HSC News

USC University of Southern California

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Researcher from USC wins Young Investigator Award

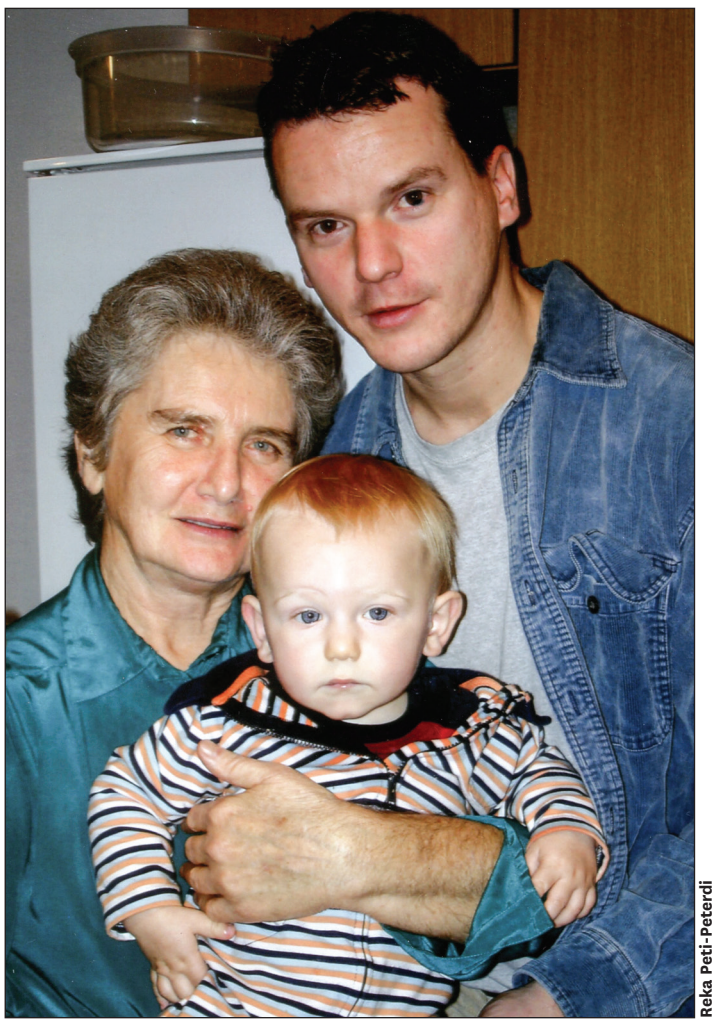
By Cristy Lytal

USC's Janos Peti-Peterdi embarked early on the path to becoming a kidney researcher.

"My destiny was already determined before I was born," said Peti-Peterdi, principal investigator with USC Stem Cell and a professor at the Zilkha Neurogenetic Institute (ZNI) and in the Department of Physiology and Biophysics ad the Keck School of Medicine of USC. "When I was born, my mother was already very ill, suffering from kidney disease. So the only way to save her was, of course, to make medicine more perfect."

His efforts have been successful. Peti-Peterdi, MD, PhD, was recently selected as the 2015 recipient of the ASN-AHA Young Investigator Award. Co-sponsored by the American Society of Nephrology (ASN) and the Council on the Kidney of the American Heart Association (AHA), the annual award recognizes a kidney researcher age 45 or younger with an outstanding record of achievement and creativity.

Peti-Peterdi began the path that eventually led to Keck Medicine of USC by earning MD and PhD degrees at Semmelweis University and assisting in a kidney transplant clinic in Budapest, near his hometown in Hungary. In this same clinic, his mother received her own transplant nearly 20 years ago to treat chronic kidney disease (CKD) that originated from a streptococcal infection.



Reka Peti-Peterdi

USC kidney researcher Janos Peti-Peterdi with his mother Erzsebet and son Bence in 2004. His mother's struggle with kidney disease inspired Peti-peterdi's carer path.

In 1997, Peti-Peterdi moved to the United States, where he completed a postdoctoral fellowship and

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Code Lavender helps staff cope with compassion fatigue

By Douglas Morino

Those on the front lines of patient care are often vulnerable to common afflictions in the medical field — burnout and stress.

A new program at Keck Medical Center of USC will provide caregivers suffering from the side effects that can come with helping patients — namely, compassion fatigue — with emotional support and resources to deal with emotions they may feel after difficult situations.

First developed by the Cleveland Clinic and launched in 2008, Code Lavender is a "holistic care rapid response" program helping hospital workers in need of a calming influence after a stressful situation, such as a difficult diagnosis or the loss of a patient.

