

NIH awards \$36.6 million to SC CTSI

By Meg Aldrich

A team of research leaders from the Keck School of Medicine of USC and Children’s Hospital Los Angeles has been awarded a prestigious Clinical and Translational Science Award (CTSA) from the National Institutes of Health.

The award, the second in the history of the two institutions, will provide \$36.6 million over five years to support the Southern California Clinical and Translational Science Institute, the hub for clinical and

translational research at USC and CHLA.

“This was a major team effort,” said Thomas Buchanan, MD, director of the SC CTSI. “The SC CTSI has been a driving force behind the development of a culture of clinical and translational research at USC and CHLA. When we created the Institute in 2008, many people were asking why we should develop translational programs. These days, they are asking how to translate more effectively. That is a major cultural

change — one which reflects our work with more than 800 investigators at USC and CHLA. We taught them about translation and helped them do it. As a result, they brought in more than \$90 million in new extramural funding, published more than 500 scientific articles, generated more than 80 patent applications and three start-ups, and had tangible impact on the health practices of our communities. I am very proud of the SC CTSI team that led this



Ricardo Carrasco III

From left, Michele Kipke and Tom Buchanan are the co-directors of SC CTSI.

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Above: Vanessa Blasic stands right below the south summit, with the top of Mount Everest in the background on May 21. **Top right:** From left, Vanessa Blasic, Everest guide Bill Allen and Greg Blasic are seen while trekking to Base Camp. **Bottom right:** Vanessa Blasic poses at the summit with her pink duct tape band that says, “I can do it.”



Photos courtesy of Vanessa Blasic

Reaching the highest goal

By Claire Norman

After years of planning and two months of living on the mountain, Keck School physician assistant student Vanessa Blasic completed a feat that few people can boast: summiting Mount Everest.

More impressively, the accomplishment meant that she and her father Greg Blasic had joined an even more elite group: climbing the Seven Summits, or the highest peaks on all seven continents.

“Finally being up there and reaching that goal, which I have had for years, was a big accomplishment,” said the Primary Care Physician Assistant Program student, who hopes to specialize in high-altitude medicine. “Not many people get to

this and I don’t think at first I realized what a positive impact it would have on me.”

Despite health concerns, weather and the perils of climbing, Blasic and her father reached Everest’s peak in Nepal at 5:41 a.m. May 21. Up at 29,029 feet above sea level, Blasic spent 30 minutes examining the horizon, fighting off the chilling temperatures and seeing what other peaks could possibly be in her climbing future.

Blasic’s road to climbing the highest mountain in the world had started with her tagging along with her father and brothers on a Boy Scout trip to climb Mount Whitney. In 2005, she climbed Mount Kilimanjaro, setting off the quest to reach the Seven Summits. More

than a decade later, she and her father would spend two months traversing Everest and training to get to the top. Even though the group encountered dangerous conditions — including hearing distant avalanches — they persevered and accomplished their goal.

The hardest portion of the climb occurred two days before reaching the summit, when the climbers had to endure high altitude and extremely vertical portions of the mountain, Blasic said. But she was motivated by the support of her physician assistant classmates, who joined her in spirit via a “SC” patch on her jacket and motivational messages that she copied onto pink duct tape on her glove: “I can do it! Smile and keep going.”

NCI awards \$12 million to genetics study

By Mary Dacuma

A large study headed by researchers from the Keck School of Medicine of USC and two other institutions received \$12 million in funding to examine why African-American women die at a higher rate from breast cancer and have more aggressive breast tumors than white women.

The grant, awarded by the National Cancer Institute (NCI), part of the National Institutes of Health, is based on the premise

that having a better understanding of the biology — and, in particular, the genetics — of breast cancer in African-American women will lead to better prevention and targeted treatment.

“The Breast Cancer Genetic Study in African-Ancestry Populations builds on previous work in this area spearheaded by USC,” said Chris Haiman, ScD, professor of preventive medicine at the Keck School.

Haiman organized the African

American Breast Cancer Consortium, which developed the network of scientists and body of research that will support this new study.

“We now have the knowledge and technology available to assess the whole genome, providing a more comprehensive look into the genetics of breast cancer in women of African ancestry,” he said. “I am confident that this will be a fruitful and productive collaboration.”

