



University of Colorado **Anschutz Medical Campus**



HEADlines

TIMELY NEWS FROM THE DEPARTMENT OF NEUROSURGERY

Fall 2021





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MESSAGE FROM THE CHAIR OF NEUROSURGERY:

*As summer draws to an end, there are so many exciting things happening in the Neurosciences on this campus! In the past few months the Neurosurgery Department has continued our ambitious effort to bring together a cohesiveness to the neurosciences on the Anschutz campus. We have met with the Departments of Neurology, Psychiatry, Radiology, Bioengineering, Cell & Developmental Biology, Bio Informatics, Physiology & Biophysics, Physical Medicine & Rehabilitation, Radiology, Anesthesiology, and the divisions of Developmental Biology and Informatics and Data Science in the Department of Pediatrics. In addition, we have met with the divisions of Neuroimaging, Human Anatomy, the Dean of the School of Engineering on the UC Denver campus, researchers in the behavioral neurosciences on the Boulder campus and those involved with the Neuroscience Graduate Research Program here on the Anschutz campus!! In this all out effort, we are moving towards finding ways for ALL of us to work together, through innovation in research and clinical care. We are committed to make Colorado the healthiest “brain state” in the Country. **Did you know that there are over 150 principal investigators on the Anschutz campus alone, doing research in the neurosciences?? Did you also know that more than 80% of the research being done on this campus has something to do with your brain??***

In this newsletter, we are excited to announce the arrival of Dr. Lotta Granholm-Bentley and Dr. Auralie Ledreaux to the faculty of the Department of Neurosurgery. Dr Granholm is coming to us from the University of Denver, where she has been the Executive Director of the Knoebel Institute for Healthy Aging. She is bringing with her an exceptional colleague, Dr. Auralie Ledreaux. Both will bring strong innovation in the neurosciences to our campus. They will significantly expand the research portfolio of the Department of Neurosurgery, provide strong mentoring to our residents, medical students and neuroscience researchers, and bring with them an impressive track record in federal and international research funding and peer reviewed publications.

We would also like to introduce in this newsletter, two new Neurosurgery Community Advisory Council Members, Rick Fort and Eric Neeper. Rick and Eric will bring strong strategic planning, business, and legal skills to our already robust council. Read about these exciting individuals in the pages ahead.



*Finally, make sure to take note of our incredibly exciting upcoming community wide event that launches on **September 16th, “TED for your HEAD!”** We hope to see all of you there, as we work hard to integrate the basic sciences, translational research, clinical care and patient satisfaction to make Colorado the “healthiest brain state” in the country!!*

*Kevin O. Lillehei, MD
Professor & Ogsbury-Kindt Chair
Department of Neurosurgery*

WELCOME NEW INNOVATIVE RESEARCHERS



*Ann-Charlotte ("Lotta")
Granholm-Bentley, PhD*

The CU Neurosurgery Department is proud to welcome Ann-Charlotte ("Lotta") Granholm-Bentley, PhD. She will begin as a full professor with our research faculty on October 1st. Since 2016, she has been the founding Executive Director of the Knoebel Institute for Healthy Aging at the University of Denver and has been an active Neuroscience researcher and professor for decades. She started CoCARE (Colorado Coalition for Aging Research and Education), which consists of 7 Colorado-based Universities to date, and the DSBC (Down Syndrome Biobank Consortium), which consists of 8 Universities in the US and 3 in Europe, all studying the biological mechanisms for cognitive impairment in Down Syndrome and Alzheimer's Disease. Her research focuses on neuroplasticity and aging, especially related to neurodegenerative diseases, as well as exosomes and biomarkers in Traumatic Brain Injury and Concussion. Dr. Granholm has more than 11,000 citations and an h-index of 59. Twelve publications have been cited more than 200 times.

Dr. Granholm received her PhD/DDS in dentistry and neurobiology from the Karolinska Institute in Sweden in 1985, then did her post doc in Neuropharmacology at CU Health Sciences Center from 1985-88. She came back to Colorado after 14 years as the director of the Center on Aging at the Medical University of South Carolina. Dr. Granholm continues her relationship with the Karolinska Institute with an active appointment there, the prestigious Swedish Research Institute that gives out the Nobel Prize in medicine and physiology.



