Keck Medicine of USC performs world’s 1st epilepsy treatment implant

By Allison Trinidad

On Dec. 18, 2013, Keck Medicine of USC became the world’s first medical center to surgically implant a responsive brain device newly approved by the U.S. Food and Drug Administration (FDA) to treat epilepsy, with the potential to help millions of people worldwide.

The device, manufactured by NeuroPace Inc., detects and then directly responds to abnormal brain activity to prevent seizures before they occur. In a three-hour surgery, USC faculty physicians implanted the device in a 28-year-old Lake-wood, Calif., woman who was diagnosed with epilepsy in 2004.

Kathleen Rivas, an aspiring journalist who sought care from the university’s student health center in 2009 while earning her master’s degree elected to have the implant because medication had not controlled seizures. Over the next few months, her doctors will program the device to detect specific brain activity indicative of a seizure’s onset.

“I’m just so lucky to be here at USC,” said Rivas. “Without faith and trust in my neurologist and neurosurgeon, I don’t know where I’d be. My life is in their hands.”

Epilepsy affects approximately 65 million people worldwide, including nearly 3 million in the United States. Those who can tolerate medication and whose seizures are completely controlled usually lead a normal life, but the disease can be devastating for those who experience uncontrolled seizures.

“The device is the world’s only responsive neurostimulation (RNS) system approved for clinical use. USC physicians have been studying the technology since 2006 and are among the first authorized to prescribe its use since FDA approval on Nov. 14, 2013,” said Buchanan.

“This has the potential to be a game-changer for patients with epilepsy,” said Christianne Heck, MD, MMM, associate professor of neurology at the Keck School of Medicine of USC, medical director of the USC Comprehensive Epilepsy Program and principal investigator of the device’s clinical study at USC. “Unlike other neurostimulators on the market, this system looks for just the right circumstances to stop a person’s seizure from happening.”

Most people with epilepsy gain control over their seizures with medication and whose seizures are completely controlled usually lead a normal life, but the disease can be devastating for those who experience uncontrolled seizures. Those who can tolerate medication and whose seizures are completely controlled usually lead a normal life, but the disease can be devastating for those who experience uncontrolled seizures.

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EPILEPSY: New device provides options for patients who have uncontrolled seizures

By Ellin Kavanagh and Cristy Lyal

With the launch of the Translational Biomedical Imaging Laboratory (TBIL), investigators at USC and The Saban Research Institute of Children’s Hospital Los Angeles moved medical science closer to a day when diseases can be detected before symptoms appear.

TBIL is a unique, interdisciplinary collaboration that combines dynamic equipment, including state-of-the-art microscopes for imaging living specimens and whole organs, with an intellectual infrastructure of optical physicists, computer scientists, translational researchers and clinicians.

The study showed that, by three months after the device was turned on, patients experienced a nearly 38 percent reduction in monthly seizures, compared to a roughly 17 percent reduction among patients who had the implant turned off. Two years post implant, 55 percent of patients experienced a 50 percent or greater reduction in seizures.

“Academic medical centers are centers of innovation and education that directly contribute to the medical breakthroughs that continue to redefine health care,” remarked Tom Jackiewicz, MPH, senior vice president and CEO of USC Health. “Dr. Liu and Heck are blazing a trail in neurological research and care that ultimately will change people’s lives for the better. Keck Medicine of USC is proud to serve as a keystone for their efforts.”

Thai Truong, PhD, demonstrates high-speed volumetric imaging at the launch of the Translational Biomedical Imaging Lab.
Air pollution and genetics combine to increase risk for autism

By Allison Trinidad

Exposure to air pollution appears to increase the risk for autism spectrum disorder (ASD) among people who carry a genetic disposition for the disorder, according to newly published research led by scientists at the Keck School of Medicine of USC.

