HSC News

USC University of Southern California

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Keck Medicine of USC gets new COO

A Los Angeles-area health care executive with significant experience in health systems leadership has been appointed as the chief operating officer of Keck Medicine of USC.

Rod Hanners will also serve as CEO of Keck Hospital of USC and USC Norris Cancer Hospital, effective June 15. Hanners formerly served as SVP and COO for Children's Hospital Los Angeles.

Hanners will oversee operations for the three acute care facilities that are part of Keck Medicine of USC: Keck Hospital of USC, USC Norris Cancer Hospital and USC Verdugo Hills Hospital. Hanners will lead the system's growth in market share and volume.

"In order to reach our goal of becoming the region's leading academic medical center, it is imperative that we continue to develop our network throughout Southern California," explains Tom Jackiewicz, senior vice president and CEO, Keck Medicine of USC.

In addition to his tenure with Keck School of Medicine of USC-affiliated Children's Hospital Los Angeles, Hanners' experience includes serving as chief operating officer for Kaiser Permanente Hospital's Los Angeles Medical Center (LAMC), the largest Kaiser Permanente facility in Southern California.

"We have a faculty of world-class physicians. With the addition of Rod Hanners we are building a strong leadership team of the same caliber to allow our physicians to focus on pro-

See **HANNERS**, page 3

Walter Urie

Rod Hanners

Study finds all sugars are not equally desirable

By Les Dunseith

When it comes to sweeteners, one indulgence makes our brains predisposed to do it again, according to a new study by researchers at Keck Medicine of USC.

In a paper published in the *Proceedings of the National Academy of Sciences' Early Edition*, Kathleen Page, MD, assistant professor of Medicine at the Keck School of Medicine of USC, details the results of a study that sought to better understand how sugar affects brain reward pathways and the motivation to eat.

"The American diet is loaded with sugar," Page said. "Sugar is added to foods and drinks to make them taste better, and we often seek out sweet foods because they are pleasurable to eat."

In this study, researchers focused on how the brain and body respond to two types of sugar, glucose and fructose. Glucose, which is found in nearly all carbohydrate-containing foods, such as bread and fruit, fuels all of the cells in the human body, including the brain. Fructose is a simple sugar found in fruits and vegetables that is mainly metabolized in the liver. Foods with high levels of fructose include most soft drinks, honey and many salad dressings. Although tasty, foods with lots of fruc-

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Study participants were shown images of tasty foods such as pizza.

Kathleen Page, MD

USC completes its first paired kidney transplant

By Les Dunseith and Leslie Ridgeway

The USC abdominal transplant team completed its first paired kidney transplant on April 24, successfully transplanting a kidney obtained through an exchange with Johns Hopkins Hospital in Baltimore into a patient at Keck Medical Center of USC.

In a paired kidney exchange, also known as a "kidney swap," a living kidney donor who is incompatible with an intended recipient exchanges a kidney with another donor/recipient pair.

In this case, a kidney was removed from donor Raul Hernandez on the afternoon of April 23 and flown overnight to a patient at Johns Hopkins. The next morning, a kidney from the Hopkins donor was removed and flown to LAX, arriving in the late afternoon for transplant into Hernandez' wife, Claudia.

Both Los Angeles operations were performed by Sophoclis Alexopoulos, MD, assistant professor of clinical surgery and directory of kidney transplantation at Keck Medical Center. The process of arranging for the paired kidney exchange was overseen by Yasir Qazi, MD, medical director of the kidney-pancreas transplant program at Keck Medicine of USC.

According to Noriko Yamasaki, transplant coordinator, this was not the first successful live donor transplant involving the Hernandez family. Raul's cousin, Petra Hernandez, received a successful live donor liver transplant in March of this year from her daughter, Ana.

Raul Hernandez and his wife Claudia Sanchez-Hernandez have three children and currently live in Georgia. Claudia started dialysis in 2011 and underwent transplant evaluation at Keck Hospital of USC that year. At the time, Raul volunteered to be her kidney donor, but he was found to be incompatible.

