HSC News

USC University of Southern California

JUNE 9 • 2017 PUBLISHED FOR THE USC HEALTH SCIENCES CAMPUS COMMUNITY VOLUME 4 • NUMBER 11

Steve Cohn

USC President C. L. Max Nikias, left and Robert Day celebrate the naming of the Willametta Keck Day Healthcare Center on the Health Sciences Campus.

W. M. Keck Foundation names health care center at USC

Generous support expands on prior $150 million gift for Keck Medicine of USC

By Alicia Di Rado

The W. M. Keck Foundation is giving $10 million to support a USC Health Sciences Campus facility critical to advanced patient care, expanding upon the foundation's longstanding and transformative support to the university.

This generous gift names the Willametta Keck Day Healthcare Center, one of USC's largest outpatient facilities, which houses Keck Medicine of USC outpatient services that cover almost all medical disciplines, from primary care to surgical specialties.

"We've seen impressive progress from USC in becoming a major medical center in Southern California."

— Robert Day

With the gift, the foundation adds to the $150 million it provided in 2011 to launch the Keck Medicine Initiative — part of the Campaign for USC — and to advance USC's innovative medical research and education.

Reaching back to 1999, when it named the Keck School of Medicine of USC through a $110 million gift, the W. M. Keck Foundation and its president have dramatically accelerated the progress of USC's medical enterprise. The Los Angeles-based foundation and its chairman and CEO Robert A. Day have remained stalwart supporters of the university.

The foundation's gift honors one of the foundation's founders, Willametta Keck Day, who died in 1985. She was the daughter of William Myron Keck and Alice B. Cominski Keck. William Myron Keck founded the Superior Oil Co. in 1921 and created the W. M. Keck Foundation three decades later. One of the nation's largest philanthropic organizations, the foundation supports outstanding science, engineering and medical research and undergraduate education.

Willametta Keck Day's name now graces

See **NAMING GIFT,** page 3

Hope, health on display at Festival of Life celebration

Ricardo Carrasco III

The Trojan Marching Band opens the 27th Annual Festival of Life at HSC.

Hundreds of cancer survivors, caregivers, friends and family members gathered June 3 for the 27th Annual Festival of Life, a yearly celebration of health and hope at the USC Norris Comprehensive Cancer Center, and held on the Health Sciences Campus.

The event, led by Art Ulene, MD, USC Norris Ambassador, included remarks by physician speaker Gino In, MD, assistant professor of clinical medicine at

See **FESTIVAL OF LIFE,** page 2

Henri Ford elected to lead APSA, join Royal College of Surgeons

Henri Ford, MD, MHA, Keck School of Medicine of USC professor of surgery and vice dean for medical education, earned further accolades in an already storied career earlier this year when he was elected president of the American Pediatric Surgical Association (APSA) and was awarded one of the most prestigious international awards for a surgeon — an Honorary Fellowship to the Royal College of Surgeons of England (RCSEng), the organization's highest honor.

Ford, who also serves as the vice president and surgeon-in-chief at Children's Hospital Los Angeles, will be the 48th elected president of APSA, and his term will run through May 2018.

"It is a great honor to have been elected to this position," he said. "I look forward to executing APSA's new strategic plans, as we seek to improve

See **FORD,** page 3

Courtesy Business Wire

Henri Ford, center, shakes hands with Su-Anna Boddy, council member for the Royal College of Surgeons of England.

Study finds rapid CPR improves neurological outcome

By Erica Rheinschild

The decision to begin CPR or wait for paramedics to arrive could mean the difference between a favorable neurological recovery or a coma, brain death or even death for a drowning victim in cardiac arrest, according to a new study led by Joshua Tobin, MD, associate professor of clinical anesthesiology at the Keck School of Medicine of USC, published in the June 2017 issue of *Resuscitation*.

"We found that when bystanders begin CPR before emergency personnel arrive, the person has a higher chance of leaving the hospital and leading a life reasonably close to the one they had before the drowning," Tobin explained.

The World Health Organization lists drowning as the third-leading cause of accidental injury death worldwide, and drowning claims the lives of about 10 people every day in the United States, according to the Centers for Disease Control and Prevention.

Tobin, who is a member of the American Red Cross Scientific Advisory Council, collaborated with other members to identify more than 900 children and adults who had experienced cardiac arrest after drowning and then determine what factors influenced positive and negative outcomes for these patients.

"When we talk about cardiac arrest, there's no doubt that we want people to survive. But surviving and being in a persistent vegetative state would not be considered a success by most people. That's why we chose to stratify the results by favorable or unfavorable neurological outcomes," Tobin said.

A favorable outcome was defined as good cerebral performance or moderate cerebral disability at hospital discharge, and an unfavorable neurological outcome was defined as coma or vegetative state, brain death or death.

The results showed that drowning victims in cardiac arrest were three times more likely to have a favorable

See **CPR,** page 5

In Memoriam: David Goldstein, 71

David Aaron Goldstein, MD, associate professor of clinical medicine at the Keck School of Medicine of USC, vice chair for clinical affairs, and former chief of the division of geriatric, hospital, palliative and general internal medicine (GHPGIM) at Keck Medicine of USC, died at his home on May 22.

Goldstein served as vice chair of clinical affairs and director of primary care for Keck Medicine of USC, and as chair of the Clinical Practice Committee of the USC Care Medical Group from 2008 to 2010. During his 26-year tenure as chief, Goldstein oversaw the division of internal medicine's expansion to eventually include geriatrics, hospital medicine and palliative care and was instrumental in bringing hospital medicine and palliative care programs to Keck Medical Center and Los Angeles County + USC Medical Center (LAC+USC).

