

## Keck School welcomes parents, honors scholarship donors

### Symposium offers insight about med school

By Melissa Masatani

Nearly 100 proud parents got a glimpse of the daily lives of their sons and daughters on Oct. 23 during an annual symposium at the Keck School of Medicine of USC.

Family members toured the Health Sciences Campus and heard from school leaders, including Henri R. Ford, MD, MFA, vice dean for medical education, as well as a panel of students during the afternoon event hosted

by the Parents Association in Mayer Auditorium.

“Each of your children is an individual to us,” said Raquel Arias, MD, who holds associate dean positions for admissions and educational affairs and is an associate professor of obstetrics and gynecology. “Each of your children means something to us, and we promise you we will give them the care we would give to our own child.”

The symposium, formerly

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Steve Cohn

Scholarships helped 2015 graduate Allison Wu attain her medical degree.

### Luncheon focuses on legacy of excellence

By Melissa Masatani

Amid a celebration of some of the best and brightest at the Keck School of Medicine of USC, Cheryl Mae Craft, PhD, was thinking about her “grandchildren” — the students of her former students, her legacy of physicians and researchers from years in the classroom.

“I have a lot of adopted scientific children,” said Craft, the Mary D. Allen Chair in Vision Research. “And it just pleases me so much when one

of my former students comes up and says, ‘I’m mentoring this student, so this is your grandchild.’ Just like we pass on our scientific knowledge, we need to pass on our passions and love for science.”

Craft was one of more than 150 people who gathered for the 10th annual Keck Scholarship Luncheon, held Oct. 28 at the California Club in Downtown Los Angeles. In addition to thanking donors for their continued support,

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Photos by Virginia Baca

Doctors and their patients take the field at the Coliseum during the USC-Utah football game on Oct. 24.

## Cancer survivors and their doctors take the field to raise awareness

To mark Breast Cancer Awareness Month, a team of physicians and staff from Keck Medicine of USC joined cancer survivors on the field during the Oct. 24 USC Trojan football game against Utah.

During the break at the end of the first quarter of play, a video about breast cancer was played on the giant video screen inside the Coliseum and the crowd recognized a group of nine doctors and patients on the field with a standing ovation.

It was an “awesome moment,” said one of the

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Cancer survivor Jenna Kim and physician Darcy V. Spicer were among those on hand to raise awareness about breast cancer detection.

## Massry winners tell tales of discovery

By Amanda Busick

The unlikely sequence of discovery that turned a cheese-making innovation in Denmark into a precise tool for genome-editing that has swept through biomedical laboratories around the world was the subject of the annual Massry Prize lecture on Oct. 29.

“Few discoveries transform a discipline overnight,” said Elizabeth Fini, PhD, director of the Institute for Genetic Medicine at the Keck School of Medicine of USC, during her introduction of two of the three winners of this year’s Meira and Shaul G. Massry Prize. “But biologists can manipulate cells in ways never possible before” thanks to a discovery about the bacterial immune system referred to as CRISPR (clustered regularly interspaced short palindromic repeats).

The technology developed from efforts led by one of the Massry Prize recipients, Philippe Horvath, PhD, a senior scientist at the Denmark-based food company Danisco (later acquired by DuPont). He told a capacity crowd in Mayer Auditorium about the origins of his team’s research — studying bac-

teria in order to protect the integrity of Danisco’s starter cultures, which are integral in the production of cheese, yogurt and other foods.

What Horvath discovered is that bacteria are capable of defending themselves against repeated infections by viruses known as bacteriophages, which are commonly found in milk and other raw food materials.

“Because the fermentations are done in conditions that are not sterile, phages may be able to propagate in production settings,” Horvath said about the problem he was trying to solve. “If the level of phages reaches a high value, it can have a very severe impact on fermentation, which can lead to a total fermentation failure.”

The breakthrough? Exposing bacteria to bacteriophages actually made them immune to future attacks, and Horvath and his team deduced that CRISPR sequences held the key. Then they mapped out a method to protect their prized cultures.

