

Innovations in Neurology & Neurosurgery



*Rady Children's - A comprehensive system
focused solely on children.*



PEOPLE

Dr. Neul brings clinical research focus to division



Jeffrey Neul, M.D., Ph.D., is chief of the Division of Neurology at Rady Children's Hospital-San Diego and a professor of neurosciences and pediatrics at UC San Diego School of Medicine. In his role as division chief, Dr. Neul seeks to create new programs of distinction as well as a culture of active clinical research at the point of care, with the goal of bringing treatment advances from the lab into the clinic.

Dr. Neul is an internationally recognized expert in genetic neurodevelopmental disorders, specifically Rett syndrome. For the last 13 years, he has been involved in a National Institutes of Health-funded natural history study of Rett syndrome and will now begin enrolling people at Rady Children's and UC San Diego. Findings from this study will be instrumental in the development of clinical trials for the disease. Additionally, Dr. Neul has been involved in the first industry-sponsored trial of a novel therapeutic compound for treating Rett syndrome. He will be the local principal investigator in the next phase of this trial, which will soon begin enrollment.

Along with leading clinical trials, Dr. Neul conducts genetic research on neurodevelopmental disorders as well as translational research using disease models to identify and test novel treatment modalities.

A native of Chicago, Dr. Neul received his undergraduate degree at the University of Illinois at Urbana-Champaign. He earned his medical and doctorate degrees from the University of Chicago and completed his residency and fellowship in child neurology at Baylor College of Medicine and Texas Children's Hospital.



PROGRAMS

TSC clinic tackles disease with multidisciplinary approach

Tuberous sclerosis complex (TSC), a genetic disorder that affects 1 in 5,000 individuals, can affect many organs in the body, including the brain, heart, kidneys, lungs and skin. It is a lifelong condition in which complications can arise at any time. The most effective means of providing medical care is to use a team approach.

In 2015, a multidisciplinary TSC clinic was established at Rady Children's. The clinic brings together various specialists in one location so that patients can be seen by several specialists in a single visit.



innovation
belongs in every moment

Team members include pediatric neurologist [Doris Trauner, M.D.](#) (director), nurse manager Cheryl Orphan, pediatric cardiologist [Beth Printz, M.D.](#), pediatric nephrologist [Peter Yorgin, M.D.](#), pediatric pulmonologist [James Hagood, M.D.](#), and pediatric neuro-oncologist [John Crawford, M.D., M.S.](#), as well as specialists in pediatric ophthalmology, psychology, dermatology and neurosurgery.

Research is an important part of the clinic, with a focus on developing a better understanding of TSC and how to treat it. The clinic is currently participating in a multicenter study of the drug everolimus for treating intractable epilepsy in children and adults with TSC. It is also in the planning stages for other clinical trials and collaborates with other TSC centers around the country. Additionally, the clinic is exploring basic science opportunities related to the m-TOR pathway, which is involved in TSC and several other conditions that affect brain development.

The clinic has been approved as a TSC Center by the [Tuberous Sclerosis Alliance](#), a national organization that fosters education, awareness and research on the condition.

RESEARCH

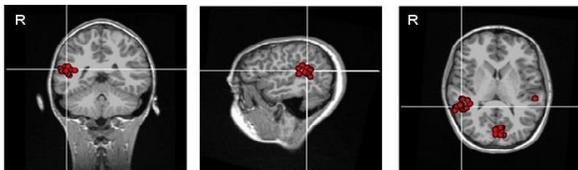
Functional imaging can detect mild traumatic brain injury

Traumatic brain injury (TBI) is a leading cause of sustained physical, cognitive, emotional and behavioral deficits in athletes. The pathophysiology of mild TBI (mTBI), however, is not well understood, and the potential for long-term effects remains unknown.

Conventional neuroimaging techniques such as MRI and CT have limited sensitivity in detecting physiological abnormalities caused by mTBI or predicting long-term cognitive and behavioral outcomes. CT and MRI are generally negative even in mTBI patients who experience persistent post-concussive symptoms.

[Michael Levy, M.D., Ph.D.](#), chief of the Division of Neurosurgery at Rady Children's, along with Mingxiong Huang, Ph.D., and Roland Lee, M.D., from the Department of Radiology at UC San Diego School of Medicine, are assessing the use of a functional imaging method based on resting-state magnetoencephalography to assist in diagnosing mTBI. More than 30 patients have been evaluated to date.

The results suggest that individuals with mTBI have abnormal slow waves that can be detected by MEG; moreover, MEG may be significantly more sensitive than CT and MRI not only in diagnosing mTBI, but in enabling more informed clinical management and decision-making for individuals suffering from these injuries. (See images below.)



Red dots: locations of slow wave generators that form cluster in right temporal lobe

A [previous study](#) involving these researchers found that MEG may be more sensitive than diffusion tensor imaging (DTI) in diagnosing mTBI.



RECOGNITION

Dr. Trauner honored for lifetime achievements by CNS

[Doris Trauner, M.D.](#), of the Division of Neurology and a distinguished professor of neurosciences and pediatrics at UC San Diego School of Medicine, is the recipient of the 2016 Lifetime Achievement Award of the Child Neurology Society (CNS), one of the society's most prestigious honors. The award recognizes Dr. Trauner's deep commitment to humanism in medicine, her leadership and service to the society and her lifelong advocacy for the principles of the society.

Dr. Trauner has worked with parent groups dedicated to helping children with neurodevelopmental disorders and has provided expert advice to families around the world dealing with complex neurodevelopmental



disorders. She has served on numerous committees of the CNS, including the Awards Committee, Nominating Committee, Ethics Committee, Scientific Program Committee (as Chair) and CNS Executive Committee (as Councilor). She also chaired the Neurology Section of the American Academic of Pediatrics (AAP), serving as a liaison between the AAP and CNS.

Additionally, Dr. Trauner served as interim chair of the UC San Diego Department of Neurosciences as well as the chief of pediatric neurology, a position she held for more than 30 years. She chaired the UC San Diego Faculty Council and was a member of the Rady Children's Medical Staff Executive Committee.



Learn more at [RCHSD.org](#)