



Steve Cohn

Andy McMahon, right, highlights the importance of a biotechnology park during the Business of Biotech event held June 8 at the Eli and Edythe Broad CIRM Center for Regenerative Medicine and Stem Cell Research.

## Biotech park could create ‘explosion of employment’

By Ron Mackovich

The competition for biotech investment is escalating, and USC President C. L. Max Nikias, PhD, wants to make sure Los Angeles emerges a winner.

“Los Angeles finds itself falling behind in the race for the future of this increasingly important industry,” Nikias said at a June 8 Business of Biotech event that brought together community, business and university leaders.

The USC leader envisions a biotechnology park in east Los Angeles on the Health Sciences Campus. The development could provide thousands of construction and biotech jobs.

“We will see an explosion of employment in many areas, and we will watch this community emerge as an attractive area for large companies and small business startups, all searching for new employees to help them grow and expand,” he said.

Nikias emphasized the Los Angeles basin’s biotech assets, including USC hospitals, research institutions and more than 5,000 university graduates in

biotechnology-related fields each year.

“Now we see an unparalleled opportunity to keep this intellectual capital right here in our region,” he said.

The event at the Eli and Edythe Broad CIRM Center for Regenerative Medicine and Stem Cell Research at USC focused on the educational, employment, health and business benefits of a biotech park.

Speakers included Thomas S. Sayles, JD, senior vice president for university relations; Earl Paysinger, vice president of civic engagement; and Rohit Varma, MD, MPH, dean of the Keck School of Medicine of USC.

“The university has long provided an environment that fosters collaboration and entrepreneurialism, which is critical to the success of the Biotech Park,” Varma said. “This type of scientific innovation and growth allows us to expand the Keck School’s commitment to our community here in Los Angeles and advances our quest for life-changing innovations and discoveries.”

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## CHLA ranked best in West by *U.S. News*

By Lorenzo Benet

Children’s Hospital Los Angeles (CHLA), an affiliate of the Keck School of Medicine of USC, is the top-ranked pediatric hospital in California again, based on the latest rankings announced by *U.S. News & World Report*. CHLA also was named to the publication’s Honor Roll of Best Children’s Hospitals, a designation bestowed on elite pediatric academic medical centers that excel in multiple specialties.

CHLA is the only pediatric hospital on the West Coast to be named to the Honor Roll this year, finishing sixth nationwide in the 2017-18 assessment of the best pediatric health care facilities in the United States. CHLA has made the Honor Roll every year since its inception nine years ago.

“This distinguished recognition reflects the collaborative efforts of our world-class physicians, nurses, researchers, technicians and clinical staff,” said CHLA President and CEO Paul S. Viviano.

This year will mark the 75th anniversary of a successful partnership between the Keck School and CHLA. The convergence of missions with regards to education, research and clinical care between the two institutions has grown considerably in recent years.

“The dedicated physician-scientists at CHLA are committed to providing compassionate and personalized care for our youngest and most vulnerable patients, many of whom suffer from some of the most complex medical problems,” said Rohit Varma, MD, MPH, dean of the Keck School and a member of CHLA’s board of trustees. “I am delighted that *U.S. News* has recognized this



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## Doctor’s orders: How to stay healthy, and maybe find a career

By Ron Mackovich

Get regular checkups, keep in touch with your doctor and be aware of opportunities in biotech. Those are doctor’s orders from René Sotelo, MD, professor of clinical urology at the Keck School of Medicine of USC, who spoke with community members and families during a health fair June 17 at East Los Angeles College.

“Take care of yourself,” said Sotelo, a pioneer in urinary robotic surgery, as he answered questions in Spanish about cancer screening and treatment from residents of Boyle Heights and other nearby communities. Sotelo also emphasized the educational and career prospects in medicine and biotech.

“There are many career opportunities for students, involving technology that will assist them to improve the quality of health care. This includes apps, medical



David Sprague

René Sotelo gives copies of his book to sisters Rosa, left, and Carmen Arce, right, at a recent health fair.

devices, pharmaceuticals,” Sotelo said. “There’s technology that can help us follow the patient home after the surgery to see exactly how they’re doing. All this is part of it, and there are no barriers.”

Ghecemy Lopez, a cancer information resource and navigation specialist with the Keck School, took the stage along with

Sotelo. She focused on engaging and educating youths about in the importance of creativity and critical thinking in STEM, cancer research and patient advocacy.

Lopez said that STEM education — focusing on science, technology, engineering and math — is an equalizer of economic and

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## Baker tapped to lead cardiac surgery

By Lex Davis

Vaughn A. Starnes, MD, Distinguished Professor and chair of surgery, and H. Russell Smith Foundation Chair for Stem Cell and Cardiovascular Thoracic Research at the Keck School of Medicine of USC, has appointed Craig J. Baker, MD, professor of clinical surgery (educational scholar), to the position of chief of the division of cardiac surgery as of July 1 of this year.

“Dr. Baker is going to navigate the hospital into the next era of health care and usher in technological innovation to keep up with our rapidly changing field,” Starnes said. “I have absolute confidence that he’s going to do a great job.”

Starnes also cited the deep respect Baker has earned from cardiac surgeons across the country. “The leader of any outstanding division needs to have a national presence,” Starnes said. “Dr. Baker has that.”