Enter Emmanuelle Charpentier, PhD, the director of the Max Plank Institute for Infection

See **MASSRY**, page 4

## Surgeon who treated high-profile patients in Latin America joins USC Urology Institute

By Les Dunseith

The newest addition to the urology staff at Keck Medicine of USC will fit right in working in a city noted for its celebrities — he’s been doing surgeries on high-profile patients in Latin America for years. One of his final cases before arriving in Los Angeles, in fact, was a successful prostate cancer surgery on the runner-up in Colombia’s most recent

presidential elections.

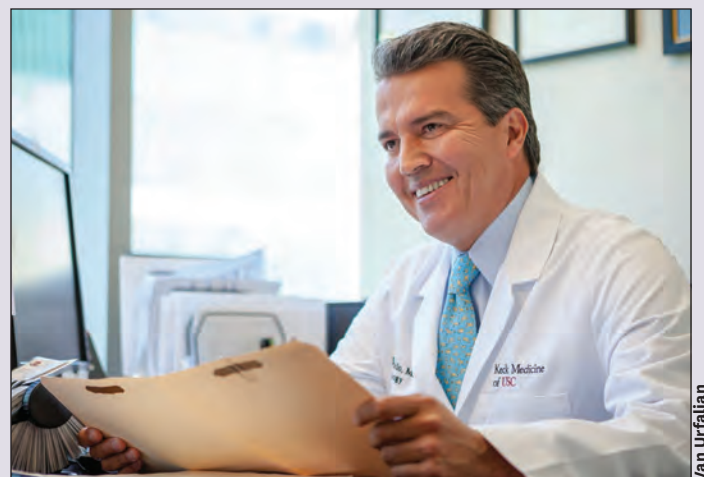
Rene Sotelo, MD, joined the USC staff on Aug. 3 as professor of clinical urology at the USC Institute of Urology, just a few days after performing a robotic prostatectomy in Bogota, Colombia, on Oscar Iván Zuluaga, an economist who was the nominee of the Democratic Center political party in the 2014 presidential election.

At the time, Sotelo’s base

of operations was in Caracas, Venezuela, which is his home country, but he had become known throughout Latin America as a leader in the use of robotic surgery to treat urologic cancers and benign conditions. Sotelo has published more than 50 peer reviewed scientific papers and 28 chapters in major urology books.

So, when Zuluaga received

See **SOTELO**, page 3



Van Urfalian

Rene Sotelo is known throughout Latin America as a leader in the use of robotic surgery to treat urologic cancers and benign conditions.

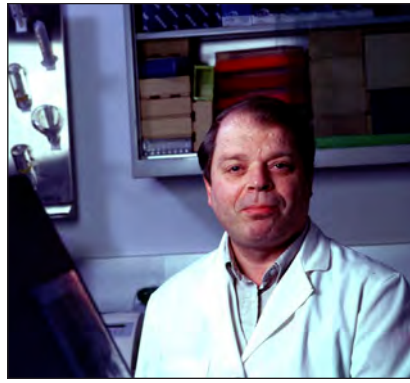
## Breast, ovarian cancer risk may have association with sense of smell

By Margaret Trtryan

The association between menstrual cycle activity and breast and ovarian cancer risk may have an unexpected intermediary — odors.

Keck Medicine of USC researchers have discovered for the first time that the estrous cycle (the equivalent of human menstrual cycle) in mice carrying a mutation known to cause familial predisposition to breast and ovarian cancer in humans is more readily stimulated by scent than in normal mice. Even more surprising was the finding that the ovary, independently of the nose, mediated the olfactory signals.

“This research indicates that a better sense of smell may contribute to the elevated cancer risk of women with BRCA1 mutations,” said corresponding author Louis Dubeau, MD, PhD, professor of pathology and medical director of molecular pathology, USC Norris Comprehensive Cancer Center. “We found that the presence of the mutation in the ovary mediated a stronger response to scent, implying that the mutation may influence the menstrual cycle,



Research author Louis Dubeau

which in turn is an established risk factor for breast and ovarian cancer.”

