

The Rancho Los Amigos Epilepsy Center

The Rancho Los Amigos Epilepsy Center was established in 2007 with the creation of the Epilepsy Monitoring Unit, the only one in the Los Angeles County Department of Health Services (DHS) and the central referral site serving all of DHS. The first intracranial electrocorticography monitoring study at Rancho was performed in 2011. Vagus nerve stimulator implantations quickly followed, and stereotactic EEG and responsive neurostimulation capabilities are slated to begin in 2018. The epilepsy program thrives as a strong partnership between Rancho and LAC+USC Medical Center, capitalizing on the strengths and resources on each side.

Rancho has the distinction of being the first, and possibly only public hospital in the nation to achieve Level 4 National Association of Epilepsy Centers (www.naec-epilepsy.org) accreditation. The top step, level 4, indicates that a facility has “the professional expertise and facilities to provide the highest level medical and surgical evaluation and treatment for patients with complex epilepsy.” Rancho has demonstrated that highly advanced levels of care are possible in spite of the limited resources of a public hospital. A key factor enabling this accomplishment was being a major partner in the University of Southern California (USC) Epilepsy Consortium, a patient-centered ecosystem comprising independent epilepsy centers collaborating in a care partnership. The consortium shares expertise and maximizes the resources and capabilities of each partner center.

The mission of the Rancho Epilepsy Center is to provide the highest level of epilepsy care and expertise to residents of Los Angeles County who rely on the safety-net health system, irrespective of their financial or insurance status. The program aligns with Rancho’s mission to restore health (one-half to two-thirds of patients who receive resective epilepsy surgery become seizure-free), rebuild life (an epilepsy rehabilitation program at Rancho addresses whole person care, working to improve quality of life and increase vocational and occupational opportunities), and revitalize hope (our patients are no longer defined by their illness and its limitations).

The Rancho Epilepsy Center Medical Director is Susan Shaw Huang, MD and the Epilepsy Center Surgical Director is Charles Liu, MD, Ph.D. The Director of Epilepsy Monitoring Unit is Hui (Tory) Gong, MD. Other key epileptologists and epilepsy neurosurgeons are Michelle Armacost, MD, Jonathan Russin, MD and Brian Lee, MD PhD.

The Physicians

Susan Shaw Huang, MD

Susan Shaw Huang, MD, FAES, is the Medical Director of the epilepsy program at Rancho Los Amigos National Rehabilitation Center. She serves as the Program Director for the USC Epilepsy Fellowship and Chair of the Neurology Department at Rancho. She received her medical degree from the University of Chicago and completed neurology residency at UCLA. She completed an Epilepsy fellowship at Johns Hopkins University before joining the Rancho faculty in 2009.

Her research interests include quality of life and neuropsychiatric outcomes in epilepsy, neurorehabilitation and neurorestoration, and she has served as an investigator on multiple clinical trials through the Rancho Research Institute. She leads an epilepsy rehabilitation program that assists patients in improving quality of life and attaining gainful employment, and leads an annual rehabilitation camp for post-hemispherectomy pediatric epilepsy patients. Dr. Shaw has also served as the Associate Chief Medical Officer and subsequently the Interim Chief Medical Officer at Rancho Los Amigos.

Hui (Tory) Gong, MD

Dr. Hui (Tory) Gong is Director of the Epilepsy Monitoring Unit at Rancho Los Amigos. She is triple board-certified in Neurology, Clinical Neurophysiology and Epilepsy. She obtained her medical degree from Hunan Medical University's western medicine program partnered with the Yale-China Association, which is closely affiliated with the Yale University School of Medicine. She enhanced her medical knowledge at New York Medical College before completing neurology residency at the University of New Mexico. She completed her Clinical Neurophysiology and Epilepsy fellowships at USC and joined the Rancho faculty in 2014.