Craig J. Baker

Ricardo Carrasco III

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Darryl Hwang works with an image in the USC 4D Quantitative Imaging Center.

## Imaging center available for clinicians, researchers

By Amanda Busick

The USC 4D Quantitative Imaging Center, now open in a new location at Keck Hospital of USC, provides state-of-the-art 3-D and 4-D reconstructions of ultrasound, CT and MR images to clinicians and researchers across the Health Sciences Campus.

"3-D rendering gives referring physicians a better understanding of the imaging that they are receiving. This gives it a more understandable, real-world context," explained Darryl Hwang, PhD, assistant professor of research radiology at the Keck School of Medicine of USC.

4-D imaging has the added benefit of being able to visualize what happens to an area over a period of time. Hwang, who also is the lab's director, gave a few examples of the many clinical applications for 3-D and 4-D imaging, which include volumetric analysis, 3-D model printing and "digital surgeries"—using the reconstructions to try different outcomes preoperatively in order to be better prepared during surgery.

"On top of that," Hwang went on to say, "these are great for patient education."

Bhushan Desai, MBBS, MS, assistant professor of research

radiology at the Keck School, explained the growing need for full service imaging labs in today's clinical and translational research programs.

"The increasing importance of imaging as diagnostic, prognostic and response biomarker has given rise to the formation of imaging core labs," said Desai, who also is director of clinical research. "These labs specialize in the logistical management of all clinical research imaging services. Our lab fills the existing gap between advanced imaging technologies and the traditional radiology workflow, providing more accurate quantitative information."

The lab also offers many other services to clinicians and researchers, including 2-D/3-D filming of CT and MR images, virtual endoscopy and multi-angle, multi-slice 2-D/3-D reformation. The lab also offers assistance in writing grant proposals and creating budgets for imaging needs.

The lab is now located at Keck Hospital in room B112. Clinical 3-D and 4-D imaging studies can be ordered through Cerner. For assistance, the lab can be contacted by calling (323) 442-8541, via email at darryl.hwang@med.usc.edu, or in person.

## Using zebrafish to study human hearing loss

By Cristy Lytal

Can a fish with a malformed jaw tell us something about hearing loss in mice and humans? The answer is yes, according to a new publication in *Scientific Reports*.

In a twist of evolution, the structures supporting the jaws of ancestral fish gave rise to three tiny bones in the mammalian middle ear: the malleus, incus and the stapes, which transmit sound vibrations. Therefore, if a genetic change causes a jaw malformation in a fish, an equivalent genetic change could trigger hearing defects in mice and humans.

To test this, first author and PhD student Camilla Teng from the USC Stem Cell laboratory of Gage Crump, PhD, associate professor of stem cell biology and regenerative medicine at the Keck School of Medicine of USC, and her colleagues studied two genes — *JAG1* and *NOTCH2* — that are mutated in most patients with Alagille syndrome (AGS). In nearly half of patients, AGS involves hearing loss — in addition to liver, eye, heart and skeletal defects.

While some of the hearing loss is sensorineural, resulting from deficits in the sensory cells of the inner ear, the researchers also wondered about the contribution of conductive hearing loss, involving structural components of the middle ear such as the vibrating bones.

Knowing that the equivalent genetic mutations caused jaw malformations in zebrafish, the researchers introduced the mutations into mice and observed defects in both the incus and stapes bones, and corresponding hearing loss.



A window into the mammalian middle ear, as seen in an image by Camilla Teng.

They then attended Alagille Alliance meetings in 2011 and 2014 and performed tests to determine if patients' hearing loss was conductive, sensorineural or mixed. As their findings in zebrafish and mice predicted, conductive hearing loss was the most common type — affecting nearly one-third of ears.

CT scans of AGS patients revealed a more complicated picture: a surprising diversity of structural defects in the middle ear with variable effects on hearing.

"Our study highlights a mostly overlooked phenotype of Alagille syndrome," Teng said. "If patients are aware of possible conductive hearing loss earlier in life, then they can more promptly seek medical aids for an improved quality of life."

Co-authors include: Hai-Yun Yen, PhD, Lindsey Barske, PhD, postdoctoral scholar — research associate, Juan Llamas, research lab specialist, and John Go, MD, assistant professor of clinical radiology from the Keck School; and Bea Smith, AUD, and Pedro A. Sanchez-Lara, MD, assistant professor of clinical pathology and pediatrics at the Keck School, from Children's Hospital Los Angeles.

## Report urges world leaders to support health, human rights

By Larissa Puro

Sofia Gruskin, JD, MIA, professor of preventive medicine at the Keck School of Medicine of USC, is one of five technical advisers to a high-level, United Nations-backed working group that launched a transformative report May 22 at the World Health Assembly in Geneva.

Produced by a group of global political leaders, the report will set the health and human rights agenda for countries over the next decade with recommendations on priority actions to defend and advance the rights of women, children and adolescents.

Calling for bold leadership and action to realize rights "to health and through health," the report was endorsed as a blueprint for action

by the World Health Organization and the UN High Commissioner for Human Rights.

"The recommendations and guidelines we established in this report are monumental and game changing," said Gruskin, also the director of USC's Program on Global Health & Human Rights at the USC Institute for Global Health. "It is now for the countries of the world to take on this agenda and for us all to support and monitor their efforts."