The research was published Oct. 21 in the peer-reviewed journal *PLOS ONE*.

Springing off the observation that menstrual cycles often synchronize between female college roommates, indicating some sort of communication with environmental signals, the scientists compared female mice genetically engineered to carry the BRCA1 mutation to normal, or wild-type mice. They isolated the females from males, causing estrous to pause

in the females. When the females were exposed to male bedding, those with the BRCA1 mutation restarted estrous faster than the wild-type mice.

To confirm that the results were mediated by the ovary independently of the nose, the scientists transplanted ovaries from mice with the BRCA1 mutation into wild-type mice and also transplanted ovaries from normal mice into the genetically engineered mice carrying the mutation. The wild-type mice with the BRCA1 mutation present in their ovarian transplants responded more quickly when introduced to the male scent than mutant mice with wild-type ovarian transplants carrying the mutation in all tissues except the ovary.

“We’ve known for a long time that smell receptors are expressed in all kinds of tissues, but we know very little about what these receptors do outside of the nose,” Dubeau said. “Only certain tissues in the breast and reproductive organs have an elevated cancer risk in women who carry a BRCA1 mutation. We found

that BRCA1 mutations do not only influence these tissues directly, but also indirectly by changing how they communicate with other cells. This research is one of several examples shown in my laboratory where BRCA1 controls how different cells communicate from a distance. If we can understand how disruption in such communications leads to elevated cancer risk in BRCA1 mutation carriers, we can develop therapies to control these cancers, including perhaps therapies based on smell.”

Other USC researchers who contributed to the study include Ying Liu, Yuan Tang, Elena Enbom and Theresa Austria of the Department of Pathology, Vasu Punj of the USC Norris Comprehensive Cancer Center Bioinformatics Core and Division of Hematology, Frank Z. Stanczyk, Yvonne G. Lin and Sara Mucowski of the Department of Obstetrics and Gynecology and Nancy Wu, Hai-Yun Yen and Robert Maxson of the Department of Biochemistry and Microbiology, USC Dornsife College of Letters, Arts and Sciences.



Christy A. Russell, MD; Stephen F. Sener, MD; cancer survivor Ghecemy Lopez; Louis Vendermolen, MD; survivor Jenna Kim; Julie Lang, MD; survivor Jennifer Teague; Maria Nelson, MD; and Darcy V. Spicer, MD.

### GAME

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organizers, Nick Cartan, director of business development for USC Sports Properties.

Earlier on game day, two Keck Medicine of USC physicians, Stephen F. Sener and Christy A. Russell, were interviewed during a pre-game segment on ESPN710 by announcers John Jackson

and Steve Mason. The doctors spoke about breast cancer awareness, treatment and prevention options.

In all, about 100 people from USC showed their support during the event by wearing special black or pink shirts adorned with the pink ribbon logo that is associated with the fight against breast cancer. The commemorative t-shirts are available for sale at USC bookstores.

## USC Norris receives grant from Riley Foundation

By Carmy Peters

A three-year grant of \$360,000 to fund pancreatic cancer research has been given to the USC Norris Comprehensive Cancer Center by the Susan E. Riley Foundation.

“The Riley Foundation has generously supported USC Norris’ pancreatic cancer research for several years,” said Stephen B. Gruber, MD, PhD, MPH, the director of USC Norris. “We are especially grateful to the Riley Foundation board members for their continued confidence in our pancreatic cancer research and one day finding a cure.”

The grant will help support efforts to further the understanding of inherited susceptibility to pancreatic cancer, a project headed by Gruber and Gregory E. Idos, MD, assistant professor of clinical medicine at the Keck School of Medicine of USC.

In previous research published in April 2014, Gruber and Idos identified a gene known as BRCA 1 associated protein-1, or BAP1, that

has a causal link to pancreatic and other cancers. This knowledge allows family members who may carry the gene to undergo screening to identify the risk of fatal pancreatic cancer. But further analysis of patients is required to fully understand the scope of BAP1-associated pancreatic cancer.