Haiman will be leading the study

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New leader chosen for psychiatry department

Steven Siegel, MD, PhD, has joined the Keck School of Medicine of USC as chair of the Department of Psychiatry and the Behavioral Sciences.

He was selected after a rigorous national search and joined the Keck School on July 1, according to Keck School Interim Dean Rohit Varma, MD, MPH, and Keck Medicine of USC Senior Vice President and CEO Thomas Jackiewicz, MPH.

Siegel is a practicing psychiatrist specializing in the treatment of schizophrenia and psychosis. He has authored more than 130

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Steven Siegel

USC Norris hosts satellite Cancer Moonshot Summit

By Mary Dacuma

The USC Norris Comprehensive Cancer Center recently hosted a satellite Cancer Moonshot Summit in conjunction with the Washington, D.C., summit hosted June 29 by U.S. Vice President Joe Biden. The event was one of many held nationwide that day, as the country unites to double the rate of progress in cancer prevention, diagnosis, treatment and care through the next five years.

More than 200 people attended the USC Norris satellite summit, held in Aresty Auditorium, with thousands more tuning in

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Ricardo Carrasco III

Attendees listen to U.S. Vice President Joe Biden via satellite during the National Cancer Moonshot Summit.

Qi-Long Ying receives stem cell research honors

By Cristy Lytal

The International Society has named Qi-Long Ying, MD, PhD, one of the winners of the 2016 McEwen Award for Innovation, the highest honor bestowed by the International Society for Stem Cell Research (ISSCR). Supported by the McEwen Centre for Regenerative Medicine, the award recognizes groundbreaking stem cell discoveries that open new avenues to explore or treat human disease.

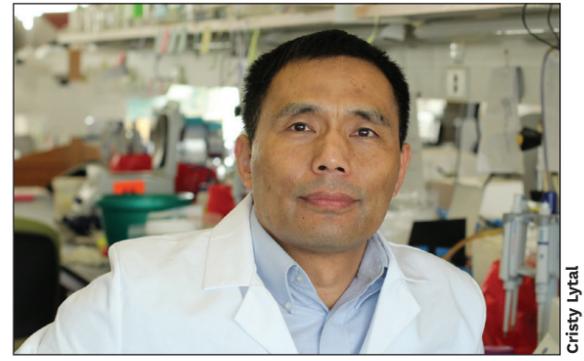
Ying, an associate professor of stem cell and regenerative medicine at the Keck School of Medicine, was named in the award with Austin Smith, PhD, from the University of Cambridge. The researchers accepted the award and shared the \$100,000 prize at ISSCR's annual meeting this June in San Francisco.

Ying originally joined Smith's laboratory as someone who knew next to nothing about stem cells. The third child of a farmer and a factory worker, he grew up in Yongkang, a small city in China's Zhejiang province, during the Cultural Revolution. He graduated from First Military Medical University, earned his master's and PhD degrees from Shanghai Medical University, and landed a postdoctoral position in Smith's laboratory, then at the University of Edinburgh in Scotland.

New to both stem cells and the English language, Ying began trying to "rewind" mouse neural stem cells into embryonic stem (ES) cells — and thought he had succeeded. Months later, he realized that the neural stem cells had spontaneously fused with ES cells in the same petri dish, producing abnormally large ES cells. It was the first proof of spontaneous fusion, and it earned him and Smith a publication in the journal *Nature* in 2002.

Still under Smith's mentorship, he found a more efficient way to turn ES cells into neurons, published in *Nature Biotechnology* in 2003. Next, he and Smith made the landmark breakthrough that would eventually earn the 2016 McEwen Award for Innovation. They discovered that they could inhibit ES cells from differentiating into specialized cells by exposing them to two proteins — called leukemia inhibitory factor (LIF) and bone morphogenic protein (BMP) — and published the results in *Cell* in 2003. Subsequently, in a 2008 paper in *Nature*, they used two inhibitory molecules — dubbed 2i — to mimic this effect.

"We can use embryonic stem cells to generate different cell types," Ying said. "And these cell types can be used for cell replacement therapy, for drug screening and for many other purposes."



Qi-Long Ying

After seven years, Ying left the Smith Lab to accept a faculty position at the Eli and Edythe Broad Center for Regenerative Medicine and Stem Cell Research at USC, where he also serves as the director of the Chang Stem Cell Engineering Facility. Ying's team made one of *Science* magazine's "Top 10 Breakthroughs of 2010" by using ES cell-based gene targeting to produce the world's first knockout rats, modified to lack one or more genes.