Aurélie Ledreux, PhD

Aurélie Ledreux, PhD will also join us October 1st after being with the Knoebel Institute for Healthy Aging at the University of Denver since 2016. With her undergraduate degree in Biology from the University Pierre et Marie Curie in Paris, France in 2001, and a Ph.D. in Environmental Toxicology from AgroParisTech in Paris, France in 2010, Dr. Ledreux has fast become a "mover and shaker" in the Neuroscience world. A native of Paris, she is bilingual and left France in 2011, when she was awarded with a postdoctoral fellowship from the National Research Council of the National Academies to work at the Marine Biotoxins Program for NOAA. She has been highly successful in obtaining independent research grants from the National Alzheimer's Association, the National Institutes on Aging, and she has active collaborations with several investigators at DU, CU, UC Irvine and the Medical University of South Carolina (MUSC). Her current research interests focus on early biomarkers in dementia as well as after multiple traumatic brain injuries.

NEUROSURGERY COMMUNITY ADVISORY COUNCIL GROWS!

Dr. Richard (Rick) Fort, PhD began his career in the space shuttle program at Kennedy Space Center where he worked for Martin Marietta, Lockheed, and NASA in the areas of organizational development, leadership and total quality management. He continued his career in the telecommunications industry with Time Warner Cable then moved into the world of education when he bought a Sylvan Learning Center franchise.



In 1995, he founded Education Sales Management, which quickly became the leading provider of student enrollment services for colleges and universities around the country as well as K-12 private tutoring centers. For 16 years, ESM worked with over 1,000 learning centers, college campuses and online programs, grew to 800 employees, and was acquired by the Xerox Corporation in 2011.

From 2013 – 2016, Rick was President & COO of CereHealth Corp., a brain analytics company that uses Artificial Intelligence technologies to help physicians diagnose brain dysfunction, efficiently manage patient care, and improve patient outcomes. He has served on CereHealth's Board of Directors since 2011. Today, Rick runs The Fort Knocks Company, an investment management company focused on the life sciences and clean tech energy sectors. He advises start-ups and entrepreneurs and sits on several Boards of Directors. He earned a B.A. in psychology at Louisiana State University, an M.S. in experimental psychology from Northeast Louisiana University, and a Ph.D. in organizational psychology from Walden University.

Eric Neeper, JD is a seasoned litigator with Robinson & Henry, P.C., on its Civil Litigation and Business Law Teams. Eric has tried cases in various state and federal courts, and he is licensed to practice law in Colorado, New Jersey, and Pennsylvania. His impressive repertoire includes complex matters involving civil, commercial, and corporate litigation claims.



Prior to earning his J.D., Eric obtained a Bachelor of Science degree in Forensic and Toxicological Chemistry. Eric held a prestigious internship with the New York City Chief Medical Examiner's Office at a time when critical DNA testing procedures were first implemented.

After spending more than a decade in the business arena, Eric decided to study law. Eric was an active law student, serving as the Widener Law Review's managing editor and the Intellectual Property Society's president. He played an instrumental role in creating "Nanotechnology and the Law," a blog written and operated by faculty and students. In his last year of law school, Eric held a judicial externship at the U.S. District Court for the District of Delaware where he clerked for Chief Magistrate Judge Mary Pat Thygne. Eric also co-authored "Toward a Neuroscience Model of Tort Law: How Functional Neuroimaging Will Transform Tort Doctrine," which is published in Columbia University's Science & Technology Law Review (2012).

NEWLY DIAGNOSED GLIOBLASTOMA

CU Neurosurgeon, Ryan Ormond Discusses Newest Guidelines
for Patients with Newly Diagnosed Glioblastoma



The most common form of malignant brain tumor is called a glioblastoma. It is considered the deadliest human cancer because it is diffuse and erratic and grows so rapidly in brain tissue. It is surgically complex to remove, and the cells mutate at such a rapid rate that most current cancer treatments just can't keep up with them. Survival rates have stalled out since the mid 2000's and most patients are given two years or less, depending on how much of the tumor is removed early on.