“In partnership with the Riley Foundation, it is our vision that everyone affected by pancreatic cancer will have hope, dignity and support,” said Gruber, an oncologist and geneticist who holds the H. Leslie and Elaine S. Hoffman Cancer Research Chair at the Keck School of Medicine of USC.

USC Norris is home to the Cancer Surveillance Program of Los Angeles County, and it has a diverse bio-repository of more than 1,000 pancreatic cancers from patients from many ethnic groups. The Susan E. Riley Foundation grant will allow the genetic basis of each of these pancreatic cancer patients to be studied at the germline and somatic levels.

The project will also seek to quantify the frequency and risk of BAP1 and other genes linked to pancreatic cancer in a diverse population. The Gruber Lab hopes to revolutionize the course of treatment for pancreatic cancer by translating genetic analyses from the laboratory to the clinic, a model that has led to screening programs and targeted drugs for other cancers.

Susan E. Riley and her mother, Edna, both died of pancreatic cancer. The foundation has been in existence since 2012 and has been a supporter of USC Norris for many years.

In the United States, pancreatic cancer is estimated to have claimed about 40,000 lives in the past two years. Most pancreatic cancer patients die within the first year of diagnosis, and just 6 percent survive five years because of a lack of early detection tools and effective treatments. Inherited genetic factors play an important role in pancreatic cancer risk.

## Calendar of Events

### Saturday, Nov. 7

**7:15 a.m.** Department of Medicine and USC Office of Continuing Medical Education. “Contemporary Topics in Internal Medicine,” Jennifer R. Marks, MD, and Ron Ben-Ari, MD, FACP. Westin Pasadena, 191 N. Los Robles. Info: Anika Bobb, (323) 442-2547, usccme@usc.edu

### Monday, Nov. 9

**3:30 p.m.** HEAL Lab Talk. “Acute Use of Alcohol and Suicide: Lessons Learned from National Postmortem Data,” Mark Kaplan, USC. SSB II, Room 2905. Info: Adam Leventhal, (323) 442-8222, adam.leventhal@usc.edu, <http://heal.usc.edu>

### Tuesday, Nov. 10

**11 a.m.** Keck Medical Center of USC Employee Safety Fair. Hospital ID

required. Soto 1, outdoor area near Seeds. Info: Robert Vance III, (323) 442-9915, robert.vance@med.usc.edu

**5:30 p.m.** Ophthalmology Grand Rounds. On-Tat Lee, MD, USC. HC4 Conference Room, 3rd Floor. Info: Tyaisha Christopher, (323) 409-5233, Tyaisha.Christopher@med.usc.edu

### Wednesday, Nov. 11

**Noon.** ZNI Seminar Series. “Aggregating Genetic Variants and Mutations Using Network Models of Cell Biology,” Trey Ideker, PhD, UCSD. Herklotz Seminar Room, ZNI 112. Info: Emily Chu, (323) 442-3219, Emily.Chu@med.usc.edu

**Noon.** USC Stem Cell Seminar. Bruno Pé-

ault, PhD, UCLA Orthopaedic Surgery. Eli and Edythe Broad CIRM Center Auditorium. Info: Cristy Lytal, lytal@med.usc.edu

### Thursday, Nov. 12

**6 p.m.** Department of Orthopaedic Surgery Grand Rounds. Richard Iorio, MD, NYU Langone Medical Center Hospital for Joint Diseases. Aresty Auditorium.

