK



Ellenbogen RG, Sekhar LN, Kitchen ND (Eds): Principles of Neurological Surgery, 4th Edition, Elsevier Health Sciences, Philadelphia, PA, Feb 2018.

At the same time, Dr. Ellenbogen remains the best intern in the hospital:



JASON HAUPTMAN CURES MUSICOGENIC EPILEPSY

Assistant Professor Jason Hauptman recently operated on an 18-year-old woman who is a musician and achieved a gross total resection of a low grade glioma abutting Heschl's gyrus. Pre-op, she had musicogenic seizures, and so the work up included fMRI while she sang and listened to music. "Even though we think of music as bilaterally represented," Dr. Hauptman said, "because she is a professional musician I couldn't guarantee that surgery wouldn't affect her musicality. So I decided to do her awake." The Children's Hospital neuropsychologist, Hillary Shurtleff (for those faculty of a "certain age", David Shurtleff's daughter) and the music therapist, David Knott, developed novel protocols for intra-operative testing while she sang. The surgery was successful in removing the tumor and her pitch, rhythm and musicality are intact, while the seizures are cured.

<http://mms.tveyes.com/PlaybackPortal.aspx?SavedEditID=56b17a0e-6efd-4e09-9333-473d8a29d0bc>

FACULTY PROMOTIONS

The Department of Neurological Surgery is pleased to announce the following promotions:

Zin Khaing to Acting Assistant Professor
Carolina Parada to Acting Instructor

ABDULLAH FEROZE WINS BIG



In late October, Forbes Magazine released their 30 Under 30 Awards for innovations in medicine given annually to young people who have developed new ideas for health care. Abdullah came in at number 12 out of the 30, in recognition for his work to bring anti-CD47 therapy for pediatric medulloblastoma and GBM through preclinical trials and into phase I clinical trials.

<http://stm.sciencemag.org/content/9/381/eaaf2968>

In addition to an unflattering photograph up on the Net, Abdullah also won a T-shirt. Go Forbes.

NEW SCIENCE ABOUT NEURONS FROM THE ALLEN INSTITUTE

Recently investigators at the Allen Institute, including Jeffrey Ojemann, Dan Silbergeld, and Andrew Ko of our department, have shown that human neurons are anatomically different than those in rodents. Researchers at the Allen Institute uncovered subtle differences between a mouse and human neuron of the same kind. These differences could have implications for studying human brain disorders and therapies in laboratory mice.

In the outermost layers of the mammalian brain responsible for our higher cognitive functions, the research team found that one kind of human neuron sends and receives electrical signals in a different way than does the mouse version of the same cell. The findings describing these comparisons were recently published in the journal *Neuron*.

<https://alleninstitute.org/what-we-do/brain-science/news-press/articles/human-neuron-different-wavelength-mouse-counterpart>

Human neurons are studded with groups of proteins known as h-channels, while the mouse cells of this class are largely devoid of these types of channels. For example, in hippocampal pyramidal neurons, the A-type transient K⁺ current (I_A) and the hyperpolarization-activated cation current (I_h; h-channel) are present in the dendrites of humans at many-fold higher densities than they are in the soma^{1,2,3,4,5}. The non-uniform distribution of voltage-gated channels affect signal processing in the dendrites, altering the retrograde propagation (or 'back-propagation') of action potentials (APs), and the integration of synaptic potentials. The differences in h-channel distribution between rodents and humans may help explain why therapies that work in mice so often do not work in people.

GRAND ROUNDS VISITING PROFESSOR



On November 7, 2018, the Department welcomed Mark D. Johnson, MD, PhD (Maroun Semaan Professor of Neurological Surgery; Chair, Department of Neurological Surgery; Director, Neurosurgical Oncology; Co-Director, Chiari and Hydrocephalus Program; Director, Molecular Brain Tumor Research Laboratory; Stereotactic Radiosurgery Program; University of Massachusetts Medical School) as a visiting professor. He presented on the topic of 'Normal Pressure Hydrocephalus (NPH) and molecular markers.

DEPARTMENT OF NEW BABIES



Resident Lynn McGrath and his wife Anika welcomed daughter Perrin Mineault into the world on September 15, 2018. The equally beautiful baby weighed in at a healthy 7 pounds 8 ounces. Welcome yet another bundle of joy to the departmental family.



A second addition - Nora Evelyn Argo - arrived just in time for Christmas (12/24 at 7:30pm) to proud parents Megan Schade and Adam Argo. She was 9lbs, 7oz and 21.5 inches long. Megan and Nora are both doing well.