Yamasaki said that Claudia and Raul were listed as willing participants in the paired

See **KIDNEY**, page 2

Medical response team aids Nepal earthquake victims

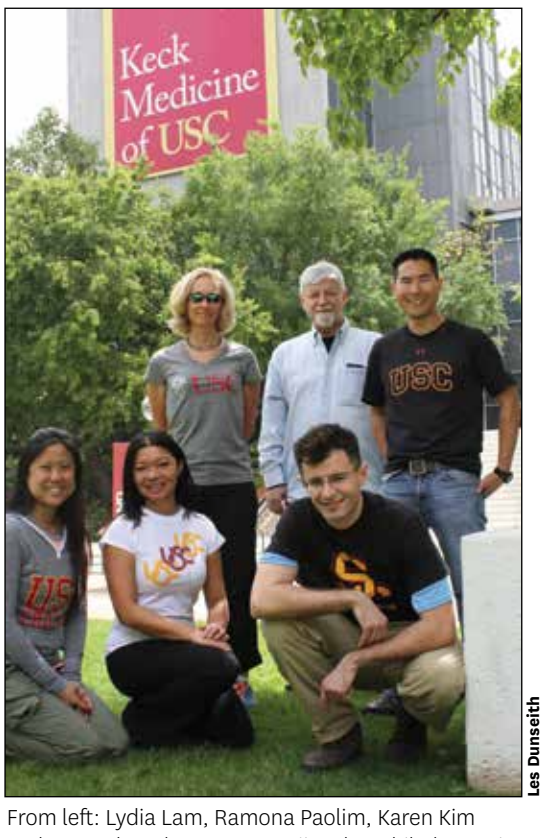
By Leslie Ridgeway

A six-person medical response team from the Keck School of Medicine of USC departed May 4 to deliver supplies and assist with critical care of victims of the catastrophic April 25 earthquake in Nepal.

The response was spearheaded by Keck School of Medicine Dean Carmen A. Puliafito, MD, MBA, and Demetrios Demetriades, MD, chief, division of trauma and surgical critical care, Department of Surgery, Keck School of Medicine, along with other members of the trauma and surgical critical care team. Both the Keck School of Medicine and LAC +USC Medical Center provided medical supplies.

All members of the Nepal team were part of a similar effort in 2010 after an earthquake in Haiti. The Nepal group includes two critical care/trauma surgeons, an emergency department physician, an anesthesiologist, a

See **NEPAL**, page 3



Les Dunseith

From left: Lydia Lam, Ramona Paolim, Karen Kim Embrey, Edward Newton, Kenji Inaba, Shihab Sugeir.

Radiology grant to fund lung cancer screenings in parts of L.A. County

By Douglas Morino

The Keck Medicine of USC Department of Radiology has been awarded a grant of more than half a million dollars to provide free lung cancer screening via low-dose CT scans for residents of some of the poorest communities in Los Angeles County.

The $503,560 in funding from the California Community Foundation will finance two years of low-dose CTs for people at high risk of lung cancer living in the Centinela Valley, which includes Inglewood, parts of Hawthorne, Lennox, Los Angeles, Watts, Compton and Lawndale.

Recent research indicates that residents in the Centinela Valley area tend to smoke and develop lung cancer at higher rates than in other Southern California communities.

"We are targeting a very high-risk population that happens to be faced with a lot of barriers to health care access," said Christopher

See **GRANT**, page 2

Natalie Cisneros

Christopher Lee, MD

GRANT: Funds for lung cancer screening

Continued from page 1

Lee, MD, associate professor of clinical radiology at the Keck School of Medicine of USC. "Lung cancer is the leading cause of cancer death for both men and women in this country, but it particularly afflicts those living within underserved communities. This is a great opportunity to be able to reach out to this population and educate them on the importance of early detection of lung cancer, as well as smoking cessation for the prevention of lung cancer. Hopefully, we can save some lives in the process."

The Department of Radiology has partnered with USC's Health Sciences Campus Community Partnerships Office and the USC Norris Comprehensive Cancer Center, as well as the Watts Health Foundation, to enroll residents for lung cancer screening.

As a part of the grant, starting in June, the Department of Radiology plans to screen about 400 Centinela Valley residents over the two years. To facilitate the screening process, transportation to and from Keck Medical Center of USC will be provided.

Residents will also have access to local smoking cessation resources. If an abnormality is detected on the low-dose CT, patients will be linked to appropriate follow-up and treatment resources.

"Our goal is to eliminate barriers as much as possible, especially financial barriers," Lee said. "It's really important to reach out to this population because they are the population at highest risk for developing lung cancer."

One of the largest randomized controlled clinical trials in National Cancer Institute history showed that low-dose CT screening could reduce lung cancer mortality rates by at least 20 percent, a significant improvement for a cancer that currently has a five-year overall survival rate of only 17 percent.