**1:30 p.m.** Keck Medicine of USC Stroke Support Group Meeting. “Stroke Recovery: Physical Aspects and Mobility,” Cherise Lathan, DPT, USC. Keck Hospital, 3 North, Day Room (3261A). Info: Ozzy Obiwuru, (323) 442-0049, obiwuru@med.usc.edu

### Friday, Nov. 13

**8 a.m.** USC School of Pharmacy Symposium. “Legislative Day,” Jeff Stone,

28th Senate District. Aresty Auditorium. Info and RSVP: Irene Chen, (714) 343-8792, ireneych@usc.edu

**8:30 a.m.** Pulmonary, Critical Care and Sleep Medicine Seminar. “Translating Airway Gene Expression Into Biomarkers for Lung Cancer and COPD,” Avrum Spira, MD, Boston University. IRD 734. Info: Elva Rubio, (323) 226-7923, elvarubi@usc.edu

### Wednesday, Nov. 18

**9 a.m.** USC Stem Cell Workshop, “FlowJo Overview and Tutorials,” Jack Panopoulos of FlowJo. Eli and Edythe Broad CIRM Center (BCC) Auditorium (9–10 a.m.), BCC 5th Floor Conference Room (10 a.m.–noon). Info: Cristy Lytal, (323) 442-2172, lytal@med.usc.edu



Inderbir S. Gill, MD, talks about a surgery he had just completed during a live surgical event broadcast from Keck Hospital.

## Live robotic surgery at Keck is viewed worldwide

Two surgeons from the USC Institute of Urology were among the principal featured participants in a worldwide 24-hour live robotic surgery event held Oct. 26 at Keck Medical Center of USC and at 11 other leading robotic centers on every continent except Antarctica.

In all, more than 2,000 viewers from about 60 countries registered to participate in the event, which included surgeries performed in countries that also included Sweden, Belgium, Italy, France, Great Britain, Egypt, Brazil, India, South Korea and Australia.

At USC, the first surgery was performed by Inderbir S. Gill, MD, whose pioneering

robotic “zero-ischemia” partial nephrectomy was broadcast live from Operating Room 15-16 on the fourth floor at Keck Hospital of USC. Gill is founding executive director of the USC Institute of Urology and chairman and professor, Catherine and Joseph Aresty Department of Urology at the Keck School of Medicine of USC.

Later that morning, Mihir Desai, MD, performed a robotic radical cystectomy with intracorporeal orthotopic neobladder. Desai is professor of urology and director of urological robotic surgery at the Keck School.

For both procedures, the USC robotics team has the world’s preeminent experience. The

surgeons narrated the procedures for viewers who watched via an online link, and they answered questions via Skype and on social media.

Later that evening, a four-hour studio session was held in Aresty Auditorium to further discuss robotic surgeries. The studio session featured lectures by Gill, Desai and by Andrew Hung, assistant professor of clinical urology, as well as Andre Abreu, a clinical fellow in urology. Professor of Clinical Urology Rene Sotelo presented his session via Skype while traveling to Miami.

Organizers included Microsoft and the European Association of Urology.

## SOTELO: New surgeon to build on success in Latin America

Continued from page 1

his diagnosis of prostate cancer, the political leader’s advisers sought out the top surgeon in that part of the world, which quickly led them to Sotelo.

“I had been traveling to Colombia and training surgeons in Colombia for many years,” Sotelo noted.

The surgery, which took place in July 2015, was particularly newsworthy in the Spanish-speaking world, and was covered by many news outlets, including an appearance by Sotelo on the Spanish-language edition of CNN.

The surgery’s result? “Now three months later, the cancer is completely extracted and Zuluaga is doing great,” Sotelo said during an Oct. 13 interview in his new office at USC. “Just three or four weeks afterward, he was already back out doing campaign work [in his role as party chairman.]”

Although Sotelo now has a new base of operations, he will continue to be a major medical presence in Latin America, serving as an ambassador for the USC Institute of Urology and Keck Medicine of USC overall. His passion for surgical innovation, advancing the field, and his worldwide teaching experience coincides with and further strengthens the overall philosophy of the Keck School of Medicine of USC and its Department of Urology.

“Dr. Sotelo is the premier robotic and laparoscopic surgeon in Latin America,” said Inderbir S. Gill, MD, chairman and professor, Catherine and Joseph Aresty Department of Urology, and executive director, USC Institute of Urology at the Keck School of Medicine of USC.