"The Code Lavender program is a way for us as an organization to quietly provide personalized care to our front line caregivers who give so much compassion to our patients, yet are often in need of some personal support themselves," said Jessica Thomas, clinical director of the Emergency Department at USC-Verdugo Hills Hospital, who helped oversee the development of the program at Keck Medi-

See **SUPPORT**, page 3

USC Norris earns best-ever rating from National Cancer Institute

By Les Dunseith

The USC Norris Comprehensive Cancer Center has received an elite score from the National Cancer Institute (NCI) as part of its five-year core grant renewal process.

The June site review produced the best result ever for the prestigious medical facility, earning an "outstanding" distinction from the NCI reviewers.

"This highly laudatory review is a validation by the nation's cancer experts of all the considerable effort and talent of the USC Norris Cancer Center senior leaders, program, and core directors and administration," said Stephen B. Gruber, MD, PhD, MPH, director of the USC Norris Comprehensive Cancer.

"The NCI recognition reaffirms the center as a scientific leader as well as a vital community and regional resource," said Carmen A. Puliafito, MD, MBA, dean of the Keck School of Medicine of USC.

Established in 1971, the USC Norris Comprehensive Cancer Center has benefited from continuous recognition and funding from the NCI since 1973, when it was named one of the original eight comprehensive cancer centers in the country. Today, there are 45 comprehensive cancer centers in the United States, and this result moves USC Norris into the upper echelon of NCI-designated comprehensive cancer centers, of which USC Norris is one of only three in Los Angeles County. In its previous review, USC Norris had received a score in the range classified by the NCI as "excellent."

Jon Nalick

'We are now poised to build upon this incredible accomplishment ... to push the boundaries of cancer discovery in order to better prevent, diagnose, treat and cure cancer.'

— Stephen B. Gruber, director of the USC Norris Comprehensive Cancer Center

USC Norris provides care for patients in its affiliated hospitals and outpatient clinics. It conducts hundreds of clinical trials, offering the latest in innovative cancer treatments. USC Norris Comprehensive Cancer Center-affiliated hospitals include the USC Norris Cancer Hospital, Keck Hospital of USC, Children's Hospital Los Angeles and

See **NCI,** page 2

Institute of Urology begins international relationship with India's newest hospital

By Les Dunseith

The USC Institute of Urology has established a formal relationship with India's newest multispecialty hospital, the Sir H. N. Reliance Foundation Hospital and Research Center located in Mumbai.

Leading the effort on USC's behalf is Inderbir S. Gill, MD, the 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.

Gill was in attendance late last year when India's Prime Minister Shri Narendra Modi inaugurated the hospital, a historic facility that has been revitalized with the addition of a technologically superior, 19-story tower with 345 beds.

This hospital is operated by a trust and is not-for-profit. It is funded by Reliance Foundation.

Discussions for this association started a few years ago and eventually led to Keck Medicine of USC's partnership with the new hospital in India. USC President C. L. Max Nikias, PhD, see these types of synergistic partnerships as a positive outgrowth of the university's growing reputation as an innovator in the health and medical fields.

"Dr. Gill and his colleagues in Los Angeles stand at the fore of efforts to devise new and better treatments of urologic disease, and their work

See **HOSPITAL,** page 3

Courtesy Sir H.N. Reliance Foundation Hospital

Inderbir Gill of USC discusses robotic surgery with India's Prime Minister Narendra Modi at Sir H.N. Reliance Hospital in Mumbai.

New course follows human development from stem cells to sternum

By Marie Rippen

What don't we know about human development and how it can go wrong? By focusing on these questions, a new two-unit fall course is allowing USC undergraduates to go beyond standard developmental biology coursework.

In MEDS 335, Human Development: From Stem to Sternum, students will learn about the development and function of human organs at the physiological and cellular levels. Offered through the minor in health care studies, MEDS 335 is designed as a survey course to introduce students to the breadth of human development. It is open to students from all disciplines who have taken a general biology course.

"We want to show students how much there still is to learn about human development and how complex a process it is," said Neil Segil, PhD, professor of research in stem cell biology and regenerative medicine and in otolaryngology-head and neck surgery at the Keck School of Medicine of USC.

Segil is co-teaching with Senta Georgia, PhD, principal investigator at the Saban Research Institute of Children's Hospital Los Angeles (CHLA) and an assistant professor at the Keck School. Both professors are also principal investigators with USC Stem Cell, a multidisciplinary effort bringing together more than 100 researchers and clinicians working to translate discoveries into cures.