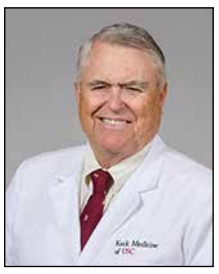
A CT scan is an imaging procedure that creates a series of detailed cross-sectional X-ray images of the lungs. A low-dose CT does not require intravenous contrast, takes less than five minutes to perform and is performed with about one-fifth of the radiation dose of a conventional CT scan.

The grant will allow the FDA-approved technology to be accessible to a large underserved population, said Zul Surani, executive director for community partnerships for USC's Health Sciences Campus.

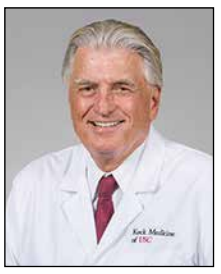
"How do you take technology that's proven effective and underutilized to people who need it the most? To me, that's a matter of justice," Surani said. "People who are uninsured and underserved are in need of this new screening modality, yet they don't have access to it. How do we bridge that gap? This grant will help us do exactly that."

The California Community Foundation is a public charity focused on philanthropy and civic engagement across L.A. County.

COMMUNITY ENGAGEMENT: Longtime community outreach services providers and stakeholders have been convened by HSC Community Partnerships in Civic Engagement at HSC to meet regularly and exchange ideas, discuss best practices and form collaborations. Represented are the USC School of Pharmacy, Keck Medicine of USC, USC Norris Comprehensive Cancer Center, USC Civic Engagement and the Division of Biokinesiology and Physical Therapy. From left are Kukla Vera, Cheryl Resnick, Isabel Duenas, Executive Director Zul Surani, Melisa Acoba, Elena Nieves and Lourdes Ortega.



John R. Hubanks



Milan J. Demeter

George B. Stoneman

Demeter Otolaryngology Practice joins with Keck Medicine of USC

By Meg Aldrich

Keck Medicine of USC is joining with the Demeter, Hubanks and Stoneman Otolaryngology Practice to form USC Otolaryngology Associates in the communities of La Cañada Flintridge and Glendale.

As part of the USC Department of Otolaryngology-Head & Neck Surgery, the practice becomes part of a world-class team that offers medical and surgical care to patients with disorders of the ear, nose, throat and related structures of the head and neck.

The Glendale practice was founded by John R. Hubanks, MD, in 1971. Milan J. Demeter, MD, joined in 1979 and currently serves as chief physician. George B. Stoneman, MD, joined in 2010. Now, all three esteemed physicians will be part of Keck Medicine of USC's medical group, allowing the local practice to expand services at its existing locations in both communities.

One of the Keck Medicine of USC physicians and audiologists who will help deliver patient care is Karla O'Dell, MD, a laryngologist specializing in voice, airway and swallowing disorders. She will perform office-based laryngeal procedures such as vocal cord injections, Botox injections and laser procedures at both locations.

Karla O'Dell

"Keck Medicine of USC is becoming the practice of choice for physicians in Southern California who want to align their practices with the research and clinical expertise that a leading university-based medical center offers," says Amar A. Desai, MD, MPH and CEO of USC Care and Ambulatory Services, part of Keck Medicine of USC. "We partner with working physicians who are already well-established in their communities and work collaboratively with these excellent physician practices to make advanced care more accessible within their communities."

In 2014, the Department of Otolaryngology – Head & Neck Surgery at the Keck School of Medicine of USC was No. 10 in funding from the National Institutes of Health, surpassing the likes of Harvard University and New York University.

"My colleagues and I are thrilled to join forces with USC because it means our patients have access to the most advanced care and cutting-edge procedures," Demeter said. "Everything we do is about enhancing the care we're able to give our patients, and this partnership is a big advantage for those we serve."

Calendar of Events

Saturday, May 9

8 a.m. – 4 p.m. The Office of CME & the Department of Medicine: Division of Endocrinology, Neurology & Neurosurgery Continuing Medical Education. "Annual Southern California Pituitary Symposium," Course Directors: John David Carmichael, MD, and Gabriel Zada, MD, Aresty Auditorium. Info: Teresa Ball, (323) 244-2555, usccme@med.usc.edu

Monday, May 11

10:30 a.m. Zilkha Neurogenetic Institute Seminar. "Subdiffusive Encounter of Membrane Receptors: A Functional Role for Plasma Membrane Hetereogeneity," Edward Lyman, PhD, University of Delaware. Eli and Edythe Broad CIRM Center Auditorium. Info: Julie Carl, (323) 442-3219, jcarl@usc.edu