"To be successful in this very competitive scientific career," Ying said, "you have to have confidence that you can achieve something."

Gift establishes symposium, scholarships to fight elder abuse

By Douglas Morino

Protecting the elderly is an issue close to Judith Tamkin's heart.

The noted philanthropist has made it a top priority to tackle elder abuse, an increasingly important issue as America's older adult population grows.

"I want to make sure others have a chance," Tamkin said. "When they feel helpless, I want them to know they have somewhere to turn, someone to talk to and someplace to go."

A generous gift from Tamkin to the Keck School of Medicine of USC will establish an annual international symposium on elder abuse and provide scholarships for a group of Keck School students — the Tamkin Scholars — and others to attend the conference. A website (<http://eldermistreatment.usc.edu>) has been created to provide resources and information for researchers and those caring for older adults.

The Tamkin gift will close gaps on elder abuse research and move the field forward through education, awareness and strong community partnerships.

"This generous gift will launch USC into a new phase of research and education," said Laura Mosqueda, MD, chair of the Department of Family Medicine and professor of family medicine and geriatrics at the Keck School of Medicine. "Work-

ing together, we can prevent and eradicate elder abuse. We will be working to create awareness towards this important and devastating issue that impacts so many people."

To be held on Sept. 15 and 16 at the Concourse Hotel in Los Angeles, the inaugural USC Judith D. Tamkin Symposium on Elder Abuse will unite thought leaders from across the globe and from a multitude of disciplines and will provide a forum to improve the lives of elders by expanding dialogue, disseminating findings, and stimulating training, policy development and engagement.

"We're going to make sure our children will protect us as we age — not only because they want to, but because it's the right thing to do," said Tamkin, who, along with her late husband S. Jerome Tamkin, MD, has been a longtime donor to a broad range of charitable causes.

The Tamkin gift was announced during a celebratory luncheon March 29 at the California Club in downtown Los Angeles.

Elder abuse can take many forms — physical abuse, neglect, emotional or verbal abuse and financial abuse, according to the Los Angeles County Elder Abuse Forensic Center, an organization that partners with the USC Davis School of Gerontology and the Keck School.



Laura Mosqueda, left, and Judith Tamkin

Keck Medicine is a leader in research on geriatrics and issues affecting the country's aging population. The Keck School in 2014 was named sole grant recipient to become the National Center on Elder Abuse, part of the Administration on Community Living in the U.S. Department of Health and Human Services.

Adults over the age of 85 represent the country's fastest growing population. By 2060, there will be about 98 million older adults in the U.S., more than twice the number in 2013, according to the U.S. Department of Health and Human Services.

About one-in-10 of the country's older adults will be a victim of abuse, said Mosqueda, a widely respected authority on geriatric and family medicine, elder abuse, and care of the elderly and underserved.

The Tamkin gift will bring experts together to find answers to questions surrounding elder abuse that have been asked for 30 years, Mosqueda added.

"Together we will solve the thorny issues surrounding elder abuse," Mosqueda said. "We'll do right in Mrs. Tamkin's confidence in us and help make the world a better place."

Specialty pharmacy offers high-touch, high-cost medication therapy

By Michele Keller

USC School of Pharmacy and Keck Medicine of USC have partnered to create a new specialty pharmacy focusing on "high touch, high cost" medication therapy for hepatitis, cancer, multiple sclerosis, rheumatoid arthritis and other conditions.

Open in Alhambra since January, the specialty pharmacy exclusively provides medications that require prior authorization, counseling, follow-up and monitoring by clinical pharmacists, as well as refrigeration and other special handling.

Unlike a retail pharmacy that services walk-in customers, USC Specialty Pharmacy is a "closed-door" pharmacy primarily serving physicians and patients at Keck Hospital of USC, USC Norris Cancer Hospital and other members of the USC family of health care organizations, notes Krist Azizian, PharmD, chief pharmacy officer and associate dean for academic medical center programs, Keck Medicine of USC.

