

DIVISION OF NEUROSURGERY



The Division of Neurosurgery provides the full range of contemporary neurosurgical practice. Using a multidisciplinary approach, we provide care to diagnose, treat, and rehabilitate patients with neurological disorders. The division also offers residency and fellowship opportunities, and conducts path-defining research that is advancing the field.

The 2018-2019 academic year was a pivotal period of expansion for UC San Diego Neurosurgery.

Neurosurgery and Neurosciences maintained its top 50 ranking in *U.S. News & World Report*. Our Quad-Pod of neurosurgical operating rooms in Jacobs Medical Center continued to provide integrated cranial and spinal navigation, intra-operative MRI and CT capabilities, and sophisticated microscopy and imaging tools. In addition to the tremendous opportunities for neuro-oncology and restorative procedures, these suites are home to the stereo-EEG and laser ablation procedures that anchor our Level 4 Epilepsy Center — the only one in the region.

The Neurosurgery division was a local host of the 2019 American Association of Neurological Surgeons (AANS) conference in April, and was featured in a "History of San Diego Neurosurgery" video that was shown at the opening general plenary session.

We launched our "Neuro Hub", an innovative, technology-driven teaching and meeting space designed for surgeons both here and abroad. This space complements and connects our resources of our Quad-Pod, the Altman Clinical and Translational Research Institute, and the Center for the Future of Surgery, as well as our unique institution that is rich in both neurosciences and engineering.

Neurosurgery also broadened its geographic footprint to include a new clinic in Rancho Bernardo, in addition to several other regional locations including Hillcrest, La Jolla, Carlsbad, and Escondido. In addition to our community medical center partnerships of Tri-City and Palomar, Neurosurgery also provides the neurosurgical service needs at the La Jolla VA Medical Center and Rady Children's Hospital. Our two destination neurovascular centers at Hillcrest and Jacobs Medical Center enable us

to maintain our status as the third Comprehensive Stroke Center in the country. We receive national-level referrals for complex cases for both adult and pediatric patients.

Our strong tradition of teaching excellence will be further enhanced by the expansion of the Center for the Future Surgery to include a new microsurgical lab and hybrid OR/angiography suite, that opened in Fall 2019. This visionary, unique facility provides national and international training opportunities as well as a clearinghouse for the research and development of new technologies.

Our world-class Skull Base Surgery program — led by Dr. Marc Schwartz in Neurological Surgery and Dr. Rick Friedman from Otolaryngology — remains one of the largest in the country. Through this program, Drs. Schwartz and Friedman bring destination integrated care to UC San Diego for the most complex cranial tumors.

The faculty and residency program continue our strong history of academic productivity and national engagement. Faculty were responsible for 96 peer reviewed publications and 4,092 citations in the 2018–2019 academic year. Neurological Surgery continued its strong support of UC San Diego medical students; all four matched successfully to top programs around the country including UC San Francisco and University of Pennsylvania. We were delighted to recruit leading candidates for our own residency program.

Our faculty continues to expand. Over the course of the past academic year, we recruited Drs. Beaumont, Kfoury-Beaumont, Osorio, and Pham.

Thomas Beaumont, MD, PhD specializes in skull base and minimally invasive cranial surgery. He performs both open microsurgery and endoscopic approaches for brain, skull base and pituitary tumors where he tailors



Above: Dr. Martin Pham — a world leader in robotic surgery — performing spine surgery.



Above: Homira Feely, NP, DNP (second from right) pictured with fellow delegates from the North San Diego County branch of California Association for Nurse Practitioners (CANP) who met with legislators to discuss healthcare issues in California. Separately, she also received the Medal of Excellence in patient care from Moore's Cancer Center.

Right: Dr. Sharona Ben-Haim presents at the 2019 American Association of Neurological Surgeons (AANS) conference held in San Diego.

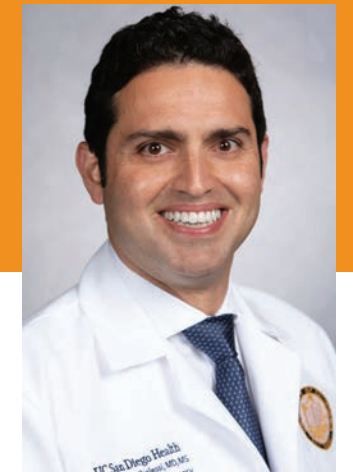


the surgical approach to provide maximally effective yet minimally invasive neurosurgical care. Also trained as a scientist, Dr. Beaumont has extensive research experience in genomics and epigenetics, and has received funding from the National Institutes of Health.