Tuesday, May 12

5:30 p.m. Ophthalmology Continuing Medical Education. Grace Shih, MD, USC. HC4, Conference Room, 3rd Floor. Info: Tyaisha Christopher, (323) 409-5233, Tyaisha.Christopher@med.usc.edu

Wednesday, May 13

Noon. The Saban Research Institute Seminar. "Research Seminar: HIV and the Human Microbiome," Jeffrey M. Bender, MD, USC. Auditorium, Saban Building. Info: Harleen Gill, (323) 361-8626, hgill@chla.usc.edu, http://CHLA.org/TECPAD

Noon. Zilkha Neurogenetic Institute Seminar. "Synapses, Brain Disorders and Muscular Dystrophy," Lin Mei, PhD, Georgia Regents University. Herklotz Seminar Room, ZNI 112. Info: Julie Carl, (323) 442-3219, jcarl@usc.edu

Thursday, May 14

1:30 p.m. Keck Medicine of USC Stroke Support Group Meeting. "Recognizing Stroke Risk Factors," Nerses Sanossian, MD, USC. Keck Hospital, 3 North, Day Room (3261A). Info: Ozzy Obiwuru, (323) 442-0049, obiwuru@med.usc.edu

6 p.m. Orthopaedic Surgery Grand Rounds. "Amputation Surgery: Operative Principles and Future Directions." Benjamin Kyle Potter, MD, Walter Reed National Military Medical Center. Aresty Auditorium. Info: RSVP: Sylvia Suarez (323) 226-7204 sylsua@usc.edu

Sunday, May 17

8 a.m. USC Stem Cell. "USC UCSF UCLA Tri-institutional Stem Cell Retreat," The Fess Parker: A Doubletree Hilton Resort, Santa Barbara, CA. Info: Francesca Mariani, (323) 442-7855, fmariani@med.usc.edu, http://stemcell.usc.edu/tri-retreat

Monday, May 18

10 a.m. – 8 p.m. USC Verdugo Hills Hospital Foundation and Keck Medical Center of USC. "Golf Classic 2015 – 24th Annual Golf Tournament," Oakmont Country Club. Info and RSVP: Deb Jordan, (818) 952-3553, deb.jordan@vhh.usc.edu, http://www.uscvhh.org/Golf-Classic-2015

Noon. KSOM Research Seminar Series Seminar. "Hepatitis C Virus and Host Cell Interactions," J-H James Ou, PhD, USC. Aresty Auditorium. Info: Mary Jane Chua, (323) 442-7732 maryjane.chua@med.usc.edu

Tuesday, May, 19

Noon. Diabetes and Obesity Research Institute Seminar. "Special Trainee Presentations," Travis Eurick, Eldin Dzubur, Bharti Bisht & Timothy Moore, USC. Harkness Auditorium. Info: Christina Ayala, (323) 442-2500, Institute@usc.edu, http://dori.usc.edu.

Notice: Calendar items are due at least 10 days before publication date. Timely submission does not guarantee publication in print. See more calendar entries at *hscnews.usc.edu/calendar-of-events*. Submit items at *tinyurl.com/calendar-hsc*. Include day, date, time, title of talk, first and last name of speaker, affiliation of speaker, location and a phone number/email address.

KIDNEY: Paired surgery success

Continued from page 1

kidney donation database in July 2014.

"It's great that Raul was able to help someone else, who in turn could help his wife to receive a kidney," she said. "That's what is so wonderful about this paired kidney exchange program, and Keck Medicine of USC is proud to be a part of it."

The paired kidney exchange is becoming increasingly common when a donor's kidney is incompatible with a relative or friend who needs one. Instead of waiting for a stranger to donate or doctors to recover a kidney from a deceased body, recipients and donors in the database that seeks to pair them with people in the same situation who appear to match based on blood type and genetic characteristics.

More than 80,000 people are on the kidney transplant waiting list. Each year, about 4,500 people die waiting for a kidney.