“And we have tasked him with further increasing his existing partnerships in Latin America to enhance USC’s reputation as a world-class medical enterprise,” Gill said. “In the two short months he has been here at USC, we have already seen a dramatic increase in the number of Latin American patients flying to USC Urology for advanced surgeries.”

Sotelo is excited to spread the word in Latin America about USC, but he also is looking forward to engaging with his new colleagues in Los Angeles. Sotelo is a pioneer in robotic surgery for complex urinary fistulae in females and males, for example, as well as treatment of benign prostate enlargement and inguinal lymph node dissection for cancer.

“Over time, I got a lot of experience in repairing all kinds of fistulas, which are abnormal communications between different organs and the urinary system,” Sotelo explained. Prior to joining the Keck Medicine staff, he had occasionally traveled to USC



Rene Sotelo joins a team of robotic surgery experts at the USC Institute of Urology led by Inderbir S. Gill, right.

to observe and learn, and also to share his knowledge.

Gill’s pioneering work in robotic surgery for cancer has been a big part of what Sotelo refers to as his “learning network” ever since Gill was a visiting professor in Venezuela 18 years ago. Thereafter, Sotelo would observe Gill’s surgeries in person, if possible, but mostly he watched them on video to help himself learn.

Sotelo would pass along what he had learned about Gill’s techniques to others in Latin America. Over time, the relationship became increasingly reciprocal — Sotelo pioneered some techniques of his own and exchanged those discoveries with Gill.

For Sotelo, coming to the United States represents a chance to work not just with Gill but with many of the best surgeons anywhere.

“USC has the best urologic team in the world,” Sotelo exclaimed. “They are always thinking of new things — 30-plus surgeons, all the best in their specialty. It’s a unique opportunity.”

It’s also an opportunity with fewer logistical and economic limitations. Soon after arriving at USC, Sotelo and Gill performed a complex robotic surgery together. In South America, Sotelo had been using an older generation of the robotic instruments.

“Here, it’s the latest technology,” Sotelo said. “To me, it’s like a dream. As Dr. Gill told me, ‘Rene, welcome to America!’”

## USC’s Big Data U will teach researchers to analyze biomedical information

By Zen Vuong

Researchers need guidance as they navigate a jungle of biomedical data in their search for therapies, prevention techniques and cures to diseases.

To assist them, the National Institutes of Health has awarded USC a three-year, \$6.3 million grant to build Big Data U, the nation’s first so-called Training Coordination Center aimed at teaching people with different backgrounds how to translate astronomical amounts of data into compatible and comparable statistics. The goal is to find trends, interesting relationships and clustering effects.

“A lot of the big data we are dealing with haven’t even been collected yet,” said the project’s lead investigator, John Van Horn, PhD, associate professor of neurology and education, and director of the new Master of Science program in neuroimaging and informatics at the Keck School of Medicine of USC. “It’s still off in the future. What we do now and how we train people to be able to deal with that will prepare us for the time when getting many terabytes worth of data is considered trivial — a relatively small or even ‘cute’ little study.”

Big data science has moved away from a traditional reductionist model, where a hypothesis is formed and tested by including a single variable in a controlled experiment.

Disorders such as Alzheimer’s disease involve intricate components. Isolating a single variable when it comes to conditions involving the brain may provide one answer, but not necessarily the complete one, said Arthur Toga, PhD, a provost professor with joint appointments at the Keck School of Medicine and the USC Viterbi School of Engineering.

“We’re letting the data lead us to the discovery. It’s kind of an upside down way of thinking about things,” he said. “Big data allows us to look at all these variables simultaneously and put together a comprehensive picture. Only in concert do they produce the function and structure that you’re trying to understand. If you study only one variable at a time, you may never fully understand how it works.”

Big Data U, tentatively set to launch in the spring of next year, will be a hybrid of massive open online courses (MOOCs) and YouTube video tutorials. It’s a free resource for anyone who wants a self-guided or semi-structured study of topics relevant to biomedical science. Social media tools will provide ratings for course content and guide the selection of relevant training media.