A group of 10 USC students embedded as delegates to the World Health Assembly witnessed the report's launch. USC students attend the assembly each year as part of the Global Health Governance & Diplomacy in Practice in Geneva course.



Working Group Co-Chair Tarja Halonen, center right, former President of Finland, officially hands over the Working Group report to High Commissioner for Human Rights, Zeid Ra'ad al Hussein, center left, and World Health Organization Director-General, Margaret Chan.

## Choi Award winner: Smiling 'face' of Keck Hospital

By L. Alexis Young

Service with a smile is more than a statement to Jane Bateman, it's a way of life. Bateman's compassion and dedication to her job as a concierge at Keck Medicine of USC has garnered her one of the prestigious USC Choi Family Awards for Excellence in Patient-Centered Care. The awards recognize health care professionals who consistently demonstrate the ideals of patient-centered care, compassion and excellence and make a positive contribution to the service culture of Keck Medicine of USC. The awards are part of the USC Choi Family Awards for Excellence in Patient-Centered Care Endowment established in 2016 by Keck Medicine of USC through a generous gift from the Choi family.

Bateman, an eight-year employee of Keck Medicine of USC, takes pride in being the first face patients and families see at the Keck Hospital of USC concierge desk. She said she never knows what a patient is facing when they walk



From left, Tom Jackiewicz, Jane Bateman and Rod Hanners are seen at the Choi Family Awards Dinner

in, so she approaches each day by putting herself in their shoes.

"I treat the patients and their families

how I would want my family to be treated," Bateman said. "I try to put them at ease. The most rewarding part of my

## Study: Detecting Alzheimer's disease before symptoms emerge

By Erica Rheinschild

Long before symptoms of Alzheimer's disease become apparent to patients and their families, biological changes are occurring within the brain. Amyloid plaques, which are clusters of protein fragments, along with tangles of protein known as tau, form in the brain and grow in number, eventually getting in the way of the brain's ability to function. These

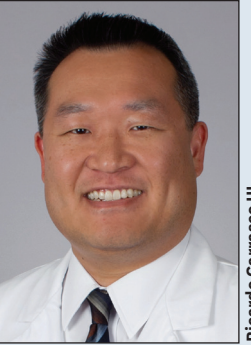
biological changes can be detected early in the course of Alzheimer's disease through positron emission tomography (PET) scan or cerebrospinal fluid analysis. Now, a new study led by Keck Medicine of USC neuropsychologist Duke Han, PhD, associate professor of family medicine (clinical scholar) at the Keck School of Medicine of USC, suggests that cognitive tests also are able to detect early Alzheimer's in people without

symptoms.

Han and his colleagues conducted a meta-analysis of 61 studies to explore whether neuropsychological tests can identify early Alzheimer's disease in adults over 50 with normal cognition. The study, which was published in *Neuropsychology Review*, found that people who had amyloid plaques performed worse on neuropsychological tests of global cognitive function,

memory, language, visuospatial ability, processing speed and attention/working memory/executive function than people who did not have amyloid plaques.

"The presumption has been that there would be no perceivable difference in how people with preclinical Alzheimer's disease perform on cognitive tests. This study contradicts that presumption," Han said.



Duke Han

## Breath test could be next evolution in breast cancer diagnostics

By Mary Dacuma

The USC Norris Comprehensive Cancer Center is actively recruiting for a clinical trial that is researching the effectiveness of a breath test for breast cancer diagnostics. The BreathLink™ device, manufactured by Messana Research, Inc., captures a two-minute sample of a patient's breath and provides immediate results on whether there are indications of breast cancer. If proven effective, the test would be used in conjunction with mammograms to rule out false-positive tests, sparing patients the pain, cost and anxiety of unnecessary biopsies.

"Diagnosing breast cancer requires the utmost vigilance, but we need to temper this vigilance with accuracy to prevent unnecessary testing," said Linda Hovanessian-Larsen, MD, associate professor of clinical radiology, director of the division of women's imaging and director of radiology research in women's health at the Keck School of Medicine of USC. Larsen is leading the trial at USC Norris and much of her research is focused on improving the accuracy and efficiency of breast cancer diagnostic techniques.

BreathLink is a non-invasive testing device that collects, concentrates and analyzes the organic compounds in a patient's breath sample within minutes. Test results are then uploaded to Messana's laboratory in New Jersey. While the test cannot diagnose disease, it can indicate if the patient should undergo further testing, which can save time and money while preventing additional emotional distress.

Current research is evaluating the device's effectiveness in detecting lung cancer, breast cancer, heart transplant rejection, radiation exposure and pulmonary tuberculosis. The device is not yet approved by the Food and Drug Administration.

USC Norris is the first of five cancer centers in the United States participating in the trial, and the only center in California. The trial is partially funded by the National Institutes of Health and currently open to women who have a breast-related concern that requires mammography.

Women interested in enrolling in the trial can call (323) 369-7775.

## Foundation extends support beyond cancer

By Hope Hamashige

The L.K. Whittier Foundation has been a critical source of funding for cancer research at the Keck School of Medicine of USC and the USC Norris Comprehensive Cancer Center, supporting clinicians and basic scientists who are advancing tailored therapies and nanobiotechnology.