Dr. Ryan Ormond and some of his colleagues were recently featured on a podcast hosted by the American Association of Neurological Surgeons and the Congress of Neurological Surgeons. The podcast was mostly centered on surgical interventions, but also gave clear indications into the complexity of treating these tumors.

“In this podcast, we discuss a paper that is a systematic review of the benefit of surgery for newly diagnosed glioblastoma (a type of brain cancer). Removing as much tumor as possible at surgery without giving the patient new neurological symptoms is recommended. This is true even in selected patients with cancer on both sides of the brain and in the elderly. There are a number of assistive technologies available to help make tumor removal more successful. This paper serves as a neurosurgery guideline for the care of these patients and is endorsed by the American Association of Neurological Surgeons and the Congress of Neurological Surgeons.”

To listen to the full podcast:

Cytoreductive Surgery in the
Management of Newly Diagnosed
Glioblastoma in Adults: A Systematic
Review and Evidence-based Clinical
Practice Guideline Update

[https://soundcloud.com/
cnsneurosurgeon/cns-guidelines-
podcast_newly-diagnosed-glioblastoma/
s-YpfZJtoOoXL](https://soundcloud.com/cnsneurosurgeon/cns-guidelines-podcast_newly-diagnosed-glioblastoma/s-YpfZJtoOoXL)



WELCOME!

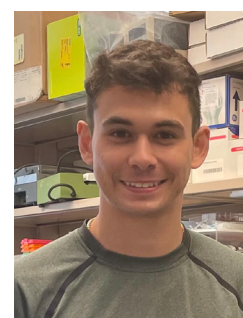
New Research Assistants & Student Researchers



Rhett Kilgore is joining the department of neurosurgery as a professional **research assistant** in Dr. Ormond's lab. He recently received his Bachelor's degree in Neuroscience from Colorado State University.



Jonathan Platt, a Bioengineering graduate student at CU Anschutz, will be working with Dr. John Thompson as a **student researcher**.



Daniel Lovasz, an undergrad at the University of the Incarnate Word, will be working as a **student researcher** with Dr. Xiaoli Yu and Dr. Graner.

5280
[THE DENVER MAGAZINE]

5280 "TOP DOCS"

CU Neurosurgeons Make 5280 "Top Docs" for 2021!

For more than 25 years, 5280 magazine has asked physicians in the Denver area whom they would trust to treat themselves or a loved one. Over 340 doctors—in 100 specialties—were nominated by their peers this year. Congratulations to the CU Neurosurgeons who made the list this year!



Known for his exceptional clinical skills and dry sense of humor in the Neuro ICU, Bob Neumann has been recognized for the seventh time and is certainly one of our stars!



An "up and comer" in the Denver area, we are excited to announce his FIRST "Top Doc" recognition! As a faculty of our department, Dr. Craig serves at Denver Health, is known for his amazing work in neuro spine surgery, and is also somewhat of a local music celebrity, having performed at Red Rocks!!



Known nationally for his excellence in brain and pituitary tumors, one might also see Dr. Lillehei riding his Harley during the rare occasions when he takes time off! As the chair of the Neurosurgery Department, it's not surprising that this is the 20th time we see his name as a "Top Doc" in this particular local contest.



MOBILE STROKE UNIT BEGINS NEW “EARLY STROKE BIOMARKERS” STUDY!

Congratulations to our entire Mobile Stroke Unit team and Dr. Robert Kowalski for enrolling the first two patients in a Mobile Stroke Early Biomarkers study recently launched at CU Anschutz. “To our knowledge we are the first center in the country to begin collecting blood in the field like this on a mobile stroke unit, with simultaneous brain imaging and clinical exam in the ultra-early phase after stroke symptom onset,” Dr. Kowalski explained. “The data we gather from these blood samples will be extremely valuable, as pilot data for research and grant applications (at least two of which we are finalizing now), and for collaboration with other institutions. We are now working with the Mobile Stroke group in Berlin, Germany to collaborate on a large grant submission focusing on ultra-early biomarkers in stroke.”