"Dr. Goldstein will always be remembered for his many years of dedicated service," said Edward Crandall, PhD, MD, chair of the Department of Medicine, who holds the Kenneth T. Norris, Jr. Chair in Medicine and the Hastings Foundation Professorship in Medicine at the Keck School. "We turned to him for help with our most difficult projects: managing people, developing strategic plans for growth, and serving the department's tripartite mission of optimal teaching/training, outstanding research, and excellent clinical care. He took on all assignments with a sense of joy and commitment. He was always right there by my side, for which I will be forever grateful."

"I will always remember David as a mentor and friend," said Michael Karp, MD, assistant professor of clinical medicine and chief of the division of geriatric, hospital, palliative and general internal medicine. "He not only taught me how to be a better physician, but also how to be a leader, teacher, and friend. He was the most important influence on my professional career and I will miss his counsel and wisdom deeply."

Goldstein was a thought leader in medical ethics, and served as co-director of the Pacific Center for Health Policy and Ethics, as coordinator of the HEAL (Humanities, Economics and Law) curriculum for the Keck School and as co-chair of the Bioethics Committee of Keck Medical Center. He also sat on several ethics, quality and review committees at Keck Medical Center and LAC+USC.

He was also considered an expert in medical education, having served the Keck School of Medicine as director of undergraduate medical education (1982-1986), as chair of the medical education and curriculum committee (1982 to 1989), and associate dean for curriculum (1984 to 1989).

With support from Norbert Gehr, a grateful patient, Goldstein recently established the USC Gehr Family Center for Implementation Science, designed to support innovation in health care research. Goldstein also held the Flores Family Chair in Health Services Research, established to support treatment, education and health services research in his division.


Ricardo Carrasco III

David A. Goldstein

In addition to his demanding schedule of clinical and administrative duties, Goldstein authored two novels, *The Physician's Tale* and *The Lonely Tiger*. He is survived by his wife Brooke, son Dylan, and daughter Zoe.

FESTIVAL OF LIFE: Survivors celebrate

Continued from page 1

the Keck School of Medicine of USC.

Speakers also included patient survivors Joe Vega, a 10-year survivor of colon cancer who sits on the USC Cancer Survivorship Advisory Council and attended the event with his husband David Martinez, and Judy Stark, a 16-year melanoma survivor who has volunteered at USC Norris for the last 12 years.

"This wonderful event wouldn't be possible without the help and support of more than a hundred staff members volunteers," explained Alicia Syers, director of volunteer services at USC Norris who served as the principal organizer of the event.

The Festival of Life traditionally is held the day before National Cancer Survivors Day, which is the first Sunday in June.


Ricardo Carrasco III

Traveller visits with celebrants at the 27th Annual Festival of Life event.

Calendar of Events

Friday, June 9

8:30 a.m. Hastings Center for Pulmonary Research Seminar. "Regulation of Lung Stem Cells in Development and Disease," Marie-Liesse Asselin-Labat, PhD, University of California, San Diego. IRD 734. Info: Elva Rubio, (323) 409-7184, elvarubi@usc.edu

Noon. Cardiovascular Medicine Grand Rounds. "3rd Annual L. Julian Haywood, MD Visiting Professorship: Hypertension Management – 2017: What We Know. What We Need To Learn," Jackson T. Wright Jr., MD, Case Western Reserve University. McKibben Lecture Hall 249. Info: Brenda Beltran, (323) 442-5917, bbeltran@usc.edu, http://keck.usc.edu/cardiovascular-medicine-division/

Wednesday, June 14

Noon. The Saban Research Institute Seminar. "Advanced Applications of NIRS in Neonatal Asphyxia," Lina Chalak, MD, University of Texas Southwestern Medical Center. Saban Research Building Auditorium, 4661 Sunset Blvd. Info: Sandy Wang, (323) 361-7489, tecpad@chla.usc.edu, http://chla.org/tecpad

Thursday, July 13-Friday, July 14

6:15 a.m.-4:30 p.m. The Division of Acute Care Surgery, Institute of Continuing Education for Nurses, Department of Nursing, LAC + USC Medical Center. "24th Annual USC National Trauma, Emergency Surgery and Surgical Critical Care Symposium." Langham Huntington Resort and Spa. Info: Chelsea Michel, (323) 442-2555, https://cmetracker.net/KECKUSC/Catalog

Saturday, July 15

7 a.m. Ophthalmology Continuing Medical Education. "3rd Annual Frontiers of OCT." Langham Huntington Resort and Spa. Info: Chelsea Michel, (323) 442-2555, usccme@usc.edu, https://cmetracker.net/KECKUSC/Catalog

Wednesday, Aug. 9-Friday, Aug. 11

Noon. Division of Pain Medicine, Department of Anesthesiology, Keck School of Medicine of USC, Keck Medical Center of USC, Division of Nursing Education and USC Office of Continuing Medical Education. "8th Annual Pain Management Symposium: From Evidence to Clinical Practice." Hilton Universal City Hotel. Info: Lysandro Valenzuela, (323) 442-2555, usccme@usc.edu, https://cmetracker.net/KECKUSC/Catalog

Thursday, Sept. 7

7 a.m.-4:30 p.m. Division of Vascular Surgery and Endovascular Therapy & USC Office of Continuing Medical Education. "21st Annual Max R. Gaspar, MD Symposium: Vascular Surgery Emergencies." 506 S. Grand Ave., Los Angeles. Info: Lysandro Valenzuela, (323) 442-2555, usccme@usc.edu, https://cmetracker.net/KECKUSC/Catalog

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.