Najla Kfoury-Beaumont, MS, PhD is the first of three dedicated PhD researchers in Neurosurgery. For her postdoctoral training, she pursued translational research at Washington University to investigate potential antibody-based therapies to target tau transcellular propagation in Alzheimer's disease. Her current research interests extend across cancer biology, development, and epigenetics with special emphasis on glioblastoma. Her long-term research interests include the study of epigenetics in brain tumors and developmental disorders.



Above: Dr. John Alksne, Founding Chief of the Division of Neurosurgery and Former Vice Chancellor for Health Sciences, pictured with 2019-2020 Chief Residents, Drs. Jeffrey Steinberg and David Santiago-Dieppa.



ALEXANDER KHALESSI, MD, MS, FAANS
Chief, Division of Neurosurgery

FACULTY

PROFESSORS OF SURGERY

John Alksne, MD
David Barba, MD
Joseph Ciacci, MD
Alexander Khalessi, MD, MBA, MS, FAANS
Michael Levy, MD
Lawrence Marshall, MD
Ahmet Oygur, MD
Marc Schwartz, MD
William Taylor, MD
CAPT Jeffrey Tomlin, MD
Howard Tung, MD
Hoi Sang U, MD

ASSOCIATE PROFESSORS OF SURGERY

Sunil Jeswani, MD
Andrew Nguyen, MD, PhD
Scott Olson, MD

ASSISTANT PROFESSORS OF SURGERY

Thomas Beaumont, MD, PhD
Sharona Ben-Haim, MD
David Gonda, MD
Joseph Osorio, MD, PhD
J. Scott Pannell, MD

RESIDENTS

Harjus Birk, MD
Vincent Cheung (2019 graduate), MD
Daniel Cleary, MD
Luis Daniel Diaz-Aguilar, MD
Mihir Gupta, MD
Brian Hirshman, MD
Reid Hoshide (2019 graduate), MD
Usman Khan, MD
Joel Martin, MD
Jillian Plonsker, MD
Robert Rennert, MD
David Santiago-Dieppa, MD
Jeff Steinberg, MD
Arvin Wali, MD

Martin Pham, MD specializes in neurosurgical evaluation and treatment of spinal disorders. This includes: adult scoliosis and spinal deformity; complex spinal reconstruction; robotic and minimally invasive spine surgery; motion preservation of the spine; spine tumors; and spine trauma. Having completed spine fellowship training with both neurosurgeons and orthopedic surgeons, Dr. Pham has a comprehensive understanding of the spine that allows him to tailor his treatment to each individual using a wide range of available surgical and nonsurgical options.

Joseph Osorio, MD, PhD earned his PhD in Bioengineering at UC Berkeley/UC San Francisco (UCSF), with a focus on translational research in brain tumor imaging, and completed both medical school and Neurosurgery residency at UCSF. Dr. Osorio completed a post-graduate spine fellowship in the Department of Orthopedics at Columbia University in New York City. His dual-training provides an interdisciplinary perspective for the most complex spine pathologies including adult spinal deformity, cervical deformity, and spinal tumors.



Above: Chair Dr. Alexander Khalessi with 2019 Resident Graduates Drs. Vince Cheung and Reid Hoshide at the 2019 Graduation Celebration held at Scripps Seaside Forum.



Above: Neurosurgery resident Dr. Arvin Wali (fourth from right) received the UC San Diego School of Medicine Humanism in Medicine Resident Award in Surgery. With this award, Dr. Wali was invited to join UC San Diego School of Medicine's Chapter of the Gold Humanism Honor Society (GHHS).

Below: Dr. J. Scott Pannell instructing neurosurgery interns at the Society of Neurological Surgeons (SNS) boot camp held at the Center for the Future of Surgery, May 2019.



Right: Chair Dr. Alexander Khalessi pictured with his patient, brain cancer survivor Angie Weight, at the December "Over the Edge for Brain Cancer" event which fundraises for brain cancer research through ABC2 (Accelerate Brain Cancer Cure). Angie, a 41-year-old artist and mother of four who was diagnosed with oligodendroglioma, was the first patient to be operated on in UC San Diego's intra-operative MRI surgical suites – the first and only in Southern California.



Right: Dr. J. Scott Pannell instructing neurosurgery interns from across the country at the Society of Neurological Surgeons (SNS) boot camp held at the Center for the Future of Surgery, May 2019.