Not only will students discuss the topics in each class, they will also give presentations. Because a major goal is to pique students' curiosity about development, they will have freedom in choosing presentation topics.

"The idea is for students to let their curiosity guide them," Segil explained.

Segil and Georgia want MEDS 335 to spark interest in the development of the human body, and they are striving to make the course as accessible as possible.

"We hope that students not only develop a general understanding of human development," Segil said, "but also discover an interest in one or more specific aspects of the field."

Les Dunseith

USC Norris medical leaders joined other faculty and staff in June to finalize preparations for the NCI site review. From left, Preet Chaudhary, Stuart Siegel, Heinz-Josef Lenz, Amy S. Lee, Roxana E. Bellia, Stephen B. Gruber, Janet L. Villarmia, Graham Casey and Alan S. Wayne.

NCI: USC Norris rated 'outstanding'

Continued from page 1

Los Angeles County+USC Medical Center.

"We are now poised to build upon this incredible accomplishment to further strengthen our efforts to push the boundaries of cancer discovery in order to better prevent, diagnose, treat and cure cancer," said Gruber, an oncologist and geneticist who holds the H. Leslie and Elaine S. Hoffman Cancer Research Chair at the Keck School.

The review recommends continued full funding from the NCI to continue its support of a broad range of clinical, research and educational programs at the USC Norris. The award is designed to reduce the impact of cancer upon the lives of people in California and beyond.

More than 200 scientists and physicians from the faculty of the Keck School and other USC schools are members of the USC Norris Comprehensive Cancer Center, investigating the complex origins and progression of cancer, developing prevention strategies and searching for cures.

Preparing for the site visit was a long, complex and highly integrated process that included extensive and detailed data collection, analysis and reporting, said Alan S. Wayne, MD, director of the Children's Center for Cancer and Blood Diseases and head of the division of hematology, oncology and blood and marrow transplantation for Children's Hospital Los Angeles. Wayne is also associate director of USC Norris and professor of pediatrics for the Keck School.

"Peer-review that acknowledges the mission and work of our cancer center is particularly gratifying," noted Gruber. "Expert reviewers rigorously evaluated all of our programs, shared resources, and infrastructure, and provided us with more than just a meritorious commendation. We received valuable guidance to help us continue our exceptional trajectory."

He added, "I would also like to extend my heartfelt thanks to our administrative and informatics staff, who devoted thousands of hours to prepare this grant application, helping assure continuous support from the NCI through 2020 and beyond."

USC Center for Body Computing partners with innovation lab on wearable tech

By Sherri Snelling

The USC Center for Body Computing (CBC), part of Keck Medicine of USC, is collaborating with a technology developer to further the digital health and wearable tech revolution.

The center will be working with the SHOP, an innovation lab from VSP Global, to pursue research on mobile health, wearable technology and the growing intersection of personalized, empowered health care.

"It's exciting to work with VSP on an unexplored avenue of wearable health technology," said USC CBC Founder and Executive Director Leslie Saxon, MD. "Together we're going beyond the limitations of today's health and wellness monitoring and giving power to consumers to become the heroes of their own health stories. As the leader in vision services, VSP supports millions of members, and we're thrilled to have them as a USC CBC member, where we can collaborate closely on the development of this ground-breaking product."

In March, VSP Global announced Project Genesis, the first wearable prototype to integrate health-tracking technology into the temple of an optical frame. SHOP team members engaged in a two-day think tank earlier this summer with the USC CBC to explore commercialization pathways to take Project Genesis from prototype to market-ready product.

Founded in 2007, the USC CBC functions as an interdisciplinary brain trust and innovation center within the Keck School of Medicine of USC.

Calendar of Events

Saturday, Sept. 12

10 a.m. USC Caruso Department of Otolaryngology – Head and Neck Surgery. "Laryngectomee Support Group," Silver Conference Room. Group to meet second Saturday of each month in same location. Info: Brenda Villegas, (323) 442-5790, Brenda.Villegas@med.usc.edu

Monday, Sept. 14

Noon. KSOM Research Seminar Series Seminar. "PET Molecular Imaging Assays in Drug Discovery and Development," Michael E. Phelps, PhD, UCLA. Aresty Auditorium. Info: Mary Jane Chua, (323) 442-7732, maryjane.chua@med.usc.edu

Tuesday, Sept. 15

11 a.m. USC Stem Cell Seminar. Adam Engler, UC San Diego. Eli and Edythe Broad CIRM Center Auditorium. Info: Cristy Lytal, (323) 442-2172, lytal@med.usc.edu