Nurse honored for exceptional patient care

By Douglas Morino

Ensuring each patient receives compassionate, personalized care is core to Linda Dankwa's mission as a nurse.

Whether it's anticipating needs during her night shift or staying in touch with patients and their loved ones long after their stay at Keck Hospital of USC, Dankwa works hard to create a positive hospital experience for each patient.

"I've always had the belief that our patients are our primary focus," she said. "The patient experience has always been part of who I am."

Dankwa, who has 30 years' experience in the field, is a nurse at 7 South ICU. She was selected as the nurse winner of the 2017 USC Choi Family Awards for Excellence in Patient-Centered Care. The prestigious awards honor exceptional physicians, nurses and staff who hold an unwavering commitment to compassionate patient care.

"Linda has distinguished herself as an exemplary charge nurse, a strong patient advocate and a great team player," said Rod Hanners, COO, Keck Medicine of USC and CEO, Keck Medical Center of USC. "She is well regarded by the neurologists, her colleagues and most importantly, our patients and their families."

Dankwa was nominated for the award by her physician and nurse colleagues. She serves as a mentor to other Keck Hospital nurses, is a member of the Keck Service Culture Ambassadors and believes small gestures of kindness and compassion can have a positive, lasting impact on patients. She encourages colleagues to celebrate patients' birthdays with a card and a gift from the patient experience department.

She initially wanted to be a pharmacist, but chose nursing to be closer to front-line patient care.

"I wanted to have an impact on family members when life-and-death decisions need to made," Dankwa said. "When anxiety is high and it's stressful, it's nice to have someone with you that you have confidence in and feel a connection with, someone that you think will help you pull through. I think I have that innate in me."

Some of Dankwa's inspiration for patient care has come from her own vacation visits to hotels around the globe. "When I visit a hotel, my service doesn't get interrupted and my needs are met, no matter the time of day or night," she said. "We should have the same concept."

Dankwa, who earned an MBA while working as a nurse, said continuing her education to further her professional growth is a priority and that the challenges, demands and rewards of nursing have had a positive influence on her.

"Being a nurse profoundly influences all aspects of my life," she said. "I don't take anything for granted."

Craig Rowitz

ICU Nurse Linda Dankwa was selected as one of the winners of the USC Choi Family Awards for Excellence in Patient-Centered Care.

Unlocking the mystery of multiple sclerosis with tech

By Erica Rheinschild

Enrollment is now underway for a pilot study of the world's first smartphone app capable of collecting large amounts of clinical, imaging and genetic data for people with multiple sclerosis (MS).

*my*MS is user-friendly app, developed by Daniel Pelletier, MD, professor of neurology at the Keck School of Medicine of USC and division chief of neuroimmunology and the USC Multiple Sclerosis Center. The app is designed to collect data on walking, cognition, vision, quality of life, demographics, MRI imaging and genetics, and because it can be used on any smartphone, anywhere, Pelletier hopes it can help break down some of the geographic barriers encountered in traditional research.

"We have so much to discover about MS, and our traditional methods of studying it are not going fast enough," Pelletier said. "Each incremental finding is like one drop of water in the ocean. If we want to reach the point of individualized therapy for MS, we need a massive amount of data, which is what inspired me to think of a solution that was completely out of the box."

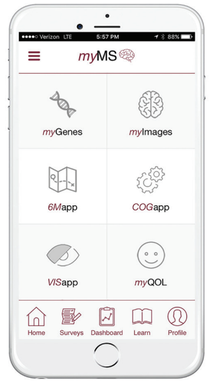
More than 2.3 million people have MS worldwide, according to the National Multiple Sclerosis Society.

*my*MS app users will be able to monitor how they are doing through validated walking, cognitive and visual tasks, as well as quality-of-life questionnaires. An interactive dashboard lets users view and graph their results over time and compare them to other people, upload and view their brain MRIs within the app as well as access genetic information obtained through personal genetics company 23andMe.

"Not only will people be able to see how they're doing in real time, but they will also be able to open new lines of communication with their doctors," Pelletier said. "They'll be able to open the app and show their doctor how they're doing in their everyday life and not just in the clinic."

The pilot study's goals are to discover how willing people are to participate, how often they perform app-related tasks and how likely they are to share their MRI and genetic information. Participants must have a diagnosis of MS, be 18 years of age or older, have a brain MRI, live in the United States and have a smartphone. No clinical visits will be involved.

For information about how to participate in the study, visit https://tinyurl.com/myMSclinicaltrial



Virginia Baca

KECK MEDICINE SUPPORTS AMGEN TOUR OF CALIFORNIA AT FINISH LINES: As the official hospital of the Amgen Tour of California, Keck Medicine of USC hosted a booth at the finish lines for several stages of America's largest and most prestigious professional cycling event. The cycling course traveled more than 575 miles of iconic highways and coastlines through 12 host cities from May 11 to May 20. The partnership will continue for the 2018 Amgen Tour of California.

NAMING GIFT: W. M. Keck Foundation has donated nearly $300 million to the university

Continued from page 1

what had been known as Healthcare Center 2, a modern, five-story medical building in the heart of the USC Health Sciences Campus northeast of downtown Los Angeles.

With this gift, the W. M. Keck Foundation and members of the extended Keck family have donated nearly $300 million to USC, placing them among the most generous benefactors to the university.

"We've seen impressive progress from USC in becoming a major medical center in Southern California," Day said. "The work underway on campus and at Keck Medicine of USC hospitals and clinics every day is inspiring and underscores the importance of continued investment in academic medicine for the benefit of Southern California, where the Superior Oil Company had its headquarters for many years."