Her research interests include the development of new anti-epileptic drugs, the use of stem cell transplantation in cervical spinal cord injury, and brain-computer interface. She is a principal investigator and co-investigator for numerous clinical trials through the Rancho Research Institute. She also leads the Epilepsy Device Clinic at Rancho and serves as site fellowship director for the USC Epilepsy Fellowship. She is also an adjunct assistant professor in the neurology department at USC.

Michelle Armacost, MD

Michelle Armacost, MD is the Director of the Acute Neurology Unit at Rancho Los Amigos and regularly cares for epilepsy patients admitted to the Epilepsy Monitoring Unit and in the Rancho

outpatient clinics. She received her medical degree from the USC Keck School of Medicine, and stayed at USC for both neurology residency and epilepsy fellowship. She joined the Rancho faculty in 2016.

Dr. Armacost's research interests include neuropsychological outcomes in epilepsy surgery as well as brain-computer interface, and she serves as a co-investigator on several clinical trials through the Rancho Research Institute. She has founded a new clinic at Rancho, the Youth Epilepsy Clinic, geared towards transitioning young adults from pediatric neurology to adult care. She also serves as the Rancho site director for visiting medical students and residents from USC.

Charles Y. Liu, PhD, MD

Dr. Liu is a neurosurgeon-engineer with primary interest in functional restoration of the human nervous system. He obtained his BSE in chemical engineering at the University of Michigan before completing his PhD in chemical/bioengineering at Rice University. He then attended medical school at Yale University before training in neurosurgery at the USC Keck School of Medicine. He is presently appointed Professor of Neurological Surgery and Neurology at USC, with joint appointments in Biomedical Engineering, Urology, and PT-Biokinesiology. He first came to Rancho Los Amigos in 2007 and currently serves as the Chair of Neurosurgery and Orthopedics, as well as the director of the neurorecovery programs. At USC, he serves as Director of the USC Neurorestoration Center where he oversees a large number of research programs and clinical trials aimed at developing novel strategies to restore nervous system function, including regenerative medicine/stem cells, neuroprosthetics, and optimization strategies involving neuromodulation and neurorehabilitation. He has played a principal role in the establishment of 4 comprehensive epilepsy centers, as well as the formation of the USC Epilepsy Consortium, a unique "patient-centered ecosystem" for epilepsy care in southern California.

Jonathan Russin, MD

Dr. Russin completed an infolded fellowship in epilepsy surgery under the direction of Dr. Charles Liu during PGY-6 year of neurosurgery residency at USC. Additionally, he traveled to Japan and spent time with Dr. Takanori Fukushima studying skull base and cerebrovascular neurosurgery. After residency, he completed a fellowship under the direct instruction of Dr. Robert Spetzler with a focus on cerebrovascular/skull base disease including complex bypass procedures, aneurysm treatment, management of cranial and spinal arteriovenous malformations and cavernous malformations as well as resection of skull base pathology such as schwannomas, meningiomas and chondrosarcomas.

Brian Lee, MD, PhD

Dr. Brian Lee earned his MD from USC and completed his Ph.D in computational neuroscience at the California Institute of Technology (Caltech). He completed his neurosurgery residency at USC, followed by a fellowship in Stereotactic and Functional Neurosurgery at the University of California, San Francisco (UCSF) with Dr. Philip Starr. He is now faculty at USC where he directs an advanced clinical research program in epilepsy and movement disorders. Dr. Lee specializes in neurophysiological brain recordings using intracranial subdural electrocorticography (ECoG) and stereotactic EEG (stereo-EEG) monitoring techniques. He is an expert in implanting neuromodulation devices for epilepsy including vagus nerve stimulators (VNS), Neuropace Response Neurostimulators (RNS), and deep brain stimulators (DBS).

Dr. Lee's research program focuses on developing neurorestorative technologies and cognitive-based brain-computer interface (BCI) devices for patients with neurological disorders, such as epilepsy, Parkinson's disease, essential tremor, and dystonia. Key projects include modelling seizure activity in epilepsy, identifying biomarkers in Parkinson's disease, and engineering artificial sensation through direct cortical stimulation for use in a closed-loop BCI system.