Recently, the L.K. Whittier Foundation has started to fund research outside of the cancer field and extended support to 10 research projects in a variety of medical fields. The following faculty members recently received funding for their research from the L.K. Whittier Foundation:

- Michael Bonaguidi, PhD, assistant professor of stem cell biology and regenerative medicine, on new single cell tools in data science for precision medicine.
- Hyungjin Eoh, DVM, PhD, assistant professor of molecular microbiology and immunology, for research on anti-tuberculosis drug discovery platforms.
- Denis Evseenko, MD, PhD, associate professor of orthopaedic surgery, and Gage Crump, PhD, associate professor of stem cell biology and regenerative medicine, for research on stimulating endogenous chondrocyte progenitors to repair arthritic joints.
- Chengyu Liang, MD, PhD, associate professor of molecular microbiology and immunology, for research on targeting the host NDP kinase to abrogate viral dissemination.
- Qi-Long Ying, PhD, associate professor of stem cell biology and regenerative medicine, and Rong Lu, PhD, assistant professor of stem cell biology and regenerative medicine, for research on expansion and characterization of human granulocyte-macrophage progenitors.
- Austin Mircheff, PhD, professor of physiology and biophysics, and J. Martin Heur, MD, PhD, associate professor of clinical ophthalmology, for research on quantitative characterization of dry eye disease phenotypes.
- Larissa Rodriguez, MD, professor of urology, for research on tissue regeneration of the urethra with adipose-derived stem cells and heparin-binding peptide amphiphile hydrogels being conducted with Eun Ji Chung, PhD, assistant professor of biomedical engineering at the USC Viterbi School of Engineering.
- Thomas Vangsness, MD, professor of orthopaedic surgery, for research on adipose tissue injections for the treatment of mild to moderate osteoarthritis.
- Weiming Yuan, PhD, associate professor of molecular microbiology and immunology, for research on a novel approach to mobilize human iNKT cells for anti-HBV immunotherapies.
- Zhen Zhao, PhD, assistant professor of physiology and biophysics, for research on combination therapy with human neural stem cells and 3K3A-APC for ischemic stroke.

## Calendar of Events

### Friday, June 30

**Noon.** Department of Medicine Grand Rounds. Zachary Marks, MD. LAC+USC Inpatient Tower Conference Room B. Info: Diane Reed, (323) 409-6625, mededu@med.usc.edu, <http://keck.usc.edu/medicine>

### Friday, July 7

**Noon.** Department of Medicine Grand Rounds. Han Zhang, MD. LAC+USC Inpatient Tower Conference Room B. Info: Diane Reed, (323) 409-6625, mededu@med.usc.edu, <http://keck.usc.edu/medicine>

### 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, uscme@usc.edu, <https://cmetracker.net/KECKUSC/Catalog>

### Friday, July 14

**Noon.** Department of Medicine Grand Rounds. Annika Khine, MD. LAC+USC Inpatient Tower Conference Room B. Info: Diane Reed, (323) 409-6625, mededu@med.usc.edu, <http://keck.usc.edu/medicine>

### 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, uscme@usc.edu, <https://cmetracker.net/KECKUSC/Catalog>

### Friday, July 21

**12:45 p.m.-2 p.m.** USC Stem Cell. "Postdoc Seminar Series: Preparing for the Faculty Job Market," Leonardo Morsut, PhD; Neil Segil, PhD; Megan McCain, PhD; and Senta Georgia, PhD. Eli and Edythe Broad CIRM Center Auditorium. Info and RSVP: Michaela Patterson, patt564@usc.edu, <http://bit.ly/2s24mtu>

**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](http://hscnews.usc.edu/calendar-of-events). Submit items at [tinyurl.com/calendar-hsc](http://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.



## Biostatistics professor honored for scientific contributions

By Larissa Puro

The American Statistical Association named Kiros Berhane, PhD, professor of preventive medicine at the Keck School of Medicine of USC, among its 62 fellows in 2017, recognizing his biostatistics research, teaching and service to the scientific community at USC and in Africa.

In the 100-year-old ASA fellowship program, members elect just a third of 1 percent of their peers for the honor each year.

Berhane, who also directs the Keck School epidemiology and biostatistics graduate degree programs, returns this fall after a 10-month sabbatical as a U.S. Fulbright Scholar in Ethiopia, where he taught and conducted research at Addis Ababa University, followed by two months at Imperial College in London.

In addition to helping develop the



Kiros Berhane speaks in Ethiopia as part of a GEOHealth workshop.

new modeling techniques that help researchers understand air pollution exposure impact on respiratory growth and health in children.

He is continuing this research in Eastern Africa as a principal investigator for the Eastern Africa Global Environmental and Occupational Health and Safety Hub (GEOHealth) alongside Jonathan Samet, MD, MS, Distinguished Professor and chair of preventive medicine, and Flora L. Thornton Chair in Preventive Medicine.

During his Fulbright tenure, Berhane focused on furthering the hub's work, which will tackle new statistical methodological issues and data unique to sub-Saharan Africa. One of seven such hubs in the world funded by a five-year National Institutes of Health-Fogarty grant, it is pioneering air pollution, climate change and occupational exposures research in

Ethiopia, Kenya, Rwanda and Uganda.

The work is a natural continuation of Berhane's research and teaching around environmental health and growing interest in global health, he said. "I have always been passionate about seeking quantitative, mathematical solutions to pressing, real-life public health problems."