Ricardo Carrasco III

The Willametta Keck Day Healthcare Center displays its new name.

Stem cell scientist D'Juan Farmer named inaugural Choi Family Postdoctoral Fellow at USC

By Cristy Lytal

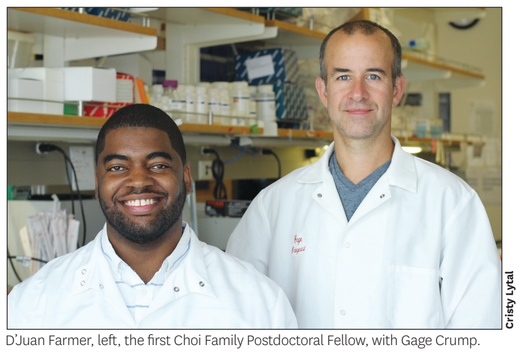
D'Juan Farmer, PhD, grew up in a neighborhood where attending college — let alone pursuing a PhD or postdoctoral training — was not the expectation. Now, he's earned the inaugural Choi Family Postdoctoral Fellowship, which provides support to recruit exceptional postdoctoral fellows to USC Stem Cell laboratories.

How did he do it? "Willpower," said Farmer, who is pursuing his postdoctoral training in the laboratory of Gage Crump, PhD, associate professor of stem cell biology and regenerative medicine at the Keck School of Medicine of USC.

Growing up in Compton, Farmer became intrigued by medicine and science after reading John Gunther's *Death Be Not Proud* which chronicles the life of Gunther's son, a budding scientist who succumbed to a brain tumor at age 17.

"One of my older brothers got that book from his school — as in he had to do a report, and he never read it," Farmer said. "So I read it. And I said, 'I want to be a doctor or an oncologist.'"

Soon after, Farmer was admitted to the California Academy of Mathematics and Science, a highly competitive magnet high school located on the campus of California State University, Dominguez Hills.


Cristy Lytal

D'Juan Farmer, left, the first Choi Family Postdoctoral Fellow, with Gage Crump.

As a UCLA undergraduate pursuing his bachelor of science in molecular, cell and developmental biology, Farmer became the first in his family to attend college, an example followed by his two younger brothers. He then did a one-year post-baccalaureate fellowship at the National Institutes of Health.

Farmer then joined the laboratory of Michael McManus, PhD, at the University of California, San Francisco, where he studied the role of molecules called microRNAs in the development of the lacrimal glands that produce tears and lubricate the eyes.

As the inaugural Choi Family Postdoctoral Fellow in the Crump Lab, Farmer is looking forward to shifting his focus to craniofacial and skeletal development. He is contributing to the effort to understand craniosynostosis, a serious birth defect which can damage the developing brain due to the premature fusion of bones in the skull.

Ultimately, Farmer hopes to become an investigator running his own laboratory at a university.

"It's definitely the dream," he said. "And being involved in both minority and first-generation activities is, in part, why I really like the idea of being in the academic setting. It's great to be a mentor and improve the education system while doing science."

FORD: Joins APSA RCSEng

Continued from page 1

access to quality and safe surgical care for all children across the globe."

Selection for the Honorary Fellowship is rigorous, as the number of living qualified Honorary Fellows at any one time shall not exceed 150. It is awarded to surgeons in recognition of international distinction in surgery, advances in the subject or preeminence in the field in their own country.

"I was truly humbled and appreciative of the honor and it allowed me to pause and reflect on my journey and how blessed I have been to have been guided by my mentors and role models," says Ford, who is the first member of the CHLA surgical staff to be admitted by the Royal College.

"Working alongside Henri is one of my great privileges at the Keck School," said Rohit Varma, MD, MPH, dean of the Keck School and director of the USC Roski Eye Institute. "He practices with true devotion to medicine, inspiring faculty and students alike to strive for excellence for the greater good. We are delighted to see him recognized for this on both a national and international scale."

Su-Anna Boddy, MS, council member for the RCSEng, introduced Ford at the ceremony and spoke of his accomplishments. Ford, she said, "returns regularly to his home country of Haiti to teach, lead surgical teams and assist in developing surgical systems, which the island nation historically has lacked."

In May 2015, Ford led a CHLA- and Keck Medicine of USC team that made medical history by completing the first separation of conjoined twins in Haiti, and has been crucial in working with leaders to develop Haiti's critical care and trauma network. He was acknowledged by the Royal College for playing "a prominent role in organizing and leading medical teams in response to the catastrophic 2010 earthquake in Haiti."

Keck School celebrates legacy as newest class of 50 Year Fellows are inducted

By Melissa Masatani

As medical students begin their fourth year, questions and anxiety about the future can weigh on the aspiring physicians' minds. But when Amy Komure looked around the room at the California Club and saw the faces of dozens of Keck School of Medicine of USC alumni, she was reassured that upon graduation, she will be in good company.

"We students stand on the shoulders of all those who came before us, proudly carrying on the tradition of excellence that you built for this school," said Komure, an MD/MPH student at the Keck School who begins her fourth year in the fall. "As I begin my residency applications I am thankful to all of you who have shaped and represented this school, putting me in the excellent position that a Keck degree provides."

Komure was the student speaker at the 50 Year Fellows Luncheon held May 19 at the California Club to honor the Keck School alumni who are celebrating their 50-year reunion. Henri Ford, MD, MHA, professor of surgery and vice dean for medical education, welcomed the guests and introduced Class of 1948 alumnus Phil Manning, MD, who helped announce 26 new inductees to the 50 Year Fellows Society from the Class of 1967.