FEATURED EVENT

Thursday, Sept. 24

1:30 p.m. **USC Visions & Voices.** "The Wounded Warrior: Outside the Wire's Theater of War Presents a Dramatic Reading of Scenes from Sophocles' Ajax." Mayer Auditorium. http://visionsandvoices.usc.edu

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

Thursday, Sept. 17

7 a.m. Division of Vascular Surgery and Endovascular Therapy, with the USC Office of Continuing Medical Education. "19th annual Max R. Gaspar Symposium: Contemporary Management of Challenging Vascular Conditions," Fred A. Weaver, MD. Millennium Biltmore Hotel, 506 S. Grand Ave., Los Angeles. Info: Teresa Ball, (323) 442-2555, usccme@usc.edu

3 p.m. USC Stevens Neuroimaging and Informatics Institute Seminar. "Some Developments and Applications of MR Neuroimaging," Xiaoping Hu, PhD, Georgia Tech and Emory University. Hastings Auditorium. Info: Henrietta Movsessian, (323) 442-7246, henrietta.movsessian@loni.usc.edu http://loni.usc.edu

Friday, Sept. 18

Noon. School of Pharmacy Seminar. "Toward a Functional, ChemoProteomic Interrogation of Kinome and Nucleotide Binding Space," John W. Kozarich, PhD, ActivX Biosciences. John Stauffer Pharmaceutical Sciences Center, PSC 104. Info: Ruth Ballard, (323) 442-3400, ellisbal@usc.edu

11 a.m. Jane Anne Nohl Division of Hematology and Center for the Study of Blood Diseases Grand Rounds. "Genomics of Lymphoma and Targeted Therapy," John Chan, MD, City of Hope Medical Center. LAC+USC Medical Center Conference Room D. Info: Carolyn Castellanos, (323) 865-3913, castellanos_c@med.usc.edu

8 a.m.-5 p.m. Synaesthesia SIG. The HSC literary magazine is now accepting submissions of art (photography, writing, music, etc.) from anyone affiliated with Keck Medicine of USC. Deadline is Sept. 18. Info: usc.synaesthesia@gmail.com

Saturday, Sept. 19

8 a.m. Ophthalmology Continuing Medical Education. "Cornea and Refractive Surgery," HC4 Conference Room, 3rd Floor. Info: Joseph Yim, (323) 865-6823, joseph.yim@med.usc.edu RSVP: Lina Poyzner, (323) 442-6383, lina.poyzner@med.usc.edu

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

Douglas Morino

OPEN HOUSE: Keck School of Medicine of USC researchers recently joined board members from the University Kidney Research Organization (UKRO) to celebrate the opening of the USC/UKRO Kidney Research Center in the Mudd Memorial Research Building. An initial $3.5 million pledge from UKRO supports the center and its six labs. UKRO board and USC researchers in attendance included, from left, Edward Crandall, newly hired Director Kenneth Hallows, Nuria M. Pastor-Soler, Alicia McDonough, Laura Perin, Vito Campese and Janos Peti-Peterdi.

SUPPORT: Program targets compassion fatigue

Continued from page 1

cal Center of USC. "The purpose of the Code Lavender is to give staff permission to feel bad, to acknowledge and express emotion when bad things happen to our patients, and provide support and resources to help when they feel overwhelmed."

Compassion fatigue, or secondary traumatization, is an emotional state often experienced by caregivers preoccupied with the suffering and distress of their patients, according to the American Institute of Stress.

Compassion fatigue can lead to high levels of stress and often coexists with burnout. Workers who interact with patients directly, including nurses, social workers, nurses' aides, respiratory therapists and paramedics, often experience it. This type of stress may manifest as emotional or physical exhaustion.

A nurse or other staff member suffering from compassion fatigue may display callousness or indifference, poor judgment, a desire to quit nursing, increased physical complaints, irritability and anger, Thomas said.

"Studies reveal that nursing leaders must acknowledge that these emotions exist and then explain it as compassion fatigue rather than allowing the assumption that something is wrong with individuals," Thomas said. Training for department leaders allowing them to be prepared for the situations that may trigger a Code Lavender response is now underway, she said.

Once triggered, a Code Lavender will not be called over the hospital public address system. Instead, a member of the Healing Services team will respond within 30 minutes with a "healing" basket filled with items like calming tea, hand lotion and aromatherapy products. Other services provided include consoling, prayer and listening.

During August, the Code Lavender team responded to 21 staff members.