In a world increasingly dependent on data-driven decision-making and a data-driven economy, biostatistics is a burgeoning area of study, according to Berhane. Technological advances have led to enormous volumes of information that need careful processing, he said — "to separate the 'signal' from the 'noise.'"

"The opportunities in biostatistics have never been more exciting and diverse than the present time, and these opportunities will only grow in the future," Berhane said.

## Institute pioneers options for prostate cancer patients

By Hope Hamashige

The USC Institute of Urology at Keck Medicine of USC is pioneering a new treatment option for men with intermediate risk prostate cancer that is minimally invasive, requires no radiation and entails minimal recovery time.

The procedure uses targeted high-intensity focused ultrasound, or HIFU, to noninvasively target and kill cancer cells within the prostate, while the da Vinci robot surgically removes the neighboring lymph nodes.

Traditionally, the HIFU procedure has been used to treat men with low-risk cancer because, although HIFU is effective at killing cancer cells inside the prostate, it cannot touch the lymph nodes.

"HIFU has never been used in combination with robotic lymph node removal until now," said Inderbir S. Gill, MD, Distinguished Professor and chair of urology, Shirley and Donald Skinner Chair in Urologic Cancer Surgery, founding executive director of the USC Institute of Urology and associate dean of clinical innovation at the Keck School of Medicine of USC. "This demonstration that we can use two high-tech technologies to simultaneously address different aspects of the prostate cancer is a significant step forward."

The new, dual-technology procedure is performed under anesthesia, lasts about 3.5 hours and patients can potentially be discharged from the hospital the same day.

"This innovation offers the potential for ablative technologies to be used for more aggressive cancers," said Andre Luis de Castro Abreu, MD, assistant professor of clinical urology and co-director, Center for Targeted Biopsies and Focal Therapy at the USC Institute of Urology. "Although this is only the initial experience, our novel concept adds another layer of confidence in the oncologic capability of HIFU."

HIFU technology has been used in Europe for decades, but was only approved by the U.S. Food and Drug Administration in 2015. Gill noted that the USC Institute of Urology was the first, and is now the most experienced, academic medical center in the United States to utilize HIFU technology. It's also the only center to offer HIFU treatments with both EDAP/Ablatherm and Sonacare/Sonablate devices, he said.

"To date our patients have had minimal side effects, with quick recovery of potency and continence and return to normal activities," said Daniel Park, PA, director of clinical operations at the USC Institute of Urology.

The team from the USC Institute of Urology also is developing an innovative contrast-enhanced ultrasound (CEUS), a microbubble-ultrasound technique to confirm whether the HIFU machine has ablated the targeted cancer area. Before the HIFU procedure, the patient is injected with a nontoxic type of microbubble that is highly visible through real-time transrectal ultrasonography. Immediately after the procedure, a second microbubble injection is performed to assess the thoroughness of prostate ablation.

Gill added that the team at the USC Institute of Urology primarily performs this procedure on patients whose cancer is confined to one lobe of the prostate, thereby minimizing the risk of unwanted side effects including incontinence and impotence.

## Lean Academy inspires solutions, collaboration

By Douglas Morino

Keck Medicine of USC physicians, nurses and other staff members have been learning performance improvement techniques and developing leadership skills through an academy provided by the Value Improvement Office.

The Lean Academy is designed to help participants develop best practices by presenting them with simulations and real-life situations. Lean has become the leading improvement philosophy in health care over the last 15 years, and places like the Cleveland Clinic, Intermountain, Stanford and UCLA have adopted Lean as their improvement platform.

About 70 employees have graduated from the program since it began in October 2015 at Keck Medical Center of USC.

"Through the Lean Academy, we are able to develop a community of engaged problem-solvers to improve processes on a day-to-day basis, to improve the value of the care we deliver with more efficient processes and an improved patient experience," said Felipe Osorno, executive administrator, Value Improvement Office at Keck Medicine of USC.

"We are building a community of problem solvers, furthering our medical enterprise's problem-solving capabilities and engaging staff members and physicians in making shared improvement decisions."



Staff members participate in discussions during a recent Lean Academy class, offered by the Value Improvement Office.

Through the Lean Academy, participants learn how to identify opportunities for improvement in their area of focus, how to quantify those opportunities with Keck Medicine goals and then how to implement the solutions in their departments.

The workshops are developed and customized to Keck Medicine's culture and are open to all administrators, managers, physicians and front-line staff members. Classes have not only attracted employees from across Keck Medicine, but also from Children's Hospital Los Angeles, Henry Mayor Newhall Memorial Hospital and Grandcare Home Health Services.

Each Lean Academy program lasts about six months and requires 22 hours of training and coaching sessions at Keck Medical Center of USC. Participants work collaboratively to learn Lean principles while developing managerial and technical skills. Participants graduate as certified Lean practitioners and are required to create a capstone project. So far, 60 projects have been created and implemented across Keck Medicine of USC, with many delivering tremendous results.

The application period for the Fall session opens in August. Information about the application process will be released in July.

## Protein may hold key to fight pancreatic cancer

By Mary Dacuma

New research from the Keck School of Medicine of USC shows new promise in the fight against one of the most lethal forms of cancer. Studies in mice with a mutation present in 90 percent of pancreatic cancer patients (the KRAS mutation) indicate that expressing only half the amount of the glucose-regulated protein GRP78 is enough to halt the earliest stage of pancreatic cancer development.