"It really is a pleasure to see some of the faces I knew so well many years ago," said Manning, who retired in 2002 after 48 years as a Keck School faculty member and who has emceed the event for more than two decades. "Most people held up pretty well, I think."

Manning asked the assembled crowd what they remembered of their graduation year, listing the president at the time, Lyndon B. Johnson, and one of the most popular songs of the time, "Strangers in the Night" by Frank Sinatra.

Also in attendance were members of the Class of 1957, who marked 60 years since receiving their medical degree, as well as several emeriti faculty members.

"You are our legacy," Ford told the newest 50 Year Fellows. "You are the role models that we invite Keck students to emulate every day as we strive to educate the next generation of physician leaders."

The event concluded with a rendition of "Happy Birthday" by the Trojan Marching Band for Manning, whose 96th birthday was just days prior.

Steve Cohn

From left, Phil Manning, Amy Komure and Henri Ford at the 50 Year Fellows Luncheon, held May 19 at the California Club.

Mikel Snow honored with Associates Award for Excellence in Teaching

Mikel Snow, PhD, is professor of cell and neurobiology (educational scholar), and holds the Lt. Col. Earle and Patricia M. Smith Professorship in Neurogenetic Research at the Keck School of Medicine at USC.

On April 17, Snow was presented with the 2017 Associates Award for Excellence in Teaching at the university's 2017 Academic Honors Convocation.

The award is the highest honor accorded to the university's faculty members. It recognizes the career achievements of outstanding faculty who have a proven track record as exceptional teachers, have a positive, inspiring, and long-lasting effect on students and their learning, and extraordinary, unique, or pioneering contributions to excellence in teaching.

Snow recently sat down with *HSC News* to discuss his path to teaching and his work in the field of cell and neurobiology.

What drew you to teaching instead of simply conducting research?

When I started my career, I had an active research program on the origin of regenerating muscle fibers resulting from injury or disease. Following a sabbatical leave at the University of Washington to learn molecular biology and tissue culture of human muscle cells, I was asked in 1990 to be the assistant dean for student affairs at USC. Since accepting this position and continuing to teach and direct one of the largest courses (anatomy) at the medical school, my time for research was severely curtailed. Thus, this marked the beginning of my career change to focus more on teaching and administration.

How has medical education changed in the years that you have been at the Keck School?

The biggest change has been in the basic sciences (first two years), with a change in emphasis from details (minutia) in favor of an increase in more clinically relevant basic science, coupled with an improvement in integration across the basic sciences.

Ricardo Carrasco III

Mikel Snow

You've been described as "the most decorated basic science educator in the history of the Keck School of Medicine." What does it take to be a great teacher?

A great deal of hard work to perfect and upgrade lecture presentations, taking full advantage of the latest technologies available. In addition, the best teachers really care about the students and how they best learn, since "one size does not fit all." In my discipline, this requires considerable time working with students one-on-one outside the classroom to show them a more efficient and effective way to learn the material. Equally important is being very knowledgeable about the subject; in anatomy, being a skilled dissector is as important, or more important, than being an excellent lecturer. To this end and for several years following my training, I continued to hone my skills by dissecting a body before each lab. Finally, an important component is having an approach, or personality, that inspires student to learn and enjoy the subject, an approach that is not intimidating. Medical students want to be great doctors, so encouraging and supporting them is much more effective than scaring them.

What are some of the advances in cell and neurobiology that get you and your students excited about the field?

Speaking from my role as a teacher, I've found that human anatomy is often thought of as a static or non-changing field — this is not true. For example, I did some research last year with a pediatric surgeon colleague trying to develop a better way to remove thyroglossal cysts in the neck. Advances in imaging technology have had a huge impact on teaching human anatomy. Many years ago, radiology was not a significant component to anatomy courses. I received no radiology exposure in the anatomy course I took as a graduate student, so I taught myself basic radiology, which is now an integral part of our Keck School anatomy course, and which is obviously very exciting to students. More recently, ultrasound has been added to our course, as yet another way to visualize the body that has clinical relevance.

What do you see coming in the field? What advances do you hope your students may achieve?

We are in the digital age, so many companies are developing software for teaching anatomy. For example, I am heading out this afternoon to visit a facility in Irvine to evaluate virtual reality software on viewing the body with holograms. Many of these products are ready for the classroom for allied health training programs. They also have great potential for teaching medical students, but not as a replacement to dissecting a donor, which continues to be a hands-on experience that effectively teaches 3-D relationships, an appreciation for bodily variations, and the layering of tissues surrounding the body parts.

Researchers look at immune cells' role in Alzheimer's disease

By Cristy Lytal

About 15 percent of the cells in our brains are scavengers — roving immune cells known as microglia that remove infectious agents, damaged neurons and plaques. Justin Ichida, PhD, assistant professor of stem cell biology and regenerative medicine at the Keck School of Medicine of USC, is taking a close look at the role of microglia in the onset of Alzheimer's disease, with support from a $100,000 gift from the John Douglas French Alzheimer's Foundation.

Because it would be damaging to extract microglia directly from the skulls of Alzheimer's patients, Ichida's group is taking a far less invasive approach. Instead, they're taking small samples of patients' blood or skin, and "reprogramming" extracted cells to transform them into microglia.

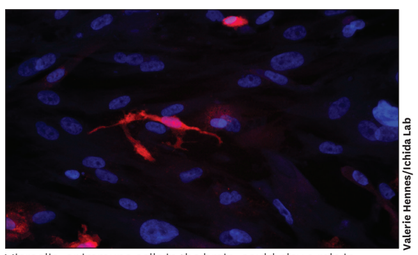
"We've used this approach to produce functional nerve cells and other cell types, but not microglia, so this will be a first," said Ichida, who also uses reprogramming to study ALS and frontotemporal dementia.