“We will promote opportunities for big data research rotations, host ‘innovation labs’ for new grant proposal development, develop hackathons and other training activities,” Van Horn said. “Some of these activities will be up to the user to complete, but others will have an expectation of required completion and will entail a report or tangible product.”

The Training Coordination Center is a part of the NIH’s Big Data to Knowledge (BD2K) initiative, launched in 2012 to transform how science is done. BD2K has 11 Centers of Excellence for Big Data Computing, two of which are at USC: the Big Data for Discovery Science Center with Toga as principal investigator and ENIGMA Consortium with Paul Thompson, PhD, as principal investigator. Stanford University, Harvard University Medical School and UCLA also host Centers of Excellence.

While each Center of Excellence has its own training responsibilities, Big Data U at USC is the only center tasked with harmonizing these efforts into a concerted action.

**‘What we do now ... will prepare us for the time when getting many terabytes worth of data is considered trivial — a relatively small or even ‘cute’ little study.’**

— John Van Horn

## 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:

### Sign up for benefits during open enrollment through Nov. 15

IT'S OPEN ENROLLMENT TIME again, the only chance each year when USC employees may change their medical, vision and dental plans. Among the changes for 2016: The VSP vision plan is not part of the Keck Medicine of USC health plan and requires a separate enrollment. For other changes and additional details, go to <http://benefits.usc.edu>. Even if you're not changing any benefits, employees are encouraged to log into Workday to check their personal information. Make sure dependents are listed correctly, for example, and ensure that benefit coverage aligns properly. (For instance, if you're no longer married, you should not be paying for "employee + spouse" level benefits). Updates of this information can be made directly in Workday.



Les Dunseith

Speaker Martin Kast, left, pauses before the USC Norris Ambassadors lecture with hosts Stephen B. Gruber and Art Ulene.

### USC Norris Ambassadors gather to hear about rare disease research

THE USC NORRIS AMBASSADORS learned of the unique research being done by Martin Kast, PhD, and his lab during a Friends and Family Luncheon on Oct. 22. Hosting the event was Stephen B. Gruber, MD, PhD, MPH, director of the USC Norris Comprehensive Cancer Center, and Art Ulene, MD, a longtime broadcast media medical expert. The luncheon was attended by USC Norris Ambassadors and USC Associates, who promote and share the cancer center's mission. Among the topics of Kast's presentation was his work into genetic variations that result in uncontrolled infection and proliferation of warts caused by the human papillomavirus within Indonesian "Treemen."

### Premier academic body in Europe selects USC's Zlokovic as fellow

BERISLAV ZLOKOVIC, MD, PhD, director of the Zilkha Neurogenetic Institute and professor and chair of the Department of Physiology and Biophysics, has been elected as a Fellow of the Academy of Europe (Academia Europaea), the premier academic body of the entire European continent. Membership in the Academy is limited to only 2,600 scholars, 54 of which are current Nobel Prize winners.



Barislav Zlokovic, MD, PhD

### Factors in breast milk may play a role in transmission of obesity

THE ROAD TO OBESITY may be paved with non-nutritious carbohydrates in breast milk, shifting popular notions about how and why children grow to become overweight adults, a new study suggests. Previous research has shown that maternal obesity strongly affects a baby's risk of becoming overweight, but scientists are unsure how fatness is transmitted, said Michael Goran, the study's corresponding author and director of the Childhood Obesity Research Center at the Keck School of Medicine of USC. Now Goran and his collaborators have found that variations in complex carbohydrates found in breast milk called human milk oligosaccharides (HMOs) are associated with variations in infant growth and obesity. The study, published online in the *American Journal of Clinical Nutrition*, is the first to identify variations in HMOs as a possible protective or risk factor for obesity, said Tanya Alderete, PhD, lead author and a postdoctoral research scholar at USC. — **Zen Vuong**

## MASSRY: Scientists tell of breakthrough

Continued from page 1  
Biology in Berlin. She and the third Massry Prize recipient, Jennifer Doudna, PhD, built on Horvath's research by figuring out that two pieces of RNA join with protein made by the bacteria, called Cas9, to cut the DNA at a specific spot. And they realized this mechanism could be used for more than just combating bacterial viruses — it could be used to edit genomes.