The study, funded in part by the National Institutes of Health, suggests that because the protein is required for "switching" healthy pancreatic cells that produce enzymes to digest food into potentially cancerous cells, reducing the amount of this protein delays pancreatic cancer development and prolongs survival. The study, published online on May 16 in the *Proceedings of the National Academy of Sciences of the United States of America*, is the first to establish the pivotal role of the protein in pancreatic cancer.

"Cancer cells are addicted to high levels of GRP78

for cancer development and growth. Our hope is that partially reducing or inactivating the protein by therapeutic agents could one day be an effective complementary therapy for pancreatic cancer and other cancers, while sparing other healthy organs," said Amy Lee, PhD, professor of biochemistry and molecular medicine and the Judy and Larry Freeman Chair in Basic Science Cancer Research.

Lee, who was the first scientist to clone human GRP78, has since dedicated much of her research to investigating the protein's role in cancer progression and treatment. For her scientific contributions, Lee was honored by a MERIT award from the National Cancer Institute and elected as Fellow of the American Association for the Advancement of Science.

"As developing drugs directly targeting the KRAS genetic mutation has been challenging, we are thrilled these findings indicate that we can attack KRAS-driven pancreatic cancer through an entirely new method," Lee said.



**FUTURE OF HOSPITAL FACILITIES DISCUSSED AT CONFERENCE:** Rod Hanners, chief operating officer of Keck Medicine of USC and CEO of Keck Medical Center of USC, recently joined several top health system executives to discuss the future of health care facilities at Bisnow's National Healthcare Expansion and Innovation Series. Hanners, second from left, participated in the closing keynote panel and spoke about access and health care innovation. Other members of the panel included Thomas Priselac, president and CEO of Cedars-Sinai Health System, third from left; Johnese Spisso, CEO of UCLA Hospital System, third from right; Margaret Peterson, PhD, president of Dignity Health-California Medical Center, second from right; and Matthew Jenusaitis, chief of staff of the University of California, San Diego Health System, right. Laurie McCoy, left, health care principal at NBBJ, was the moderator.

## BIOTECH: Research roles boost employment

Continued from page 1

According to a recent report by the trade organization Biocom, biotechnology creates \$317 billion in annual economic activity in California. Los Angeles captures about 13 percent of that, according to the report, which attributes more than a million high-paying California jobs to biotech. It's estimated that each research job in biotech creates four jobs in support roles.

Grifols Biologicals president Willie Zuniga spoke about his ascent to lead the El Sereno-based company.

Seddie McKenzie is a manufacturing technician at Grifols Biologicals and shared her story about how she began her biotech career after earning a certificate

in biotechnology at Los Angeles Valley College.

"There are multiple people I work with now who went through the same steps I did — they started at Grifols with a certificate as well," said, after leading an informational session on employment and training opportunities in biotechnology.

McKenzie, who just earned a bachelor's degree and will pursue a graduate degree in biotechnology.

"I think it's a great opportunity for people to get some work experience and decide what they want to do with their lives," she said. "If they decide 'I do love this, I do want to create a career with this industry,' it can be a stepping stone."



Matthew Lopez, 7, gets a sticker from mom Monica Lopez at a recent health fair.

## CAREER: STEM fields highlighted during fair

Continued from page 1

labor opportunities that can address health issues and break barriers, particularly those affecting the immigrant and low income community in Los Angeles. Lopez, who survived cancer at a young age, said she is grateful that STEM technology and research advances helped her beat cancer and gave her a second chance in life.

"Do you want to be a doctor, or a dentist, an astronaut or an engineer?" The question was asked repeatedly, as families with young children talked with USC students and volunteers about STEM education programs. Engineering students from the USC chapter of the Society of Hispanic Professional Engineers were on hand to share information.

Alexandra Coronado, a first-generation

college student studying biology, answered questions from kids as young as 4 at USC's booth.

"I think it's amazing for kids to be exposed at a young age to different sciences, different careers in STEM," she said. "I got interested in medicine a long time ago when my mom got me a Barbie doctor kit. That was it for me."

"I want these kids to know about STEM and biotech opportunities. They've got to start with biology, chemistry and math."

The Keck School, USC Civic Engagement, the USC Viterbi School of Engineering, the university's Physicians Assistant program and the Herman Ostrow School of Dentistry of USC all supported the event.

## Foundation funds projects targeting new cancer care

By Hope Hamashige

Two promising cancer research projects led by investigators at the Keck School of Medicine of USC and the USC Norris Comprehensive Cancer Center recently received generous funding from the Tower Cancer Research Foundation.

The foundation awarded five-year, \$500,000 grants to Michael Press, MD, PhD, professor of pathology at the Keck School and holder of the Harold E. Lee Chair in Breast Cancer Research, and the team of Guo-Min Li, PhD, and Xiaojiang Chen, PhD, professor of molecular biology at the Dornsife College of Letters, Arts and Sciences and a member of the USC Norris Comprehensive Cancer Center. The recipients believe that their research has the potential to result in next-generation cancer therapies.

In his research, Press has discovered that a protein called Pololike Kinase 4, or PLK4, plays an important but not well-known regulatory role in cell division, which could make PLK4 a potentially important cancer therapeutic target.

Press believes that a better understanding of PLK4 and the mechanism of action of its inhibitor will help him develop a biomarker profile to identify those types of metastatic cancers arising from the

breast, ovary and colon/rectum that have a high probability of complete response to a PLK4 inhibitor.