Ichida's team will then use a gene-editing tool called CRISPR to introduce two genes associated with Alzheimer's disease into the patient-derived microglia. They will observe how these two genes — called Phosphatidylinositol-binding clathrin assembly (*PICALM*) and Triggering receptor expressed on myeloid cells 2 (*TREM2*) — alter the function of the microglia. These genetic changes could cause a variety of problems, such as triggering inflammation, or preventing microglia from cleaning up defective proteins known as amyloid plaques, which are implicated in Alzheimer's disease.

In addition to revealing how these two Alzheimer's-related genes affect the function of microglia, this project will pave the way for other researchers to study microglia on a patient-specific basis.

A longtime champion of such innovative approaches to Alzheimer's disease research, the John Douglas French Alzheimer's Foundation has given more than $2.5 million to USC. This gift to the Ichida Lab honors Michael Minchin, Jr., who retired from his role as the foundation's president and CEO in 2016.

"I'd like to thank the John Douglas French Alzheimer's Foundation for their support of my lab's novel approach to studying Alzheimer's disease," Ichida said. "Their partnership enables us to make new strides toward helping the 5.5 million Americans living with this debilitating and often fatal disease."



Valerie Hennes/Ichida Lab

Microglia, or immune cells in the brain, could play a role in Alzheimer's disease.

Faculty approves code of professional conduct

By L. Alexis Young

The Keck School of Medicine of USC's Faculty Council has created a new code of professional conduct for faculty in an effort to create an environment of civility and respect for all members of the school's community.

The Faculty Council, made up of nine elected members representing the clinical and basic science faculty, serves as a consultative body with the authority to survey the faculty and make studies, reports and recommendations on issues having a significant bearing on the work or status of the faculty.

"Members of the Faculty Council collaborated with the vice dean for faculty affairs to write this code of professional conduct," explained Rima Jubran, MD, Faculty Council president and associate professor of clinical pediatrics. "We felt that is was important to clearly articulate the school's expectations for the professional conduct of faculty in an effort to promote a safe and respectful work and educational environment for all."

The code calls for faculty to treat everyone with respect, civility and fairness, and without bias or discrimination based on age, gender, race, ethnicity, national origin, religion, disability, sexual orientation, or gender identity; to teach, conduct research, and care for patients with competence, honesty and the highest ethical standards; to meet all professional responsibilities and obligations, and assure personal accountability for achieving performance expectations; to maintain all licenses and certifications required for their positions, participate in education and training as necessary to maintain professional competence, and be fit for duty during work time, including on-call responsibilities; and to complete all required university and clinically mandated training as appropriate for their job duties in a timely manner.

Judy Garner, PhD, vice dean for faculty affairs, said, "Our faculty serve not only as scholars, educators, and clinicians but also as mentors and role models for our medical students, graduate students, postdoctoral fellows, residents, and clinical fellows. Since medical residents and students are asked to abide by codes of conduct, it makes sense their mentors and role models, the faculty, would also have a professional code of conduct. In addition, many of our peer institutions have these codes and we felt it was important to reflect that we all shared the same standards."

Garner said the code of professional conduct was well received by faculty. The full code can be found at online at https://tinyurl.com/keckfacultycode

Science without borders is needed to solve the mystery of Alzheimer's disease

By Zen Vuong

Sixteen of the world's top Alzheimer's disease researchers shared their unpublished research at a symposium designed to fast track prevention, treatment and a cure for the debilitating disease that affects one in three seniors.

Rohit Varma, MD, MPH, dean of the Keck School of Medicine of USC and director of the USC Gayle and Edward Roski Eye Institute, welcomed the elite group to the fourth annual Zilkha Symposium on Alzheimer Disease and Related Disorders.

"I am delighted to be hosting this conference, which brings together the best and the brightest physician-scientists from around the world to study the new, basic, translational and clinical efforts in the field of Alzheimer's and related neurodegenerative disorders," Varma said. "We hope that with your wisdom, insight and hard work, we will end the scourge of this disease."

Rudolph Tanzi (Harvard University), Virginia Man-Yee Lee and John Trojanowski (University of Pennsylvania), Kaj Blennow (University of Gothenburg in Sweden), Roger Nitsch (University of Zurich), Christer Betsholtz (Uppsala Universitet in Sweden) and Ronald Petersen (Mayo Clinic College of Medicine) were some of the researchers who joined Keck School of Medicine scientists Berislav Zlokovic, MD, PhD, and Paul Aisen, MD, to present their new findings.

Alzheimer's and amyloid buildup

Aisen, who serves as director of the USC Alzheimer's Therapeutic Research Institute, said Alzheimer's symptoms start to appear about 15 years after sticky amyloid proteins dirty the brain.

Citing data from the ongoing Alzheimer's Disease Neuroimaging Initiative study, Aisen said about 80 percent of participants with amyloid deposits in their brain but no Alzheimer's symptoms developed symptoms over the next nine years. Comparatively, only 20 percent of people without amyloid deposits later developed similar symptoms.

"It seems reasonable to expect that if we start anti-amyloid therapy 15 years prior to the expected onset of symptoms, we should be able to prevent the development of clinical Alzheimer's disease," he said.

Aisen is enrolling healthy individuals showing no symptoms of Alzheimer's into clinical studies to trace the development of the disease over time.