The 7,000-square-foot facility is staffed by a growing team of clinical pharmacists, managed-care pharmacy technicians and reimbursement specialists



Raffi Svadjian

who manage prior authorizations from start to finish, and ensure that patient care is integrated by confirming patients received their medication and are taking it properly. All medications dispensed at USC Specialty Pharmacy can be delivered by courier or mail, picked up at the Alhambra location, or picked up at USC's retail pharmacy locations on the Health Sciences Campus and University Park campus.

"It's a full-service pharmacy, both to our providers and to our patients," Azizian said.

To date, the bulk of sales volume has been in the new antiviral treatments for hepatitis C, such as Harvoni, which costs an average of \$1,125 per pill, or \$94,500 for a 12-week course of treatment, and Sovaldi, which costs about \$1,000 per pill, or \$84,000 for a 12-week course of treatment.

Other disease states include cancer, multiple sclerosis, and rheumatoid arthritis.

Improving adherence and ensuring a high level of care through close monitoring for medication safety and efficacy, leading to optimal patient outcomes, is the top goal. "Our staff can handle even the most complex patient situation," said Raffi Svadjian, PharmD, MBA, senior director of specialty pharmacy.

In the months to come, the pharmacy will expand by hiring additional specialists: an oncology pharmacist, a multiple sclerosis pharmacist, a rheumatology pharmacist, among others.

For more information about Keck Medicine of USC Specialty Pharmacy, call (855) 885-2600.

Health Sciences Campus getting major revamp

By Joanna Clay

USC's Health Sciences Campus — home of the university's two hospitals and medical school, nearly 4,000 staff and faculty and 1,200 students — is undergoing a lot of change.

The 79-acre campus in Boyle Heights, about seven miles from the University Park Campus, has 70 construction projects under its belt — the most since it opened in 1952.

The overall goal, envisioned by USC President C. L. Max Nikias and the school's master plan, is to give the campus more of a "university feel" to match University Park, with enhanced entrances, wider sidewalks, new lampposts and lush landscaping, not to mention state-of-the-art research and patient facilities.

"This was the vision of our president to unite the two campuses, making the Health Sciences Campus identifiable as part of the USC whole," said Joe Back, associate senior vice president of Campus Development and Facilities Management.

Since 70 is a big number, we've highlighted seven of the most noticeable changes coming to HSC:

New buildings: Norris Healthcare Consultation Center, at the corner of Alcazar and San Pablo streets, will house medical offices adjacent to USC Norris Cancer Hospital, similarly focused on cancer treatment. It's the first building of its kind in more



Norris Healthcare Center, scheduled to open next summer, will house multiple outpatient programs, as well as new dining options.

than a decade, offering the region's first comprehensive multiple sclerosis clinic, infusion therapy, outpatient surgery center and a women's cancer program. There also will be dining options. It's about half finished and is expected to open next summer.

Stevens Hall (formerly Raulston Memorial Research Building), the oldest building at HSC, was completely re-done from the ground up and is a shining standout in the work going on all over HSC. Now known as the Mark and Mary Stevens Neuroimaging and Informatics Institute, the institute will hold more than 100 faculty and staff dedicated to fields

such as neuroscience and biology — led by Arthur Toga, PhD, and Paul Thompson, PhD, who pioneered research in the spread of Alzheimer's disease and the brain mapping of neurological disease.

Opening in August, it features a magnetic resonance imaging lab and a theater-like conference room with video screens that span a floor-to-ceiling wall.

"This building is as state-of-the-art as they come," said Robert Scrofano, director of capital construction at the campus.

More parking: A 300-car surface lot is coming to North Soto and Norfolk

streets, across from Hazard Park. The lot will offer hourly rate parking and be finished in September.

Wider, nicer sidewalks: The sidewalks around HSC used to be so narrow two people couldn't even walk side by side. Thanks to the wider sidewalks — complete with brick ribboning and landscaping — doctors, students and patients won't have to walk single-file around campus and can chat as they stroll. About a quarter of the work is done. There are also 265 lightposts being installed.

More trees: HSC is getting 350 additional trees — oaks and magnolias — all over campus.

Student housing: Currie Hall, a housing development of 178 units to open in August, is already booked up. The residential development offers private bedrooms and bathrooms with shared communal spaces. There's also a child care center that can accommodate more than 100 kids. This is a big boon for the students at the campus, where housing previously was limited to Seaver Residence Hall, with about 90 beds.