Team members involved in starting Code Lavender include Char Ryan of Patient Experience and Employee Engagement, Carol Marcusen of Social Services, Phil Manley from Chaplaincy, Jeff Harris of the Center for Work and Family Life, John Pappas from Social Work and Palliative Care, Nursing CNO Annette Sy and Project Specialist Angela Luszcz.

To trigger a Code Lavender, email codelavender@med.usc.edu.

AWARD: Researcher honored

Continued from page 1

eventually became an assistant professor at the University of Alabama at Birmingham (UAB). At UAB, Peti-Peterdi joined a community of about 40 Hungarian scholars. He played regular soccer games and fell in love with a fellow Hungarian, Reka, who became his wife and the mother of their three children.

Despite this strong Hungarian presence, Alabama was challenging for him. "I'll never forget the first time I went to a burger place," he said. "I wanted to order a burger and French fries, and I got a cup of ice cream. So something must have been very terrible with my English. But I've kept my Hung-lish accent."

Although he didn't pick up a Southern drawl, he did pick up research interests that persist. His laboratory uses a high-resolution imaging approach, called multiphoton fluorescence microscopy, to observe how the living kidney controls blood pressure and body fluid balance under normal and disease conditions.

He recently made an advance in quantitatively visualizing the function of the living kidney's filter, called the glomerulus, at the cellular and molecular level. He has now tracked individual cells of the glomerulus, shedding light on the mechanisms of both injury and regeneration.

With two new grants from the National Institutes of Health (NIH), he continues to study important glomerular cell types — including podocytes, which form part of the kidney's filtration barrier, and macula densa (MD) cells, which sense and communicate subtle changes in salt concentration, fluid flow and other metabolic factors. Amgen is collaborating to target podocytes to treat kidney disease, and the AHA is funding further research into the role of MD cells in high blood pressure-related kidney injury and disease.

"I've always been interested in visual approaches to seeing things in the intact kidney, because it's a very complex organ," said Peti-Peterdi, who established the NIH-funded Multi-Photon Microscopy Core at USC.

Jon Nalick

Janos Peti-Peterdi

Peti-Peterdi is also studying kidney stem cells. With a grant from the American Diabetes Association, he is investigating tissue remodeling in the diabetic kidney in hopes of finding new treatments and therapies for patients. Peti-Peterdi is comparing the regenerative capabilities of the blood-brain barrier and the kidney's filtration barrier in collaboration with the laboratory of ZNI Director Berislav Zlokovic, MD, PhD.

"We in the USC kidney research community are very fortunate to have a scientist of his caliber and collegiality," said fellow kidney researcher Andy McMahon, PhD, chair of the executive committee of USC Stem Cell.

In recognition of Peti-Peterdi's growing body of research, he will accept the ASN-AHA Young Investigator Award plaque and $5,000 grant and deliver a 35-minute address Nov. 8 during ASN Kidney Week's plenary session in San Diego. Recently, he was also elected to the American Society for Clinical Investigation and the European Academy of Sciences and Arts.

"I'm very optimistic about finding the ultimate cure for kidney disease, which is my lifetime goal," said Peti-Peterdi. "I still, almost every day, get up and say, 'What can I do today to save my mother and the millions of other CKD patients from this devastating disease?' "

HOSPITAL: USC Urology Institute partners with Mumbai medical center

Continued from page 1

improves lives all over the world," Nikias said. "USC is privileged to support this opportunity to extend Dr. Gill's outstanding expertise in urology and the field of robotic surgery to benefit patients in India."

USC's international reach includes an office in Mumbai. Less than three miles away is Sir H. N. Reliance Foundation Hospital and Research Center, which was first established in 1918 but has been rebuilt under the guidance of Nita M. Ambani, chairperson of the Reliance Foundation.

"We have a strong commitment to make this one of the best hospitals in the entire subcontinent by drawing on the talent and expertise of leading health care institutions worldwide," Ambani said. "As part of this effort, we reached out to Dr. Gill to help us establish this relationship with USC."

The relationship could expand over time, but USC's initial focus is built around Gill's specialties in urology and robotic surgical procedures.

"This is the first of its kind," said Thomas Jackiewicz, senior vice president and CEO of Keck Medicine of USC, about the partnership. "With Reliance Foundation hospital's infrastructure and stature — and USC's and Dr Gill's presence in the field of urologic robotic surgery — we absolutely will create India's premier robotic surgery and urology program within a year or two."