Eventually, he said, doctors will be able to identify people likely to develop Alzheimer's through biomarkers found in blood draws. For example, research is underway to develop a "liquid biopsy" blood test to help identify individuals at high-risk for Alzheimer's. Then doctors could prescribe drugs to eliminate or prevent further amyloid buildup.

The brain's vascular system

Zlokovic, director of the Zilkha Neurogenetic Institute and Mary Hayley and Selim Zilkha Chair in Alzheimer's Disease Research, challenged Aisen's amyloid hypothesis, saying amyloid isn't ground zero for neurodegeneration.

"This is a very complex, multifactorial disease that is driven by genetic, vascular and environmental factors that all can influence disease onset and progression," Zlokovic said. "Disease onset may or may not involve amyloid at all."

Age-related small vessel disease of the brain is a health epidemic of the 21st century, he continued. Small vessel disease contributes to about 45 percent of all dementias worldwide, including Alzheimer's. Zlokovic is performing pioneering research on how leaks in the brain's vascular system cause a cascade of problems, including amyloid buildup.

"A healthy brain needs healthy blood vessels," he said. "The blood-brain barrier prevents entry into the brain of blood-derived toxic products, pathogens and cells."

The first region of an aging brain to become leaky is the blood-brain barrier around the hippocampus — the center of learning and memory, Zlokovic continued. When the capillaries become leaky, toxic, blood-derived products flood the brain and can trigger neurodegenerative changes and inflammatory response. Delivery of oxygen and glucose (a key energy metabolite for the brain) is grossly impaired and gets worse as Alzheimer's progresses. Damaged blood vessels lose their ability to clear metabolic waste products from the brain, including amyloid proteins, causing buildup of the dangerous plaques, inflammation, loss of brain connections and ultimately loss of neurons leading to characteristic cognitive problems associated with Alzheimer's, he concluded.

Other researchers discussed new findings on how genes, germs, tau protein tangles and specific biomarkers are contributing to Alzheimer's. In the end, the consensus was clear: Collaboration is necessary to solve the intricate and colossal Alzheimer's problem.

More than 70 USC researchers across a range of disciplines are examining the health, societal and political effects and implications of Alzheimer's.

"We look forward to hosting this symposium again next year," Zlokovic said. "It's critical for top Alzheimer's experts to get together and share their unpublished findings, concepts and state-of-the art approaches so that scientific barriers are removed, and we all work together to arrest and reverse this devastating disease."

Speakers and session chairpersons stand with Berislav Zlokovic, sixth from right, during the fourth annual Zilkha Symposium on Alzheimer Disease and Related Disorders, held May 5 on the Health Sciences Campus.

Early CPR can mean the difference between a good neurological outcome and a poor one for drowning victims.

CPR: Classes offered at local schools

Continued from page 1

neurological outcome if bystanders initiated CPR.

CPR classes are offered through the American Red Cross, American Heart Association or local fire departments, hospitals and schools.

But what if the worst happens and you haven't been trained in CPR? Don't assume you can't help. Emergency operators can instruct you. "Call 911, do chest compressions at 100 beats per minute and you could save someone's life," Tobin said.

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:

Douglas Morino

From left, Tom Buchanan, Don Haake, James Russell, Jane Russell, Martha E. Haake, Martha B. Haake, Richard Haake, Marla Elliott, William Haake and Rohit Varma are seen May 17 on the Health Sciences Campus.

Baxter Foundation visits Health Sciences Campus

Directors of the Donald E. and Delia B. Baxter Foundation visited the Health Sciences Campus on May 17 to hear presentations from Keck School of Medicine of USC faculty and meet with participants in the Baxter Foundation Student Research Fellowship program. The Foundation's mission is to advance charitable, scientific and educational purposes, primarily at medical and scientific schools in California. The Baxter Foundation is celebrating a 58-year history with USC, having given more than $11 million during that time.

John Aalto

Author Samantha Dunn, left, joins Sunita Puri and Mary Aalto at the May 4 event, held on the Health Sciences Campus.

Unspeakable series designed to promote discussion

Author Samantha Dunn sat down with Sunita Puri, MD, assistant professor of clinical medicine at the Keck School of Medicine of USC and medical director of palliative care at Keck Medical Center of USC, to discuss Dunn's memoir, *Not by Accident: Reconstructing a Careless Life*, which chronicles the author's sudden, catastrophic injury and subsequent recovery. The event was part of the Unspeakable Series, which are talks sponsored by the USC Cancer Survivorship Advisory Council. "We envisioned these talks as a way to bring people together to explore how we adapt, persevere, and heal ourselves in the face of extraordinary health crises," said Mary Aalto, one of the organizers of the series and the volunteer library coordinator for the Jennifer Diamond Cancer Resource Library at the USC Norris Comprehensive Cancer Center.

Ricardo Carrasco III

Shawn Sheffield, chief strategy officer at Keck Medicine of USC, opened the Women in Business luncheon at the Huntington Library.

Pasadena Women in Business

On May 18, Pasadena Magazine partnered with Keck Medicine of USC and BMW of Monrovia to host the biannual Women in Business Luncheon. Shawn Sheffield, chief strategy officer at Keck Medicine, opened the luncheon and welcomed guests, including best-selling author Lian Dolan; Kristen Miller, head of content innovation at KPCC; and Jill Dickerson, senior VP of programming and content development at the Oprah Winfrey Network. The event was held in the Rose Hills Foundation Garden Court of the Huntington Library, Art Collections, and Botanical Gardens of Pasadena.