A new hotel: Hyatt is planning to open a hotel on campus to accommodate the many patients that travel from afar to be treated at the USC hospitals. There are plans for 14,000 square feet of retail and restaurant space and 10,000 square feet of conference space. It's tentatively planned to be open by 2018.

CTSI: 'We want to make a real difference' in the community

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change. This new CTSA will allow us to continue this important work in support of our research teams, health systems, patients and communities. Special thanks go to Allison Orechwa and Quinnie Le who helped put together the very complex application that led to this new award."

Michele Kipke, PhD, who co-directs the SC CSTI with Buchanan and leads the Community Engagement group, added, "We are placing increasing emphasis on clinical and community trials, where the 'rubber meets the road' in transforming research into solutions for better health. We want to make a real difference in the health of the communities that we serve."

Jonathan Samet, MD, principal investigator of the Institutional Career Development component of the new NIH award, explained, "The award provides crucial resources for early career development in clinical and translational research. It also supports general educational programs. It is absolutely critical for developing the human capital that USC and CHLA need to succeed."

The new NIH award will support a wide range of exciting initiatives, such as a project with USC's Institute for Creative Technology to create virtual humans to engage children and their families in clinical research.

The Institute also will work closely with the Los Angeles County Department of Health Services (DHS), USC's Center for Health Systems Innovation, and CHLA to transform the way health care is delivered.

Kipke's Community Engagement group will expand community engagement capabilities of research teams by training community members to help conduct research.

Samet's Workforce Development group will provide in-depth career development training for junior faculty members as part of the SC CTSI KL2 program. They also will offer a broad range of workshops, lecture and courses in clinical and translational research for faculty, staff, students and trainees throughout USC and CHLA.

The SC CTSI Digital Innovation and Communication group, led by Katja Reuter, PhD, will develop new approaches to participant recruiting based on social medical platforms like Twitter and Facebook.

The Clinical Research Informatics group, led by Daniella Meeker, PhD, is creating a robust electronic platform for clinical research, including a research data warehouse and a new clinical trials management system.

April Armstrong, MD, MPH, Wendy Mack, PhD, and Eunjoon Pacifici, PharmD, PhD, lead the Clinical Research Support group, which is developing a comprehensive set of services for clinical trials.

Sarah Hamm-Alvarez, PhD, leader of the Research Development group, is creating new resources for team science that will include pilot grants and consultations in team building.

In keeping with a major emphasis of the National CTSA program, all of the SC CTSI activities supported by this new award will emphasize efficiency in the processes involved in clinical and translational research. Katrina Kubicek, PhD, leads the Evaluation and Improvement program that will focus on efficiency. The new award also secures a place for USC and CHLA in the national CTSA consortium, where faculty members can participate in multi-site clinical trials and compete for other research awards open only to CTSA institutions.

Senior leaders from USC and CHLA were quick to praise this significant accomplishment.

"Receiving this award is a hallmark of a leading research university," said Michael Quick, PhD, USC's provost and senior vice president for academic affairs. "This is exactly the kind of work we want to be doing: creating significant advances in scientific research and patient care among underserved populations."

Keck School of Medicine Interim Dean Rohit Varma, MD, MPH, stated, "Translation of research into better health care is a top priority for us. This major NIH award, while highlighting the strength of our faculty, will also be an important catalyst for our faculty in driving translational research."

CEO of Keck Medicine of USC, Thomas Jackiewicz, MPH, added, "A hallmark of a top-level academic medical center is its ability to integrate outstanding clinical care with research and education. The new CTSA will be a very strong resource to drive this integration."

Paul Viviano, president and CEO of CHLA, commented, "The SC CTSI is a wonderful example of the strong collaboration between USC and CHLA. This renewed support from the National Institutes of Health will permit us to strengthen our efforts to accelerate the pace with which research discoveries from both campuses can be translated into benefits for patient and community health, especially for diverse and underserved populations."

The Clinical and Translational Science Award program was established by the National Institutes of Health in 2006. The program provides funding to more than sixty major research universities to support the development, conduct and improvement of clinical and translational research.

STUDY: Biospecimens, data will be shared

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alongside Wei Zheng, MD, PhD, of Vanderbilt University in Nashville and Julie Palmer, ScD, of Boston University. Investigators will pool data, biospecimens and expertise from 18 previous studies of breast



Chris Haiman

cancer among women of African ancestry to determine whether genetic variants may be associated with increased risk.