The Mobile Stroke Unit is a specialized ambulance built with a CT scanner onboard to obtain brain imaging at the site of stroke onset, typically at a patient’s home. The CU Anschutz mobile stroke unit is the third such specialized ambulance in the United States, and the fifth in the world. This research, conducted by the CU Department of Neurosurgery in conjunction with the Department of Neurology will be among the first in the world to obtain blood samples immediately after the stroke occurs and analyze them. These blood samples and brain images, housed and maintained at the University of Colorado, will be a national source of critical data for research on outcomes following stroke, particularly for patients treated immediately upon onset of their symptoms.

GREAT JOB, DR. WILKINSON AND COLLEAGUES



Corbett Wilkinson, MD
CU Pediatric Neurosurgeon,
Children's Hospital Colorado

Congratulations to Corbett Wilkinson, CU Pediatric Neurosurgeon and his wonderful colleagues at Children's Hospital Colorado for their excellent care and perseverance with young patient, Danner Plumhoff of Montrose, Colorado. Born nine years ago, Danner has struggled through numerous surgeries and diagnosis, including craniosynostosis, mild Chiari malformations (structural defects in the base of the skull and

brain), midface hypoplasia (undeveloped upper jaw, cheekbones, and eye sockets), narrow sinus passages, hydrocephalus, strabismus (an eye muscle disorder), a severe underbite, and a floppy soft palate. Although specialists were almost certain she had Crouzon or Pfeiffer syndrome all the genetic testing came back negative. Eventually an endocrinologist at Children's was able to identify another very rare symptom involving skin irregularities that would lead to a positive diagnosis of Crouzon syndrome, a rare genetic disorder. It is a form of craniosynostosis, a condition in which there is premature fusion of the fibrous joints (sutures) between certain bones of the skull. The sutures allow an infant's head to grow and expand. Eventually, these bones fuse together to form the skull.

Finally in January of 2020, it was time for the "big surgery." The nine-hour surgery — called a monobloc — took a lot of planning and preparation, including a virtual surgical planning session, 3D

printed mockups of Danner's skull, and a purple halo device post surgery (called a rigid external distraction device) which she wore for four months, attached to her skull and connecting her jaw and forehead with wires.

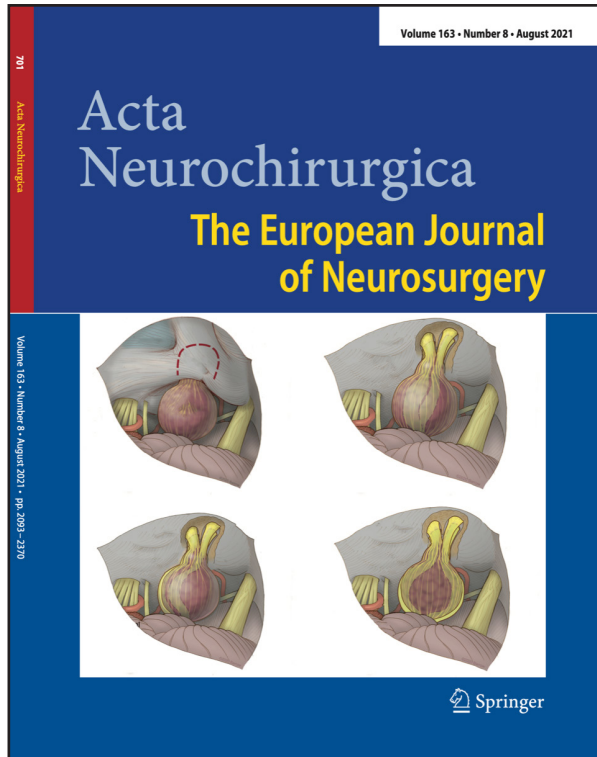
Going forward, Wilkinson and the neurosurgery team will continue to monitor Danner's shunt every year, but her team hopes she won't need more craniofacial surgery. Instead, Danner's treatment will focus primarily on orthodontics and overcoming her persistent sleep apnea.

"She's been through a lot, especially for someone her age," Wilkinson says. "But she's a spunky kid, and she used that spunkiness to get through it."



Danner and some of her favorite farm animals before the big surgery.