STROKE AND APPLIED NEUROSCIENCE CENTER

The Stroke and Applied NeuroScience (SANS) Center was recently established within the Department of Neurological Surgery promoting a vision that “*Innovation emerges at the intersection of disparate disciplines*”. The SANS Center goal is to discover ways to understand, treat and prevent stroke, cerebrovascular disease and other neurological disorders through multidisciplinary research, education and outreach. In addition to advancing the field through traditional mechanisms such as extramural funding, the SANS Center will look beyond incremental gains typical of academic research and seek ground-breaking discoveries and innovations that will shape the way we treat patients in the future.

The SANS Center is composed of an Executive Council, Advisory Committee, external collaborators, community leaders, and institutional/industry partners. The center will report to Richard G. Ellenbogen, MD FACS, Chair of the Department of Neurological Surgery. Dr. Ellenbogen also serves as the Chair the Executive Council, which is composed of stakeholders including non-medical personnel and patient representatives who will provide strategic guidance as well as facilitate relationships with other individuals and institutions. Louis Kim, MD serves as the SANS Executive Director, providing overall supervision of the center, facilitating current and prospective partnerships, and recruiting potential members. Michael Levitt, MD is the SANS Center Scientific Director, overseeing research policy and scientific projects, and guiding the center to meet current and future research goals. With guidance from the Executive Council, the Advisory Committee will include Associate Directors who manage field-specific research cores with defined research aims composed of collaborating research labs such as mechanical engineering, bioengineering, radiology, anesthesia/critical care, genomics, psychiatry and behavioral science, neurology, and physics. Day-to-day center research and operations will be facilitated by Cory Kelly, Research Scientist 4 and SANS Center Associate Director of Operations.

In addition, non-UW scientists will become the external collaborator group with the goal of expanding research collaboration and impact beyond the University of Washington and to foster productive relationships with leaders in the field. Lastly, our institutional/industry partners include key national and international institutions (NIH, NSF, AHA, European Synchrotron Radiation Facility) and industry leaders (Stryker, Medtronic, Volcano Philips). Their purpose is to develop further innovative techniques to treat this collection of maladies

The SANS Center held its first Advisory Council meeting on December 6th, in which members discussed potential big-picture research concepts and areas of collaboration. We welcome any faculty, residents, and staff interested in becoming involved. Contact Cory Kelly (kellycm@neurosurgery.washington.edu) or visit sanscenter.org for more information.

ANNUAL HOLIDAY PARTY



THE SPORTS INSTITUTE AT UW MEDICINE ANNOUNCES NEW DIRECTOR AND NAME CHANGE



The Sports Institute at UW Medicine, formerly the UW Medicine Sports Health and Safety Institute, has announced that Dr. Samuel Browd, UW School of Medicine Professor of Neurological Surgery, has become the new director of the institute.

UW Medicine

Appointed earlier this year, Browd succeeds founding director Dr. Stanley Herring, clinical professor in the UW School of Medicine Departments of Rehabilitation Medicine, Orthopaedics and Sports Medicine, and Neurological Surgery, who will remain in a leadership position as the institute's senior medical advisor.

“The Sports Institute has a unique role within the sports safety community thanks to its position within UW Medicine and its deep bench of experts with wide-ranging experience,” said Browd. “There’s no question: The Sports Institute can transform the current approach to sports safety and become a world leader in helping people to lead active, healthy lifestyles. Our new name reflects our ambition, commitment and deep desire for building partnerships across sectors.”

The Sports Institute at UW Medicine was created to bring together experts and evidence-based approaches and research from across medicine, policy, science and technology to improve safety in sports and expand participation. Since its founding, the institute has led first-of-its-kind efforts to legislate safe return to play across all 50 states and to advance best practices in sports safety.

“With an extensive research background, Dr. Browd brings a record of thoughtful and disruptive innovation to the institute,” said Dr. Richard G. Ellenbogen, chair of the UW School of Medicine Department of Neurological Surgery and co-founder of The Sports Institute. “The Sports Institute’s expanded scope reflects the scientific and practical approach to sports safety that Dr. Browd has championed throughout his career.”

Browd is an adjunct professor of bioengineering and an affiliate faculty member of the Foster School of Business. He has founded four venture-backed biomedical startups out of the University of Washington. Browd is also an attending pediatric neurosurgeon at Seattle Children’s Hospital and medical director of the Seattle Children’s Sport Concussion Program. He serves as Seattle Children’s Director of Hydrocephalus and Surgical Director of the Tone Management Program.