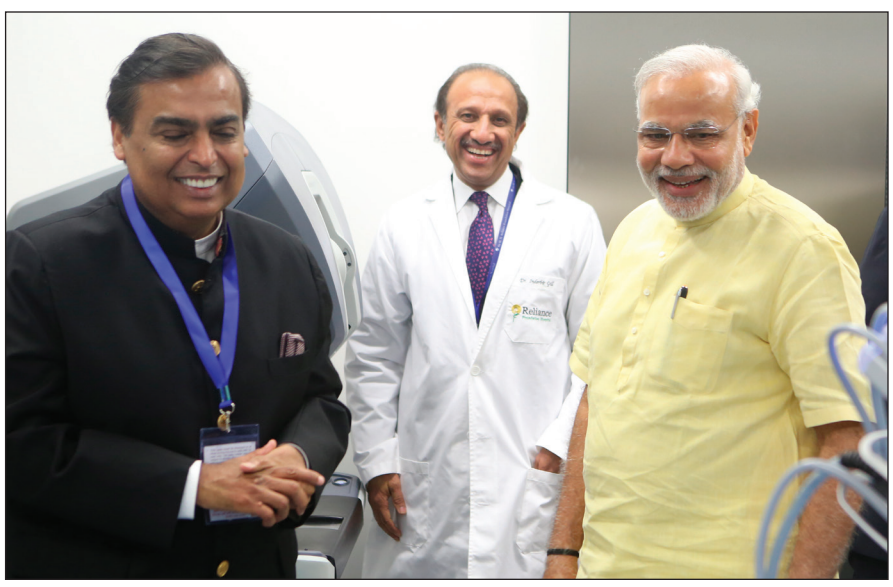
Additionally, USC and Reliance Foundation hospital are collaborating in teaching and research activities, including providing advanced training to Indian urologists and residents.

"We see this relationship with USC as a big step forward for the entire hospital and the Department of Urology that will benefit immensely from the excellent medical training and expertise of an internationally acclaimed medical institution and its renowned doctors. It will also enable our patients to be treated directly by Dr. Gill, and benefit from his rich experience," Ambani said.

The opportunity to make a lasting impact on health care in the Asian subcontinent is particularly exciting for Gill. "If one is able to impact urological practice in India, not just by me personally operating on patients but by teaching a thousand urologists, then that would be an enormous privilege," he said.

The benefits of the partnership for India's citizens will be significant, but it's a two-way relationship, Gill said, that has already improved patient care in the United States.

"In the past, we have gone to India to collaborate and develop novel robotic techniques, and we have brought those techniques to the U.S. and to USC," Gill said. "To give just one example, USC is the leading center in the country for robotic surgery for bladder cancer. And some of those techniques, we developed in India."



Courtesy Sir H.N. Reliance Foundation Hospital

When Sir H.N. Reliance Foundation Hospital opened in October 2014, Inderbir Gill of the USC Institute of Urology provided a tour of the urology facilities for Indian business leader Mukesh Dhirubhai Ambani, left, and Prime Minister Narendra Modi.

The partnership also holds promise for clinical trials of new treatments, he said.

When Gill first came to the United States 27 years ago, it was largely to innovate novel technology in this country.

"Then I came to USC and have been here five years, and our team, co-led by doctors such as Monish Aron and Mihir Desai, has truly pushed the boundaries of robotic surgery in urology," Gill said. "I can confidently state that the USC robotic urology program is the acknowledged world leader today."

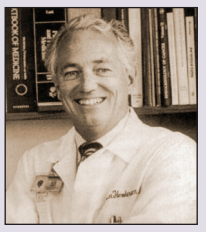
Now he has an opportunity to take his expertise back to India, sharing it in a hospital that has been outfitted with state-of-the art equipment.

"We are recruiting faculty. We are going to be performing robotic surgeries there. Having international conferences. Setting up teaching programs. Teleconferencing grand rounds on Skype," Gill said. "It is an enormous privilege for USC Urology to help develop Reliance Foundation Hospital Urology."

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:

Campus memorial for former Dean Brian Henderson is set for Sept. 16



FORMER COLLEAGUES, friends and family will gather in Mayer Auditorium on Wednesday at 11 a.m. to celebrate Brian Henderson, the former dean of the Keck School of Medicine of USC who died June 20 at age 77. Current Dean Carmen A. Puliafito, USC President C. L. Max Nikias and USC Norris Director Stephen B. Gruber will be among those offering tributes, as will professors Christopher Haiman and Sean Henderson, who is the son of Brian Henderson. The former dean led the Keck School from 2004 to 2007 and was founding chair of the Department of Preventive Medicine. He was the first director of the Zilkha Neurogenetic Institute and had also led the USC Norris Comprehensive Cancer Center.