Stem cell expert finds atypical partners for ALS research

By Cristy Lytal

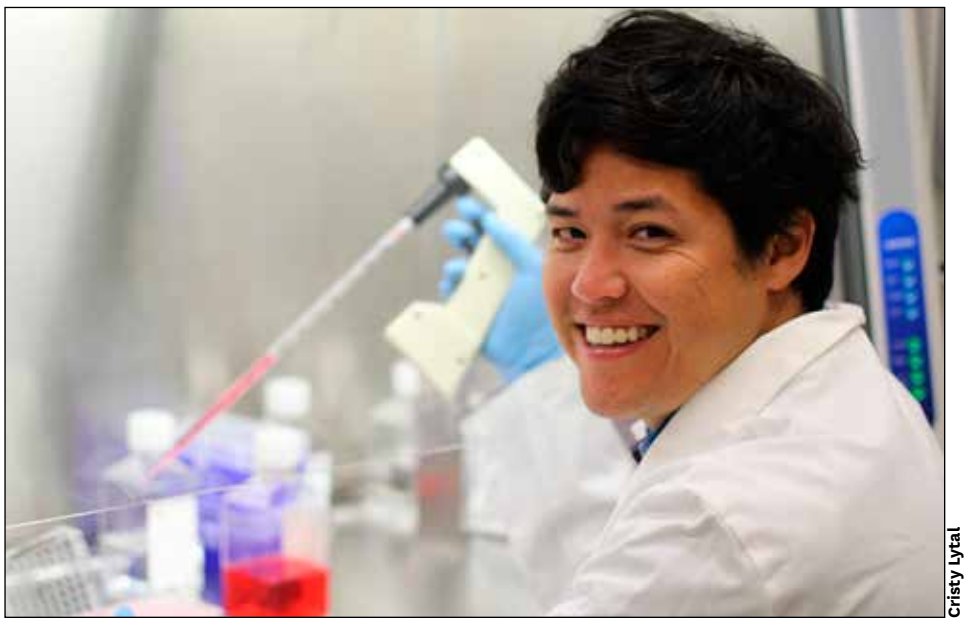
USC Stem Cell researcher Justin Ichida, PhD, is forming partnerships between academia, industry and government to accelerate the development of new treatments for patients with ALS, or Lou Gehrig's disease.

Ichida's work will marshal the expertise of pharmaceutical company Sanofi and a startup company, DRVision Technologies, along with $1.5 million in federal funding, in his effort to find new drugs to fight amyotrophic lateral sclerosis (ALS).

The source of the three-year grant is unusual — the U.S. Department of Defense. Because military veterans are more likely than civilians to suffer from this fatal disease for reasons that are not yet understood, the Defense Department funds two ALS Therapeutic Development Awards each year.

"The awards are intended to either identify a new drug target or candidate for ALS, or to take an existing one further into the clinic," said Ichida, an assistant professor in the Department of Stem Cell Biology and Regenerative Medicine and the director of the Choi Family Therapeutic Screening Facility at the Keck School of Medicine of USC.

Ichida has pioneered a way to prescreen drug-like compounds in the laboratory on cells from patients with the most common form of ALS. To accomplish this, Ichida directly reprograms patients' skin cells into motor neurons, which exhibit the disease's signature degeneration. He then puts these reprogrammed motor neurons into a robotic screening machine, which exposes them to drug-like compounds and captures microscopic movies of the results. In his pilot screening of 800 compounds, he found four that kept these motor neurons alive in Petri dishes — and eventually might do the same in patients.



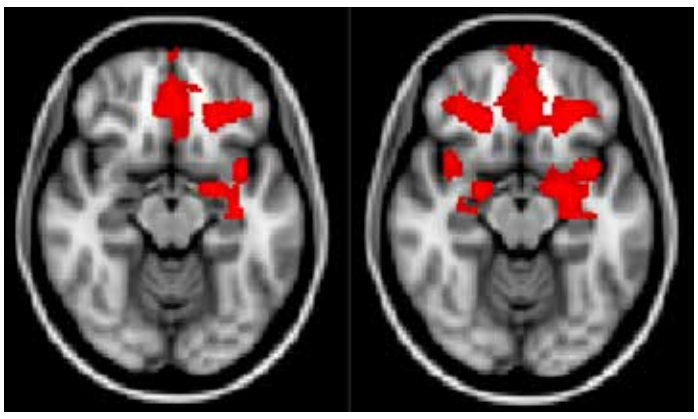
Cristy Lytal

Researcher Justin Ichida is seeking to identify a new drug target to benefit ALS patients.

With the new grant, Ichida will scale up efforts starting in September 2015, screening 2,000 FDA-approved drugs in his laboratory. Sanofi will screen an additional 40,000 drug-like compounds.

The other industry partner, DRVision Technologies, is designing software to analyze the resulting microscopic images for signs of improved motor neuron survival. If the funded study reveals viable hits, chemists at Sanofi may develop these compounds into safe, effective drugs to test in a human clinical trial.