694 MAJOR PEDIATRIC CASES

2,624 SURGICAL CASES
FY18/19

\$428,311 IN COMBINED
NIH AND INDUSTRY GRANTS FOR 2018/19

96 FACULTY PUBLICATIONS

TOP 50 RANKING
(46) IN USNWR

HONORS AND AWARDS

Neurosurgery resident Dr. Arvin Wali was recognized by third year medical students and received the UC San Diego School of Medicine Humanism in Medicine Resident Award in Surgery. With this award, he is now a member of UC San Diego School of Medicine's Chapter of the Gold Humanism Honor Society (GHHS).

For his considerable involvement in UC San Diego Neurocritical Care, Dr. David Barba was awarded the 2018 Axon Award for Most Collaborative Neurosurgeon.

In July 2018, Dr. Sharona Ben-Haim was granted the AAMC/AMA Early Career Women Faculty Leadership Development Scholarship to attend the seminar in Colorado. This seminar provides women physicians and scientists the opportunity to broaden their knowledge and skills used to navigate academic medicine and continue their path to leadership.

In 2018, Dr. Sunil Jeswani was named Palomar Physician of the Year for his work in Trauma ICU. Dr. Jeswani was also recognized as Palomar Physician of the Year in 2019 for his exceptional work in the Neuro Unit.

Dr. Michael Levy was recognized and awarded the Service Award as an international member of the Peruvian Neurosurgical Society at their annual meeting.

Dr. J. Scott Pannell has been appointed the role of the Primary Endovascular faculty liaison to the Stroke Leadership Committee.

SELECT PUBLICATIONS

Antonios JP, Farah GJ, Cleary DR, Martin JR, Ciacci JD, Pham MH. Immunosuppressive mechanisms for stem cell transplant survival. *Neurosurg Focus*. 2019 Mar 1;46(3):E9. doi: 10.3171/2018.12.FOCUS18589. PMID: 30835678.

Ben-Haim, S, Mirzadeh Z, Rosenberg W. Deep-brain stimulation for intractable neuropathic facial pain. *Neurosurg Focus*. 2018 Aug;45(2):E15.

Desai M, Wali AR, Birk HS, Santiago-Dieppa DR, Khalessi AA. Role of pregnancy and female sex steroids on aneurysm formation, growth, and rupture: A systematic review of the literature. *Neurosurg Focus*. 2019 Jul 1;47(1):E8. doi: 10.3171/2019.4.FOCUS19228. PubMed PMID: 31261131.

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Khalessi AA, Rahme R, Rennert RC, Borgas P, Steinberg JA, White TG, Santiago-Dieppa DR, Boockvar JA, Hatefi D, Pannell JS, Levy ML, Langer DJ. First-in-man clinical experience using a high-definition 3-dimensional exoscope system for microneurosurgery. *Oper Neurosurg*. (Hagerstown). 2018 Nov 26. doi: 10.1093/ons/opy320. PMID: 30476242.

Lopez Ramos C, Brandel MG, Rennert RC, Hirshman BR, Wali AR, Steinberg JA, Santiago-Dieppa DR, Flagg M, Olson SE, Pannell JS, Khalessi AA. The potential impact of "Take the Volume Pledge" on outcomes after carotid artery stenting. *Neurosurgery*. 2019 Mar 15. pii: nyz053. doi: 10.1093/neuros/nyz053. PMID: 30873551.

Pham MH, Bakhsheshian J, Reid PC, Buchanan IA, Fredrickson VL, Liu JC. Evaluation of C2 pedicle screw placement via the freehand technique by neurosurgical trainees. *J Neurosurg Spine*: Sep;29(3):235-240, 2018.

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Roberts DS, Maurya R, Takemon Y, Vitte J, Gong L, Zhao J, Wong CH, Slattery W, Peng KA, Lekovic G, Schwartz MS, Bulsara K, Ngan CY, Giovannini M, Wei CL. Linked-read sequencing analysis reveals tumor-specific genome variation landscapes in neurofibromatosis type 2 (NF2) patients. *Otol Neurotol*. 2019 Feb; 40(2):e150-e159.

Santiago-Dieppa DR, Levy ML. Obstructive hydrocephalus. *New England Journal of Medicine*. 2019. (In Press).

FUNDED RESEARCH

PRINCIPAL INVESTIGATOR	RESEARCH TITLE	FUNDING SOURCE
NEUROSURGERY		
Joseph Ciacci	A Prospective, Randomized, Double Blinded, Vehicle and Placebo-Controlled, Multi-dose, Multicenter Study to Evaluate the Safety and Preliminary Efficacy of Human IDCT in Subjects	CTI Clinical Trial and Consulting Services
Alexander Khalessi	exRNA Biomarkers for Human Glioma	Massachusetts General Hospital