"Research on bacteria has led to the identification of a large number of enzymes

that have been extremely useful in molecular biology and genetics," Charpentier told the audience. "CRISPR-Cas9 is a tool that is quite easy to harness for precise genetic surgery ... in any cell or organism."

The lecture by Horvath and Charpentier preceded an awards ceremony that took place two days later in Beverly Hills, and it will be followed by a trip to USC for Doudna, professor of chemistry and cell biology at UC Berkeley, who will continue

the story of this landmark research during a presentation at the Keck School of Medicine in December.

The Meira and Shaul G. Massry Foundation founded the international Massry Prize in 1996 to recognize contributions to the biomedical sciences and the advancement of health. Shaul Massry, MD, is professor emeritus of medicine at the Keck School. The foundation promotes education and research in nephrology, physiology and related fields.

## PARENTS: Symposium offers insight into med school

Continued from page 1  
known as the Mini-Medical School, included an overview of the anatomy course taught by Mikel Snow, PhD, department chair of the Department of Cell and Neurobiology and a professor of cell and neurobiology.

"Our goal is to try and prepare students to do really well in the third year," Snow said. "We have the students engaged heavily in the dissection process, so for us, anatomy is a very active process."

Six students talked about their experiences, and a recent Keck School graduate gave his perspective on life as a medical resident.

Second-year student Franco Pillsbury said, "Life at Keck is why I really wanted to come here;

I was really impressed that everyone was so happy."

In addition to the school's efforts to provide a balanced academic experience, students discussed the benefits and challenges of medical school.

"It's the third year of medical school where you go through the major rotations and you actually get to experience a day in the life of the hospital," Swetha Ramachandran, a third-year student, said. "It's really gratifying to see a patient and know that I really did learn something in the first two years."

The med students had some recommendations for first-year students.

"Coming into medical school, it's easy to be intimidated," Ramachandran said. "But I think starting

from your first week in med school, you can reach out to a physician or a potential mentor and say, 'Hey, I'm interested in surgery, can I shadow you?' Getting that experience early will help guide your path."

Parents said they enjoyed the preview of what their children should expect over the next few years. The symposium was one of several events that have made the students' transition into medical school easier.

"USC has made it very comfortable for my daughter to be here and for us as parents," said Jaye Jo Cooperman, whose daughter Jolie is a first-year student. "Teachers know her name, care about her progress. She has great friends here and she's happy."

## SCHOLARSHIPS: Luncheon celebrates legacy of success

Continued from page 1

Craft was recognized for her role as president of the Achievement Rewards for College Scientists (ARCS) Foundation, Los Angeles Founder Chapter.

"I stand here today as another ARCS success story," said Kristin Rand, PhD, MPH, a postdoctoral research fellow in preventive medicine. "Without the support of the local foundation, and especially the generosity of Cheryl Craft, I wouldn't have been able to dedicate the last three years of my life to the identification of genetic mutations leading to prostate cancer and multiple myeloma."

The scholarship program is one of the many ways the Keck School helps its students succeed, said Henri Ford, MD, MHA, vice dean of educational affairs.

"When you get good students, you expect great outcomes," Ford said. "Our philosophy is that if they don't succeed, we are failing as educators. So we take this very seriously and we ensure that they are equipped with the necessary tools for success."

Dozens of students receive scholarships each year, including Allison Wu, MD, a 2015 graduate of the Keck School who is now a pediatrics resident at Mattel Children's Hospital UCLA with a research interest in gastrointestinal and hepato-

biliary disorders of infants. She was an ARCS Foundation Scholar and recipient of the Robert Fraser California Community Foundation scholarship.

"I'm very grateful for the

ARCS Foundation for allowing me to pursue research through medical school," Wu said. "I'm hoping to continue that research through residency and in my medical career."

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