For the entire story: news.cuanschutz.edu/departments-of-surgery/craniofacial-patient



CONGRATULATIONS, DR. SAMY YOUSSEF AND COLLEAGUES

Dr. Youssef and colleagues have done it again! Their research on the “Impact of vestibular nerve preservation on facial and hearing outcomes in small vestibular schwannoma surgery: a technical feasibility study” made the cover of Acta Neurochirurgica, The European Journal of Neurosurgery! This is the second journal cover on which they have been featured just in the past few months!

THANK YOU DONORS!

Once again, we are very grateful to some amazing donors for their unexpected, generous gifts!

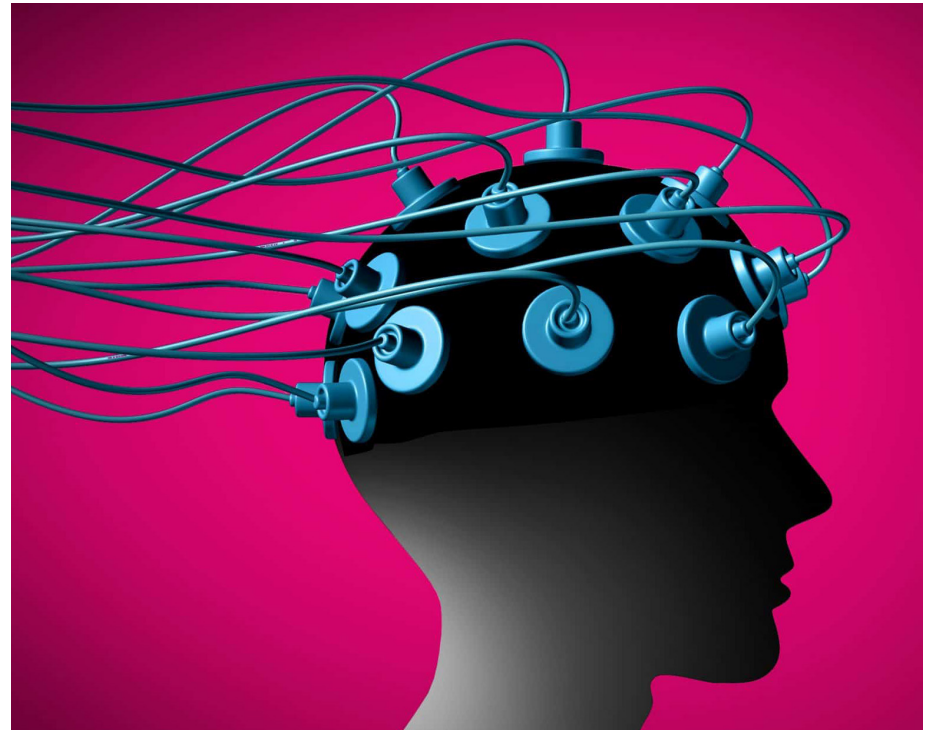
To Gail West, many thanks for the \$122,000 gift to the Hopper Endowed Glioblastoma Research Fund. This gift will significantly enhance the research we are able to do with our brain tumor tissue bank.

NEUROSCIENCES ON THE MOVE

**CU Campuses coming together around Neuroscience
innovation, research and clinical care!**

TED for Your Head Comes to CU Anschutz Campus!!

That's right! There is SO much going on in the neurosciences across all of the CU campuses, it's hard to keep up! But we are trying! Join us as we launch TED for your HEAD!! A Third Thursday Happy Hour near the CU Anschutz Campus, but intended for anyone and everyone involved in research, innovation, clinical care, treatment, administration, funding, or patient experience surrounding the massive field of neurosciences. This fun, interactive and collaborative event will launch with two short TED talks, centering on the Neurosciences, offered by one "seasoned" Ted talker, and two researchers in bioengineering. The beer is free, the venue is roomy and bright! AND ALL ARE WELCOME!! Covid protocols will be strictly enforced so bring a mask!



Matt Vogl, MPH
Director, National Mental
Health Innovation Center
(and seasoned TED talker!)
“Cutting Through the Hype
of Tech for Your Brain”



Richard Weir, PhD
Department of Bioengineering
“Optogenetics, Neural Interface
& Robotic Limbs, Oh My!”