Kast Lab wins top prize in rare disease science challenge

W. MARTIN KAST of the USC Norris Comprehensive Cancer Center and his students Joseph Skeate and Andrew Woodham earned top prize in the 2015 BeHEARD Rare Disease Science Challenge from the Rare Genomics Institute. The prize, provided by Cypher Genomics and valued at $100,000, will allow the Kast Lab to push forward in its research into genetic variations that result in uncontrolled infection and proliferation of warts caused by the human papillomavirus within Indonesian "Treemen." In 2009, Kast first met individuals with the illness, which handicaps them with massive tree bark-like outgrowths. Kast believes that the Treemen have a genetic variation that prevents their immune systems from mounting a proper attack against HPV infections. With only a few reported cases worldwide, funding for study has been scarce. The prize will allow the Kast Lab to sequence the genomes of the three Treemen and compare them to other healthy Indonesians from the region, potentially solving the mystery of why their immune systems cannot eliminate the virus.

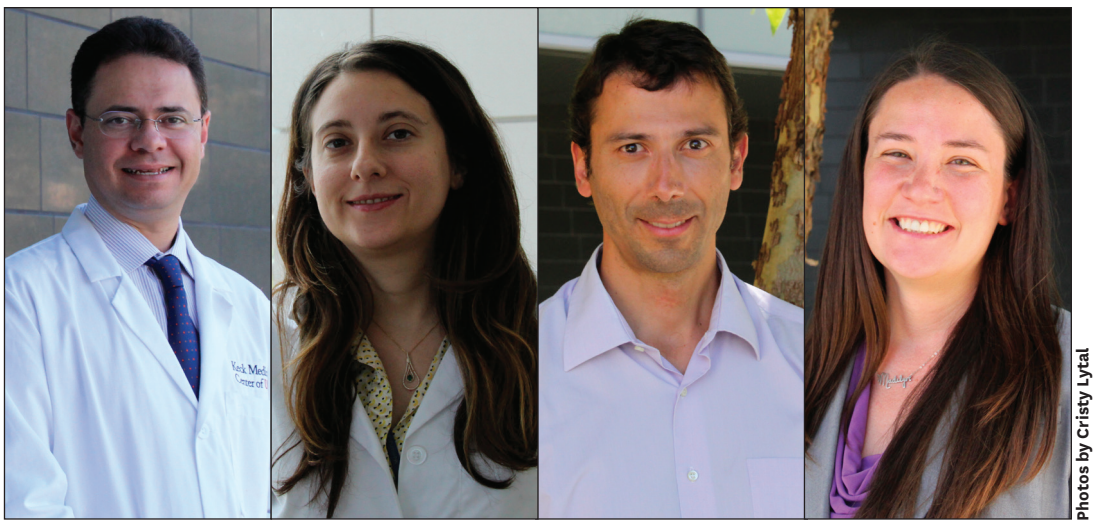
CIRM event focuses on HIV/AIDS

Paula Cannon

WHEN SCIENTISTS and the public get together to talk about research, sometimes the technical language falls away and it becomes just a conversation between people in need of a cure and those trying to develop it. To that end, the California Institute for Regenerative Medicine (CIRM) recently joined with AIDS Project Los Angeles to host a town hall in West Hollywood. Featured were scientists from Keck Medicine of USC, City of Hope, Calimmune and Sangamo Biosciences — all recipients of CIRM funding to develop treatments and look for cures for HIV/AIDS. During the session, Paula Cannon, a CIRM grantee and stem cell scientist at the Keck School of Medicine of USC, discussed research aimed at developing the next generation of stem cell therapy targeting HIV/AIDS. Current approaches take blood stem cells out of the body, genetically modify them so they are resistant to the virus, then return them to create new blood and an improved immune system. Cannon seeks to do that inside the body, in essence copying what the AIDS virus does when it infects cells, but using that approach against it, creating a one-stop anti-viral approach to kill HIV. **— Kevin McCormack**

Researchers mimic viral infection in colon cancer stem cells

RESEARCHERS TARGETING COLORECTAL CANCER stem cells — the root cause of disease, resistance to treatment and relapse — have discovered a mechanism to mimic a virus and potentially trigger an immune response to fight the cancer like an infection. The discovery, published in *Cell*, illuminates a major shift in the understanding of anti-tumor mechanisms and identifies a promising target against colorectal cancer stem cells, said principal investigator and lead author Daniel De Carvalho, a former postdoctoral research fellow at USC Norris Comprehensive Cancer Center who now works at Princess Margaret Cancer Centre, University Health Network in Toronto, Canada. "By mimicking a virus, the potential is to trick the immune system into 'seeing' the cancer cells as an infection that needs to be destroyed," De Carvalho said. "Our work demonstrates that viral mimicry is a viable anti-tumor strategy." Among those contributing to the research and its publication were Gangning Liang and Peter A. Jones of the Department of Urology at the Keck School of Medicine of USC.