“Our research shows that children with both the risk genotype and exposure to high air pollutant levels were at increased risk of autism spectrum disorder compared to those without the risk genotype and lower air pollution exposure,” said the study’s first author, Heather E. Volk, PhD, MPH, assistant professor of research in preventive medicine and pediatrics at the Keck School and principal investigator at the Sahar Research Institute of Children’s Hospital Los Angeles.


AHA/Rodney White

The U.S. Centers for Disease Control and Prevention estimates that one in 88 children in the United States has an ASD.

AHA/Rodney White

AHA honors USC’s Demetriades for a lifetime of dedication

By Sara Novee

Demetrios Demetriades, MD, PhD, professor of surgery and chief of the division of trauma & critical care at Keck Hospital of USC, has been promoted to the newly created second-in-command position of the Office of the General Counsel and responsible for university-wide legal issues. Bratcher previously served as associate general council for health sciences, and she will continue to oversee the legal services provided to the Health Sciences Campus.

P. Michael McFadden, MD, professor of cardiothoracic surgery, is looking for individuals for a clinical trial. The purpose of the research study is to evaluate the safety and effectiveness of the PulmonX Endobronchial Valve (EBV) in emphysema and chronic obstructive pulmonary disease treatment.

The device is a one-way valve that prevents inspired air from inflating the more diseased areas of the lung and redirects the air to better functional lung. The EBV also allows decompression of the hyperinflated lung resulting in lung volume reduction and better diaphragm muscle function and breathing. The EBV has been approved by the Federal Drug Administration (FDA) for investigational use only in this study and is not available commercially.

Individuals who have clinical and radiological evidence of emphysema or COPD and are able to participate in an exercise program are encouraged to call Amelia Weldon, research coordinator, at (313) 444-3576.
Calendar of Events

Monday, Jan. 13

**Neon - 1 p.m.** Keck School of Medicine Research Seminar Series: "Differentiation and Regulation of Follicular Helper CD4 T Cells," Shaine Crovity, La Jolla Institute for Allergy & Immunology. Arcsey Auditorium. Info: (323) 442-7732


Tuesday, Jan. 14

**Neon, Eli and Edythe Broad Center for Regenerative Medicine and Stem Cell Research at USC. "Epigenetic Regulation of Stem Cells and Development by Tet Enzymes," Meelad Agus) Info: (323) 442-1900, deanksom@med.usc.edu

Conversation with David B. Agus, MD," David Agus, USC. Oncologist," Lawrence Menendez, USC. Reception from 5:30 – 6 p.m. Arcsey Auditorium. Info/RSPV: (323) 226-7204, sybua@usc.edu

Wednesday, Jan. 15

**4:30 p.m.** KISM Dean’s Distinguished Lecture Series: “A Conversation with David B. Agus, MD," "David Agus, USC. "Molecular Oncology," Soto Building (Code: Agus) Info: (323) 442-1900, deanksom@med.usc.edu

**6 - 7 p.m.** Orthopaedic Surgery Grand Rounds. "Primary Tumor in General Orthopaedic Practice (The Accidental Surgeon)," Win May, Tatum Korin, USC. Norris Medical Library West Conference Room. Info: (323) 442-2746, meded@med.usc.edu

**11 a.m. – 1 p.m.** Psychiatry Grand Rounds. "Recent Clues From Environmental Risk Factor Research in Autism Spectrum Disorders," Heather Volk, USC. ZNI Room 112. Info: (323) 442-4965

**Tuesday, Jan. 21**

**Neon - 1 p.m.** Psychiatry Grand Rounds. "Recent Clues From Environmental Risk Factor Research in Autism Spectrum Disorders," Heather Volk, USC. ZNI Room 112. Info: (323) 442-4965

Thursday, Jan. 23

**3:30 p.m.** Orthopaedic Surgery Grand Rounds. "Primary Tumor in General Orthopaedic Practice," Win May, Tatum Korin, USC. Norris Medical Library West Conference Room. Info: (323) 442-2746, meded@med.usc.edu