Sanofi officials were introduced to Ichida's research by USC Stem Cell Program Director Qing Liu, PhD, who is managing the project. Ichida said the partnership is one of the first examples of taking a patient-specific disease model from stem cells and using it to discover drugs at a pharmaceutical scale.



Researchers found more activity in areas of the brain associated with rewards from fructose, right, than from glucose, left.

SUGAR: Fructose prompts strong hunger response, research shows

Continued from page 1

tose are often unhealthy.

"Fructose fails to stimulate hormones, like insulin, that are important in helping us feel full," Page noted.

When study participants consumed fructose compared to glucose, it led to greater activity in brain reward areas, greater ratings of hunger and more desire for food. This tendency played out the same even when participants were offered a monetary incentive not to indulge their sweet tooth.

"We gave the volunteers choices between being served tasty food immediately after the study or having money sent to them one month later," Page explained. "When the study participants consumed fructose, they had a greater willingness to give up the money to obtain immediate high-calorie foods, compared to when they consumed glucose."

The research is based on 24 healthy young men and women who came in for brain scans in the mid-morning before they ate breakfast. On one occasion, they consumed a drink sweetened with fructose; on another day, they consumed a drink sweetened with glucose. Researchers sampled blood for hormones that help control appetite and performed brain scans while the volunteers looked at pictures of tasty foods (like pizza) or objects (like a lamp) and rated their hunger and desire for food. "This allowed us to see how consuming fructose compared to glucose affected brain, hormone and hunger responses," Page explained.

The results suggest that consuming fructose relative to glucose activates brain reward regions and may promote feeding behavior.

So, what should people do first if they want to reduce their fructose intake as part of controlling their diet and living a healthier life?

"The best way to reduce fructose intake is to decrease the consumption of added sugar sweeteners, which are the main source of fructose in the American diet," Page said.

HANNERS: New COO starts June 15

Continued from page 1

viding the absolute best care to our patients," Jackiewicz said. "Rod has an impressive background in improving quality, managing costs, and leveraging resources in a complex health care environment."

Jackiewicz, to whom Hanners will report, continued: "Having worked at two of the largest medical centers in California, he understands the unique challenges we face in the rapidly changing health care landscape and has demonstrated the ability to develop successful strategies and processes for optimal growth and stability."

At CHLA, Hanners is the senior administrative officer in charge of 10 departments, including radiology, patient care services, information services and human resources. At Kaiser, Hanners was responsible for hospital operations and support services across the LAMC campus and medical office buildings.

Hanners will work to establish strong and effective working relationships with key constituents across the USC enterprise, including department chairs, faculty and medical staff members, as well as leadership at the hospital and system level. He will also engage stakeholders in the communities served by Keck Medicine of USC.

Preceding his health care career, Hanners served in the United States Navy as a nuclear engineer and submarine training instructor. He holds a bachelor's degree in electrical engineering from California State University, Long Beach and a master's-equivalent in nuclear engineering from the Naval Nuclear Power School in Orlando, FL.

NEPAL: Medical response team joins quake effort

Continued from page 1

nurse anesthetist and a registered nurse. The team will be in Nepal for nine days.

Members of the medical response team are Lydia Lam, MD, trauma surgeon and assistant professor, Department of Surgery; Ramona Paolim, registered nurse, LAC+USC Medical Center; Karen Kim Embrey, CRNA, assistant professor, Department of Anesthesiology; Edward Newton, MD, interim chief and professor, Department of Emergency Medicine; team leader Kenji Inaba, MD, trauma surgeon and associate professor, Department of Surgery; and Shihab Sugeir, M.D., assistant professor, Department of Anesthesiology.

Les Dunseith

Shihab Sugeir, MD, of the USC team makes a final check of bags filled with medical supplies headed to Nepal.

Steve Cohn

Medical School commencements

Wednesday, May 13

MS, PhD & MPH — Medicine
4 p.m. at the Harry and Celeste Pappas Quad, Health Sciences Campus. Approximately one hour. A reception will immediately follow at the same location. Tickets are required. Info: (323) 442-1607.

Speaker: Keith R. Yamamoto, PhD, vice chancellor for research and executive vice dean of the School of Medicine of UC San Francisco.

Friday, May 15

Occupational Science and Occupational Therapy
11 a.m. at Leavey Library, west lawn, University Park Campus. Tickets not required. Info: (323) 442-2811.

Speaker: Wenchun Qu, MD, PhD, assistant professor of physical medicine and rehabilitation at Mayo College of Medicine.