Li and Chen have been investigating DNA mismatch repair, which is the system that recognizes mistakes during cell division and repairs the DNA.

Cancer cells undergo error-prone DNA replication during cell division, which generates mismatches that lead to mutations. Understanding this, Li and Chen set out to find a way to inhibit the error-prone DNA synthesis, which could halt the development of all types of cancer.

To that end, the duo has recently created a mutant DNA repair protein that binds to cancer cell-specific DNA errors during cancer growth, leading to cell death. With this grant, they aim to develop this into an effective drug for all types of cancer.

"One of the ways the Tower Cancer Research Foundation is hoping to end cancer is to fund cutting-edge research projects that advance our understanding of cancer and to find novel ways to attack this disease," said Linda David, executive director of Tower Cancer Research Foundation. "We are proud to support both Dr. Press and Drs. Li and Chen, whose research we believe will lead to better cancer treatments in the near future."

## BAKER: Began at Keck School in 1995

Continued from page 1

Baker's wide recognition was a factor in his appointment to chief in another way: "I can't let this talent get poached," Starnes laughed.

Baker started at the Keck School as a surgical intern in 1995, but his association with the department chair and Julie Starnes, administrative director of the CardioVascular Thoracic Institute, began when he still was in medical school at Georgetown University.

Baker ended up developing a close personal and professional relationship with the Starneses that has lasted for more than 20 years. He noted that he has been able to reach this position with the unwavering support of his parents, Allen and Carole Baker, and his wife, Regina Baker, MD, assistant professor of clinical surgery at the Keck School.

"My parents provided me with the opportunity to pursue my dreams and always encouraged me to do so. And I'm truly blessed to have such a supportive wife," he said. "Nothing would be possible without her."

Baker has a bold vision for the cardiac surgery division: "My priority is to continue to grow the exceptional cardiac surgery program Dr. Starnes has built and cement Keck Medicine's reputation as the preeminent cardiac surgery program in the western United States. I intend to make us early adopters of the new technology that will revolutionize our field over the next decade, and I will continue to build relationships with strong affiliate partners. I have amazing faculty partners and I'm thrilled to be able to work with them as we move into the future."

## CHLA: Seven specialties ranked in top 10

Continued from page 1

exceptional national performance again this year. We at the Keck School are proud of our longstanding partnership with CHLA and will continue to foster cutting-edge basic and translational research, educating the next generation of pediatricians, and providing the most complex clinical care that will positively impact the quality of life of children — and their families — for generations to come."

Overall, Children's Hospital Los Angeles' equaled or improved its national ranking in eight categories compared to last year's survey results. For 2017-18, CHLA's programs in orthopaedics, gastroenterology and GI surgery, and cardiology and heart surgery moved up two spots each to No. 6, No. 7 and No. 8, respectively. Diabetes and endocrinology advanced three places to the No.

5 slot; neonatology moved up one place to No. 6; and neurology and neurosurgery jumped six spots to No. 10. Cancer finished at No. 9 and urology came at No. 16. Both pulmonology and nephrology each ranked 18th in the nation, with the former program gaining one place and the latter gaining six. CHLA earned top-20 recognition in each of the specialty areas evaluated.

"The staff at CHLA has much to be proud of in light of this news," said Robert Shaddy, MD, chair of the Department of Pediatrics at the Keck School of Medicine of USC, who officially joined CHLA as pediatrician-in-chief and senior vice president of academic affairs on June 1. "I am very excited to be joining such an accomplished and dynamic team of health care providers and look forward to helping to continue to improve the excellent care we're able to give our young patients."



## 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:



Cristy Lytal

From left, Gage Crump, Min Yu, Yang Chai, Joseph T. Rodgers and Denis Evseenko lead a panel discussion about “Preparing for the faculty job market” for postdoctoral scholars on May 30.

## Postdocs get help with faculty job search in seminar series

NEARLY 50 POSTDOCS FROM DEPARTMENTS across USC attended the first installment of “Preparing for the faculty job market.” The three-part seminar series is the brainchild of Michaela Patterson, PhD, and Lindsey Barske, PhD, postdocs at the Eli and Edythe Broad Center for Regenerative Medicine and Stem Cell Research at USC. The kick-off seminar focused on how to structure the research statement, an essential component of the faculty application package. The second seminar on July 21 will address the remaining application documents, including the CV, cover letter, teaching statement and diversity statement. The third seminar, to be held in November, will conclude the series with an overview of the interview process, including the infamous “job talk” and “chalk talk.” — **Cristy Lytal**



Courtesy Brad Spellberg

Brad Spellberg, second from left in the front row, joined leading infectious disease specialists at AAAS headquarters in Washington, D.C., for a public engagement fellowship training from June 12-16.

## Infectious disease specialist joins training for fellowship

BRAD SPELLBERG, MD, PROFESSOR OF clinical medicine at the Keck School of Medicine of USC, joined 14 other leading infectious disease specialists in Washington, D.C., from June 12-16 as part of the American Association for the Advancement of Science (AAAS) Alan I. Leshner Leadership Institute’s cohort of 2017-18 Public Engagement Fellows. The group gathered at AAAS headquarters for an intensive, weeklong program focused on public engagement and science communication training, networking and public engagement plan development. — **Erica Rheinschild**



Courtesy Boston Scientific

Stuart Boyd, second from left, is seen with his former fellows, Francisco Martins, Jeff Loh-Doyle and Mukul Patil.