**Monday, Jan. 27**

**3 - 5 p.m.** Southern California Clinical and Translational Science Institute: "Academic Advancement and Promotion," Judy Garvey, USC. Arcsey Auditorium. RSVP: cede@sc-ctsi.org

**Tuesday, Jan. 28**

**Neon - 1 p.m.** Faculty Development Seminar: "Promoting & Assisting Professionalism," Juli Nyquist, Stephanie Zia, USC. Norris Medical Library West Conference Room. Info: (323) 442-2746, meded@med.usc.edu

**Neon - 1 p.m.** Psychiatry Grand Rounds. "Acceptance and Change in Couple Therapy," Andreas Christensen, UCLA. ZNI Room 112. Info: (323) 442-4065

Wednesday, Jan. 29

**11:30 a.m. – 1 p.m.** Orthopaedic Surgery Grand Rounds. "Primary Tumor in General Orthopaedic Practice (The Accidental Surgeon)," Win May, Tatum Korin, USC. Norris Medical Library West Conference Room. Info: (323) 442-2746, meded@med.usc.edu

**Monday, Jan. 27**

**3 - 5 p.m.** Southern California Clinical and Translational Science Institute: "BIDCap Database Solutions Workshop: Research Electronic Data Capture," "BID Cap Data Solutions Workshop," Soto Building. Room 105. Register at https://redcap.sc-ctsi.org/surveys/x/3EY/THJ6n1Rf

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Notice: Deadline for calendar submission is 4 p.m.

Monday to be considered for that week’s issue—although three weeks’ advance notice of events is recommended. Please note that timely submission does not guarantee an item will be printed. Send calendar items to HSM News, KAM 400 or fax to (323) 442-2832, or email to hscwkly@usc.edu. Entries must include day, date, time, title of talk, first and last name of speaker, affiliation of speaker, location and a phone number for information.

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Stem cell image of the month: A good head start

This colorful series of mouse skulls reveals stem cells, labeled with the protein Gli1, in the sutures between the calvaria bones. Among other things, these stem cells support the postnatal turnover and injury repair of the calvaria bones. Hu Zhao, DDS, PhD, a research associate in the lab of Yang Ruffins, PhD, at ruffins@usc.edu by the last day of each month to enter.

Keck School alumni helps bring $1 million gift to Keck Medicine

By Amy E. Hamaker

The strength of a university can often be measured by the commitment of its alumni. Nowhere is that more apparent than at the Keck School of Medicine of USC, where alumnus Tony Alamo (“91, MD), recently helped bring a gift of $1 million to the school from a family friend.

At a lunch between Alamo, Keck School Dean Carmen A. Puliafito, MD, MBA, and Mike Ensign, retired chairman of the board of directors/CEO of Mandalay Resort Group, Alamo suggested a gift to benefit physicians, Keck Hospital of USC and Keck School students.

Alamo, founder and medical director of Alamo Medical Clinic in Henderson, Nev., was born and raised in Las Vegas alongside Ensign’s family. “They’re like my second set of parents,” he said. “My father worked with Mike all through his career for all but a few years, and I’d spend summers at his house.”

Alamo knew the Ensigns’ interest in philanthropy, and described the resources that are available to the community and to future physicians through research, education and clinical care at Keck Medicine of USC. “After he saw what was available at USC, he knew any gift here would keep on giving,” explained Alamo. “He’s a very philanthropic man.”

Alamo believes that USC alumni are the best ambassadors for Keck Medicine. “Once you make that connection, that handshake, they make the connection on their own — they see it,” he said. “The Ensigns could have given anywhere. I explained that USC is where they could get the most bang for their buck, where it would make the most difference. Through their hard work and good fortune, this is a way for them to be able to give back.”

In case of an emergency...

Call the Emergency Information Phone: (312) 740-3123 The emergency telephone system can handle 1,400 simultaneous calls. It also has a backup system on the East Coast.

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