Physician Assistant Program
10:45 a.m. at Allan Hancock Foundation Building, southwest lawn, University Park Campus. A reception will follow at the same location. Tickets not required. Info: (626) 457-4263.

Biokinesiology and Physical Therapy
11 a.m. at Bovard Auditorium, University Park Campus. Tickets not required.
Info: (323) 442-1193.

Speaker: Anthony Carbajal, unofficial advocate for ALS research..

Dentistry
11 a.m. at McAlister Field, University Park Campus. Tickets not required.
Info: (213) 740-2841.

Speaker: Michael Meru, DDS, MS, orthodonist.

Health Promotion and Global Health Programs
11 a.m. at Town and Gown, University Park Campus. A reception will follow at the same location. Tickets are required. Info: (213) 821-1601.

Speaker: Paul Gregerson, MD, MBA, chief medical officer at JWHC Institute.

School of Pharmacy
3 p.m. at the Harry and Celeste Pappas Quad, Health Sciences Campus. A reception will follow at 5 p.m. Tickets required. Info: (323) 442-1383.

Speaker: Sean Astin, actor and mental health advocate.

Saturday, May 16

MD/PhD, MD — Medicine
3 p.m. at the Galen Center, University Park Campus. Doors open at 2 p.m. A reception will follow at 5 p.m. on the McCarthy Quad at the University Park Campus. Tickets are not required. Info: (323) 442-2420.

Speaker: Charles Gibson, broadcast journalist

HSC Newsmakers

A roundup of news items related to Keck Medicine of USC, which may include philanthropic donations, research grants, publication in academic journals and mentions in the news media:

New fellowship program to train leaders in hospital medicine

Apollo Medical Holdings, a physician-centric health care company, and the Internal Medicine Residency Program at the Keck School of Medicine of USC will launch an intensive one-year hospitalists training and educational program. The USC Hospitalist Leadership Fellowship Program at ApolloMed is designed to provide internal medicine graduates with experience in all aspects of medicine in a hospital setting. Hospitalists are responsible primarily for patients admitted through a clinic or the emergency department. "This is a unique opportunity for anyone interested in the future of hospital medicine," said Michael Karp, MD, the interim chief of geriatrics, hospital, palliative and general internal medicine at Keck Medicine of USC. "This fellowship not only allows for medical training at an outstanding institution, but it is crafted in a way that allows our fellows to learn key concepts regarding the delivery of health care, including quality, safety, cost-effectiveness and resource management. This will likely become a model that others will follow in order to prepare the future leaders in the field of hospital medicine."

County supervisor speaks at Master of Public Health symposium

Ridley Thomas

Mark Ridley Thomas, a Los Angeles County Supervisor, was the keynote speaker April 30 when the Master of Public Health Program at the Keck School of Medicine of USC hosted is 3rd annual Cooperative Health Policy Symposium. The event explores the path to political consensus regarding health topics. In addition to the presentation by Ridley Thomas, public health policy students presented a series of short talks on current issues. Topics included immigration, reproductive health and domestic violence, gun violence, mental health and substance abuse, environmental health, childhood obesity and more.

Robert Lurye

Medical student Doug Matsunaga works at the USC Eye Institute.

Dean's Scholar gets a first-hand look into ophthalmology career

For many medical students, four years of study go by in a blur of lectures, labs and clinical care. But at Keck School of Medicine of USC, students like Doug Matsunaga have a whole year or more to pursue their dreams of scientific discovery in the Dean's Research Scholars Program. Matsunaga is working in the lab of Dean Carmen A. Puliafito, MD, MBA, and Amir H. Kashani, MD, PhD, at the USC Eye Institute. He is studying the clinical application of optical coherence tomography angiography (OCTA), a cutting-edge imaging technique that enables physicians to non-invasively observe retinal vasculature. Working on OCTA with Dean Puliafito — one of the founders of optical coherence tomography — has been a rare and rewarding privilege," said Matsunaga. "I'm grateful for the opportunity to be immersed in both the clinical applications of retinal imaging technology, as well as the academic side of developing medical technology." Born in Long Beach, Matsunaga grew up in West LA and attended Santa Monica High School. Matsunaga studied molecular and cell biology with a focus on infectious disease at UC Berkeley. He chose the Keck School because of its exceptional clinical opportunities, including work at Los Angeles County + USC Medical Center. Matsunaga sees ophthalmology as the best fit for his passion and skills. "The list of things that attracted me to ophthalmology was long, and ranged from its mix of medicine and surgery to its ability to offer patients remarkable improvements to an essential part of their quality of life," he said. "But, most of all, I chose ophthalmology because it is a field of medicine in which you build long-term relationships with patients." — **Sharon Brock**

Genetic link found in noise-induced hearing loss

By Alison Trinidad

In a new genome-wide association study, an international team led by Keck Medicine of USC neuroscientists has found evidence that some people may be more genetically susceptible to noise-induced hearing loss than others.