Photos by Cristy Lytal

Andre Luis de Castro Abreu | Victoria Forte | Rodrigo Martínez Monedero | Kathy Schall

Inaugural Broad Clinical Research Fellows selected

By Cristy Lytal

The Broad Clinical Research Fellowships are enabling physician investigators to explore stem cell-based approaches related to four very different medical conditions: breast cancer, kidney disease, deafness and short bowel syndrome.

Each one-year fellowship provides salary support, funds for supplies and a meeting allowance to support full-time research related to stem cell biology and regenerative medicine.

A clinician who received his urology training in Brazil with an additional clinical fellowship in robotic urologic surgery at USC, **Andre Luis de Castro Abreu**, MD, will focus on kidney regeneration. He will take a close look at a newly discovered mechanism of kidney repair regulated by the organ's population of macula densa (MD) cells, which sense and communicate subtle changes in salt concentration, fluid flow and other metabolic factors.

The laboratory of Janos Peti-Peterdi, MD, PhD, has developed an imaging technique to observe this repair mechanism in living mouse kidneys. Abreu will confirm that this mechanism is present in human kidneys and learn more about it.

"These studies are expected to result in potentially groundbreaking new discoveries, which may lead to the future development of new therapeutic approaches for the better treatment of cardiovascular and kidney diseases," said Abreu, who will be co-mentored by Inderbir Gill, MD, professor and chair of the USC Department of Urology, and Peti-Peterdi, professor of physiology and biophysics.

A third-year medical oncology fellow, **Victoria Forte,** MD, will determine whether cancer stem cells (CSCs) are present in the blood of non-metastatic breast cancer patients, both pre-treatment and at least one-year post-treatment. Forte hopes to determine whether the cancer can be targeted and eradicated post-treatment of newly diagnosed breast cancer, thus preventing eventual recurrence.

"This research fellowship will prepare me with the necessary training to become a breast cancer translational researcher who will focus on how to target and eradicate circulating cancer stem cells," said Forte, who will be in the laboratory of Julie Lang, MD, FACS, at the USC Norris Comprehensive Cancer Center, with additional mentorship from Min Yu, MD, PhD, in the Eli and Edythe Broad Center for Regenerative Medicine and Stem Cell Research at USC.

A practicing neuro-otologist who received his medical training in Spain, **Rodrigo Martínez Monedero,** MD, PhD, will work to understand why deafness is permanent in humans and other mammals. In species such as birds, the inner ear's supporting cells can "heal deafness" by changing into and replenishing the damaged sensory cells responsible for hearing. Martínez Monedero hypothesizes that mammals cannot replenish sensory cells because key genes in the supporting cells are turned on or off through a process called epigenetic regulation. He hopes to target epigenetic "on-off switches" to regenerate the inner ear and treat deafness.

Martínez Monedero will pursue the project in the laboratory of Neil Segil, PhD, at the Eli and Edythe Broad Center for Regenerative Medicine and Stem Cell Research at USC.

A surgeon in training, **Kathy Schall,** MD, will work to help children and adults with short bowel syndrome (SBS) avoid surgery. SBS occurs when a patient can no longer absorb adequate nutrition after a bowel resection, which is the surgical removal of intestines, as a result of the shortened length. The surgical treatments for SBS can result in serious complications or even death. Schall is exploring ways to encourage stem and progenitor cells to regenerate and increase the remaining intestines.

Schall will investigate the molecular signals that trigger intestinal regeneration in zebrafish and will locate and identify stem and progenitor cells within the intestines.

"Future therapies improving stem and progenitor cell adaptation could prevent the need for highly morbid medical and surgical interventions," said Schall, who will be in the laboratory of Tracy C. Grikscheit, MD, at Children's Hospital Los Angeles.

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Editor: Les Dunseith

Director, Internal Communications: Virginia Baca

Contributors: Andrea Aldana, Hope Hamashige, Cristy Lytal, Carol Matthieu, Douglas Morino, Sara Reeve, Leslie Ridgeway and Margaret Trtryan

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

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