Emily Gibson, PhD
Department of Bioengineering
“Optogenetics, Neural Interface
& Robotic Limbs, Oh My!”

NEUROSCIENCES ON THE MOVE

CU Campuses coming together around Neuroscience
innovation, research and clinical care!

TED for your HEAD Monthly Happy Hour Launch!!

When: Thursday, September 16th

Time: 5 to 7 p.m. (TED talks begin promptly at 6 p.m.)

Where: Plains Club Gallery (next to Cedar Creek & Lost Coffee) just north of CU Anschutz Campus 2100 N. Ursula St. (near Montview & Ursula)

What: Networking, collaboration, and casual FUN!!

Beer provided by Ursula Brewing Company

Light snacks provided by the Department of Neurosurgery

BRING A
MASK!

CU Denver & CU Anschutz Collaborate Again!

On September 28th, at our weekly grand rounds, CU Department of Neurosurgery will host two engineers from the School of Engineering at CU Denver. Join us at 9:30 a.m. in the Shore Auditorium at the Ben Nighthorse Campbell Building (center campus).



Tim Lei, PhD
Electrical Engineering
Department
CU Denver
“Real-time Action
Potential Neural
Information Decoding”



Brecca Gaffney, PhD
Mechanical Engineering
Department
CU Denver
“Musculoskeletal
Biomechanics: Ground up
and Top Down Applications”

*Left to Right:
Jody Tanabe, Director
of Neuroradiology
Daniel Kramer and Steve
Ojemann, Neurosurgeons
Drew Kern, Movement
Disorders Neurologist*



IMPROVED PATIENT EXPERIENCE!

The Focused Ultrasound has finally arrived in the OR at the UCHealth University of Colorado Hospital!

After years of waiting, CU faculty neurosurgeons, neurologists and radiologists are thrilled to be launching new technology in the UC Hospital OR. Currently approved for state-of-the-art treatment of **essential tremor**, it is hoped that this new non-invasive procedure will soon provide safe options for Parkinson's Disease treatment, brain tumor treatment, and much more. If you think you might be a candidate, call the neurology clinic and schedule an appointment with Dr. Drew Kern today. (720) 848-2080.

CONGRATULATIONS TO OUR RESEARCHERS!

New Funding Announcements



Faculty: Dr. Alexander (PI)

Sponsor: American Epilepsy Society

Title: MTOR Pathway Dysfunction and Hub Cells in Focal Cortical Dysplasia

Total Amount: \$50,000

Project Period: 7/1/2021-6/30/2022



Faculty: Dr. Welle (Mentor)

PI: Spencer Bowles

Sponsor: NIH-NINDS F31

Title: Vagus nerve stimulation (VNS) enhances motor learning through temporally-precise cholinergic neuromodulation

Total Amount: \$34,288 per year; \$68,576 total

Project Period: 7/1/2021-6/30/2023



Faculty: Dr. Thompson and Dr. Kramer (MPI)

Sponsor: The Kavli Foundation

Title: Identifying neurophysiological biomarkers of motor impairment in Parkinson's disease

Total Amount: \$10,000

Project Period: 7/1/2021-6/30/2022



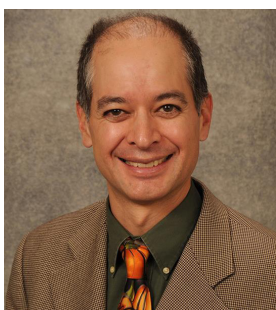
Faculty: Dr. Ormond (PI)

Sponsor: AHA (Supplement)

Title: The role of mitochondrial transfer and mesenchymal stem cell transplantation in neuronal preservation after ischemia

Total Amount: \$35,000

Project Period: 7/1/2021-6/30/2022



Faculty: Dr. Wilkinson (PI)

Sponsor: Rocky Vista University

Title: Pre-Clinical Research Mentor

Total Amount: \$1,200

Project Period: 8/1/2021-7/31/2022



University of Colorado **Anschutz Medical Campus**