The new social handle for both Twitter and Facebook is @TheSportsInstUW

The website address is www.thesportsinstitute.com

RESEARCH TEAM



In January 2018, a research team (Michael Levitt, principal investigator; Louis Kim, co-investigator and Alberto Aliseda, co-investigator) was awarded an NIH R01 to apply materials science techniques to the study of coiled cerebral aneurysms using computer simulations. In order to accurately model blood flow through the complex geometry of an aneurysm coil mass, they created 3D-printed scale models of actual patient aneurysms and placed commercially available coils within them. Because standard CT and MRI are not sufficient to provide the sub-millimeter detail necessary to visualize the complexity of the coils, a very high energy x-ray source is required. This they obtained using a synchrotron particle accelerator, similar to those investigating fundamental particle physics. The European Synchrotron Radiation Facility (ESRF), is located in Grenoble. Co-investigator Alberto Aliseda (Professor of Mechanical Engineering and adjunct in Neurological Surgery) has a partnership with the mechanical engineering department at the Universite Grenoble Alpes, which enabled the UW faculty members to use their synchrotron to create ultra-high-resolution microtomographic 3D reconstructions of aneurysm coils placed in the 3D-printed models. The goal is to use these highly accurate scans to develop precise methods for modeling aneurysm coils using computational fluid dynamics methods, in an effort to better predict aneurysm treatment outcome.



Drs. Levitt and Aliseda, along with research scientist Cory Kelly and recently graduated mechanical engineering PhD Michael Barbour, recently visited Grenoble to meet with their collaborators at the ESRF and the Universite Grenoble Alpes. After a day spent touring the synchrotron and observing their scans, as well as a day at the Universite discussing potential future research projects, they found time to hike to the top of the Col de l'Arc (above photo). In July 2018, the team was awarded an American Heart Association Career Development grant (Michael Levitt, principal investigator; Alberto Aliseda and Louis Kim, co-investigators and mentors) to further study aneurysms using computational fluid dynamics. They applied a computer modeling technique developed for cardiology research called Lagrangian tracking, in which simulations of tens of thousands of individual particles representing platelets are introduced into a computer model of a cerebral aneurysm before and after placement of a flow-diverting stent. A supercomputing cluster tracked the location of the particles and determined how long they remain 'trapped' in the aneurysm after stent placement, which provides a better understanding of why some stent procedures lead to successful aneurysm thrombosis and other procedures fail. This technique has not been previously applied to cerebrovascular disease. They have presented on this topic at the recent American Physical Society national meeting, and are preparing several reports for publication.

NEW STAFF APPOINTMENTS & PROMOTIONS

The department is pleased to welcome Julie Bould to the administrative team. For the past dozen years, Julie was the Administrative Assistant Lead in the Department of Orthopaedics and Sports Medicine supporting nine faculty members. She joins us as the Program Operations Specialist and assumes responsibility for the medical student clerkships, Grand Rounds, Summer Program, departmental events, and the newsletter.



Katrina Kovac joined our administrative team in the role of Administrative Specialist on September 4, and is responsible for faculty appointments, visitors/observers, and a partner with Megan Schade on staff HR support. She will also support Dr. Mike Levitt and Dr. Rajiv Saigal. For the past two years Katrina worked as a Program Coordinator at the Memory and Brain Wellness Center. She earned a Bachelor of Science Degree in Allied Health Science having first pursued a Nursing degree. Katrina's email address is kkovac2@neurosurgery.washington.edu and her phone number is 206-744-9356. She is sitting in the cubicle directly behind Ann Fillingham. We welcome her to the team.

Kelsey Krupp has joined our administrative team as the new Budget/Fiscal Unit Supervisor. Kelsey was born and raised in Michigan. Upon graduating from Michigan State University, Kelsey moved to New Orleans, LA where she earned an M.B.A. from Loyola University and met her fiancé, George. For the last four years she worked for the Louisiana Public Health Institute as Finance Manager. Kelsey moved from New Orleans to Seattle this past summer and is excited to explore all that Washington State has to offer. Kelsey's email address is kkrupp@neurosurgery.washington.edu.



Dontay Smith has been promoted to Program Operations Specialist. In addition to her current duties, she will be the main contact for all inquiries from candidates and will work with our fellowship directors on interviews, offer letters, accreditations, etc. She will also ensure all School of Medicine paperwork is filed (GAF applications) and processes are followed, in addition to the Society of Neurological Surgeons subspecialty fellowship (CAST) accreditations and applications. As we continue to improve our administrative structure and provide growth opportunities for our existing admin team, it is exciting to promote Dontay. She has been a strong performer and is a true asset to our team.



PUZZLER



WINTER EDITION QUESTION

For all you Star Wars fans out there, this real life Yoda helps you scan large documents to “find” what you are you seeking quickly! One could even say, he is at your command. Who is he and how does he help achieve this task?

Dr. Minku Chowdhary
Director, Neurosurgery
Overlake Hospital

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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