## Stuart Boyd receives lifetime achievement award

AT THE 2017 AMERICAN UROLOGIC Association Annual Meeting on May 13, Boston Scientific awarded Stuart Boyd, MD, professor of urology at the Keck School of Medicine of USC, the F. Brantley Scott Award of Excellence. This is a lifetime achievement award for the practice of reconstructive urology. In receiving the award, Boyd said, “I am truly honored to receive this award and to be able to restore quality of life for so many patients and their families over these last 35 years at USC.” — **Mary Dacuma**

# Trauma survivors visit with caregivers at annual reunion

By Lex Davis

The walls are covered with brilliantly colored balloon sculptures. There is a bubble machine and a face-painting booth. Two golden retrievers named Fergus and Casper happily accept pats.

It’s not the image most people have when they think of a trauma center.

The Los Angeles County + USC Medical Center Trauma Survivors Reunion started a decade ago, when a LAC+USC trauma surgeon saw a former patient walk into the hospital. The young man had been unresponsive the last time the surgeon had seen him; now he was back in school. While most doctors and nurses in critical care don’t know what happens to their patients once they’re whisked off to long-term care, this surgeon realized how moving it is to be able to see a patient in recovery.

“The reunion is as much for staff as it is for survivors,” said Lydia Lam, MD, assistant professor of clinical surgery at the Keck School of Medicine



Lydia Lam

Patricia Tapia, center, a nurse at Los Angeles County + USC Medical Center, and members of the reunion planning committee spent three days making balloon art for the Trauma Survivors Reunion on May 20.

of USC, at this year’s 10-year anniversary event on May 20.

“It’s about connection,” explained Demetrios Demetriades, MD, PhD, professor of surgery and chief of the division of acute care surgery and surgical critical care. “We meet under very different circumstances. This is an opportunity to celebrate life.”

That celebration is evident as former patients enter the room: Doctors and nurses light up with recognition and rush to say hello. Demetriades referred

to many of the patients as “walking miracles.”

Former patient Alfonso Morillo was among the featured speakers. He was in a car accident that left him with traumatic brain injuries and fractures to his C1 and C2 vertebrae. He spoke about what it felt like to have the nurses gather and applaud him when he took his first steps.

“It’s easy to become attached to patients,” said Nurse Manager Martha Navarro, RN, “especially when they’re like this one.”

## Urology professor discusses career, legacy

By Hope Hamashige

After nearly four decades on the faculty of the Keck School of Medicine of USC, Gary Lieskovsky, MD, professor of urology and holder of the Donald G. Skinner Chair in Urology, is retiring June 30. Lieskovsky, who recently was granted professor emeritus status, sat down with *HSC News* to discuss his legacy.

**What were some of the major surgical advances you’ve seen?**

First was in the field of urinary diversion and the development of a urinary reservoir made from one’s own intestine. Before this, patients who had their bladders removed had to wear a bag on the outside of their abdominal wall. Dr. Skinner, then-chairman of the department, and I felt that by making some modifications to the original procedure that there was the potential to create an internal reservoir, which would obviate the need for an external appliance apparatus.

Our work eventually evolved into connecting this high-capacity reservoir to the urethra, to rely on the patient’s own continence mechanism. This way, the patients could void naturally by simply increasing intra-abdominal pressure and pressing on their lower abdomen.

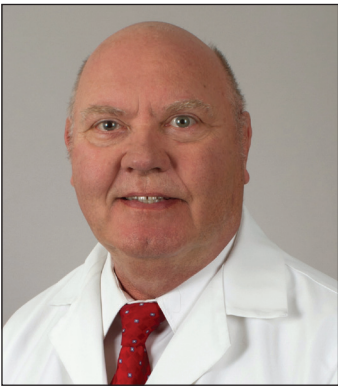
The second significant development came about in the late 1980s with the discovery of the position of the neurovascular bundles and their relationship to the prostate itself. With better understanding of the anatomy, we had vital information that allowed us to spare the nerve bundles in order for men to retain their potency following radical prostatectomy.

**What prompted you to create the Gary Lieskovsky Fellowship in Urologic Oncology, an endowment of more than \$1 million to support faculty research?**

Without endowments, it’s hard to recruit faculty, it’s hard to give them start-up money so that they can get going and apply for NIH grants or other federally funded opportunities. My hope is that it will foster outstanding research by a fellow and benefit patients in the future.

**Final thoughts about your career at Keck Medicine?**

It has been a phenomenal career, which I have cherished, and I am eternally grateful to Donald G. Skinner for recruiting me to USC and to the university for providing me the



Ricardo Carrasco III

Gary Lieskovsky

opportunity to be part of this great institution and the Trojan Family. Fight on!

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

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**Editor:** Melissa Masatani

**Director, Content Strategy and Management:** Sara Reeve

**Director, Internal Communications:** Virginia Baca

**Contributors:** Meg Aldrich, Leigh Bailey, Lorenzo Benet, Amanda Busick, Ricardo Carrasco III, Nathan Cowen, Mary Dacuma, Lex Davis, Hope Hamashige, Cristy Lytal, Ron Mackovich, Douglas Morino, 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

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