Noise-induced hearing loss is one of the most common work-related illnesses in the United States, according to the National Institute for Occupational Safety and Health. At especially high risk are troops in the Armed Forces. In 2013, the Department of Veterans Affairs reported hearing loss as one of the most common disabilities among veterans receiving disability compensation.

Those at higher genetic risk for hearing loss may decide to take additional precautionary measures to protect their hearing prior to hazardous noise exposure, study authors say.

"Understanding the biological processes that affect susceptibility to hearing loss due to loud noise exposure is an important factor in reducing the risk," said otologist Rick A. Friedman, MD, PhD. professor of otolaryngology and neurosurgery at the Keck School of Medicine of USC and senior author of the study. "We have made great advances in hearing restoration, but nothing can compare to protecting the hearing you have and preventing hearing loss in the first place."

Don Milici

Rick A. Friedman

The study, "Genome-wide association study identifies Nox3 as a critical gene for susceptibility to noise-induced hearing loss," appears in the April 16 edition of *PLOS Genetics*.

Although some gene association studies on noise-induced hearing loss in people have been conducted in the past, all were very small and their results unreplicated. Genome-wide association studies, or GWAS, search the entire genome for common genetic variants to see if any of those variants are associated with a trait. Mouse GWAS have led to the discovery of hundreds of genes involved in complex traits that have immediate relevance to people.

In the USC study, conducted at the Zilkha Neurogenetic Institute, Friedman's team identified the Nox3 gene, which is almost exclusively expressed in the inner ear, as a key gene for susceptibility to noise-induced hearing loss. Using 64 of the 100 strains of mice in the Hybrid Mouse Diversity Panel, the team was able to increase the statistical power of its investigation, leading to the first published GWAS for noise-induced hearing loss in mice.

The study was conducted in collaboration with Brazil's Federal University of Rio Grande do Sul and UCLA. Other Keck School of Medicine of USC authors include Joel Lavinsky, Amanda L. Crow, Juemei Wang, Ksenia A. Aaron, Maria K. Ho, Qingzhong Li, Pehzman Salehide, Anthon Myint and Maya Monges-Hernadez. The study was supported in part by the National Institutes of Health, California Institute for Regenerative Medicine and Coordenação de Aperfeiçoamento de Pessoal de Nível Superior.

One step closer to natural tooth restorations

By John Hobbs

A rodent's incisors never stop growing.

It's one of the reasons that mice gnaw through cupboards, hamsters chomp mindlessly on metal cage bars, and rats will chew through, well, just about anything. They need to wear down those ever-growing incisors, which, if left unchecked, could grow so long that the animal might starve.

As unappealing as it all might sound, a rodent's dental anatomy gives researchers powerful insight into how to regenerate human teeth, which could change the way dental restorations — crowns, bridges and "fillings" — are handled in the dental office.

In an article published in the May 2015 issue of *Development Cell,* USC researchers studied the biological mechanisms underlying the continuously growing rodent incisor. In the study, the research team — led by Yang Chai, DDS, PhD, associate dean of research, holder of the George and Mary Lou Boone Chair in Craniofacial Molecular Biology at the Herman Ostrow School of Dentistry of USC and director of the Center for Craniofacial Molecular Biology — compared the cells that become mouse incisors with those that become molars, which, as in humans, stop developing after crown formation.

"The major idea of the paper focused on how incisors and molars start with similar developmental processes but differ in tissue homeostasis due to the differing fates of their dental epithelial stem cells," said Weston Grimes, one of two dental students involved in the study. The other student was Hoang Anh Ho.

It's these different stem cell fates that leave incisors with a bustling population of epithelial and mesenchymal stem cells to keep them growing throughout life while the stem-cell population of molars lies dormant, the article explained.

"If we can someday use this knowledge to reactivate those stem cells, then we could regrow part of the root," Chai said.

The discovery means that, in time, a dentist might one day reach for a living tooth regenerated in a lab to replace a broken tooth instead of amalgam or porcelain, Chai explained.

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