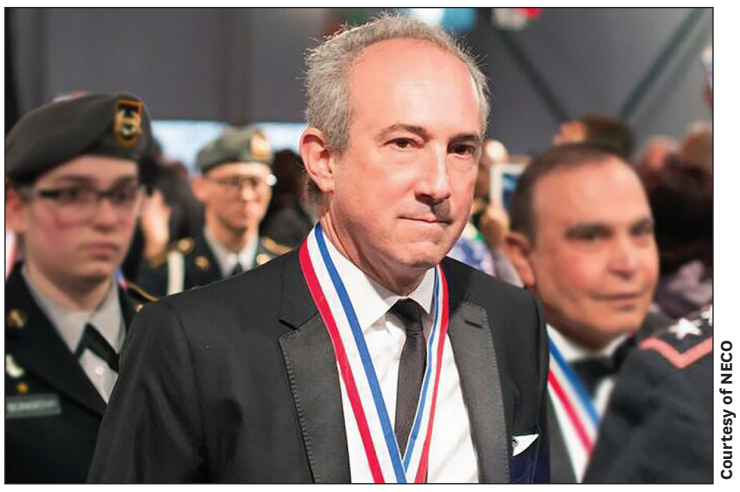
David Agus awarded 2017 Ellis Island Medal of Honor

By Autumn Beemer Phillips

On May 14, David Agus, MD, professor of medicine at the Keck School of Medicine of USC, founding director of the Lawrence J. Ellison Institute for Transformative Medicine of USC and director of the USC Center for Applied Molecular Medicine, joined 98 other outstanding luminaries to receive the 2017 Ellis Island Medal of Honor from the National Ethnic Coalition of Organizations (NECO).

The Ellis Island Medal of Honor commends a select group of individuals whose achievements and exceptional service to the nation embody the American spirit in their patriotism, tolerance, brotherhood and diversity, and is among the nation's most celebrated awards. Agus' lifetime of devoted work and his passion for bringing health and wellness to all Americans were among the reasons NECO chose to honor him this year.

Almost 700 people attended the event on Ellis Island, which included speeches from astronaut Buzz Aldrin and journalist Fareed Zakaria, as well as NECO Chairman Nasser Kazeminy and Master of Ceremonies journalist Marvin Scott, who each stressed the importance of unity and how immigration is an integral part of the American Dream. A black-tie gala immediately followed the award ceremony in the historic original registry room in the Great Hall, a symbolic and literal gateway for 12 million immigrants to the United States.



Courtesy of NECO

David Agus was presented with the Ellis Island Medal of Honor in May.

"It was a privilege to stand among so many visionaries to receive the Ellis Island Medal of Honor," Agus said. "Like NECO, I believe that bringing diverse people together will create a stronger, more powerful whole. It is essential that we find a way to come together, both as researchers and as a nation, to find solutions to the health challenges that face us today."

USC is home to several Ellis Island Medal of Honor recipients, celebrated for their dedicated service and achievements. Past USC honorees include USC President C. L. Max Nikias, PhD, and Thomas Lee, MD, associate professor of clinical ophthalmology at the Keck School of Medicine, who received the Ellis Island Medal of Honor in 2016 and 2012 respectively.

Lieberman receives $2.2 million NIH grant to fund research

By Erica Rheinschild

Jay R. Lieberman, MD, chair and professor of orthopaedic surgery at the Keck School of Medicine of USC has received a five-year, $2.2 million grant from the National Institutes of Health's National Institute of Arthritis and Musculoskeletal and Skin Diseases to research gene therapy to enhance repair of extensive bone injuries. Examples of these types of injuries include fractures with extensive bone loss, non-healing fractures, failed spinal fusion and revision total joint replacement – a procedure performed when the original joint replacement fails.

Lieberman will genetically manipulate human bone marrow cells to overexpress bone morphogenetic protein (BMP), which is a protein that spurs progenitor cells to produce bone.

"There are a number of bone injuries that are very difficult to repair and lack satisfactory solutions," Lieberman says. "My goal with this grant is to determine whether genetically modifying human bone marrow cells to overproduce BMP will help heal large bone defects in an animal model and, ultimately, provide a better alternative for repairs in humans."

Lieberman's study will determine the efficacy and safety of the gene therapy as well as establish a cellular dose of the genetically manipulated cells that can be scaled up for potential use in humans.

An abstract of the grant, 2R01AR057076-06A1, is available on the NIH RePORTER website (https://projectreporter.nih.gov). One hundred percent of the project's funding — $2,284,028 — will be federally funded.

Keck Medicine of USC
Marketing and Communications
2011 N Soto Street - SST-2830
Los Angeles, CA 90032

Non-Profit Organization
U.S. POSTAGE PAID
Industry CA
Permit 4029

HSC News

HSC News is published for the faculty, staff, students, volunteers and visitors in the University of Southern California's Health Sciences Campus community. It is produced by Keck Medicine Marketing and Communications staff. Permission to reprint articles is available upon request. No artwork may be reproduced without the creator's consent.

Editor: Leigh Bailey

Director, Internal Communications: Virginia Baca

Director, Content Strategy and Management: Sara Reeve

Contributors: Meg Aldrich, Amanda Busick, Ricardo Carrasco III, Nathan Cowen, Mary Dacuma, Lex Davis, Cristy Lytal, Melissa Masatani, Douglas Morino, Autumn Beemer Phillips, Larissa Puro, Erica Rheinschild, Cynthia Smith, Zen Vuong and L. Alexis Young

Phone: (323) 442-2830
Fax: (323) 442-2832
Email: hscnews@usc.edu
Web: hscnews.usc.edu | kecknet.usc.edu

Next Issue:
June 30