Additionally, experts from five other institutions will gather information and biospecimens from 20,000 breast cancer cases.

"Preventing and treating cancer is reaching a new frontier in precision oncology," said Stephen Gruber, MD, PhD, MPH, director of the USC Norris Comprehensive Cancer Center. "Identifying susceptible genetic regions and risk factors can help us better assess risks in our patients and the larger population. I am thrilled at the potential clinical applications that will arise from focused attention on women of African ancestry."

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.

In Memoriam: Gunther Dennert, 78

Former chair of the Department of Molecular Microbiology and Immunology at the Keck School of Medicine of USC, Gunther Dennert, PhD, passed away on June 5, after a long battle with pancreatic cancer.

Dennert was widely known and respected for his work as an original and creative immunologist. In his work, he focused on immune regulation by cell surface receptors for ADP-ribosylation, elucidating induction of virus specific immunity, and how the innate immune system influences alcohol induced liver injury. Under his leadership, Dennert's laboratory also discovered tumor-infiltrating lymphocytes in mice bearing tumors, a concept that was later applied to human cancer immunotherapy.

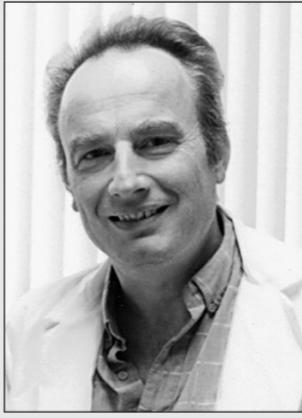
Over the course of Dennert's career, he authored more than 150 publications in high impact immunology and virology journals. His highly influential body of work was cited more than 8,000 times, with many individual papers cited hundreds of times.

After completing undergraduate studies at the Universities of Bonn and München,

he performed graduate work in the area of phage genetics and the regulation of expression of the genes in the pyruvate dehydrogenase complex in *E. coli* with Wulf Henning at the University of Cologne, where he received his PhD.

Dennert was recruited to USC from the Salk Institute in San Diego in 1984 as an associate professor, and was promoted to professor in 1986. He served as chair of the Department of Molecular Microbiology and Immunology from 1997 to 2007.

Dennert is survived by his wife, Eileen, and three children.



Gunther Dennert, PhD

Second cohort of clinical research fellows named

By Cristy Lytal

The second cohort of Broad Clinical Research Fellows is making strides toward finding stem cell-based therapies for lymphedema in cancer patients, large bone fractures and short bowel syndrome.

To support full-time research related to stem cell biology and regenerative medicine, each fellowship provides \$65,000 of salary support, \$7,500 for supplies and a \$1,500 meeting allowance, and is potentially renewable for a second year.

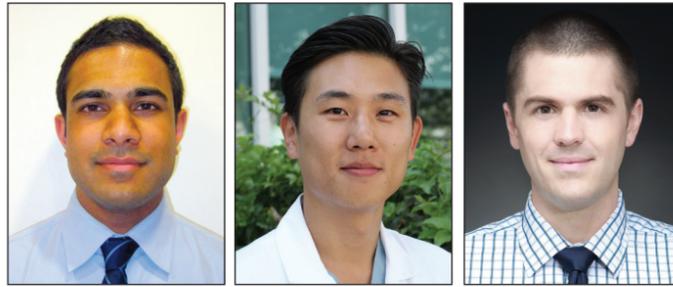
A general surgery resident at the Keck School of Medicine of USC, Gene K. Lee, MD, MPH, will explore a stem cell-based treatment for lymphedema, a painful swelling of the limbs that can result from the surgical removal of cancerous lymph nodes.

Lee will reprogram rat skin cells into stem cells, which he will then implant onto a special scaffold in the limbs of rats suffering from lymphedema. The hope is that these stem cells will form new lymph nodes and channels to mobilize the excess fluid out of the lymphedematous limbs.

"The current state of treatment for lymphedema mainly revolves around conservative decongestive therapies and surgery in select populations," Lee said. "The objective of our current proposal is to push the frontiers of stem cell and tissue engineering technologies to develop an advanced lymphedema therapy that is clinically translatable to post-lymphadenectomy cancer patients suffering from lymphedema."

Lee will perform this work under the mentorship of two faculty members in the Keck School's Department of Surgery: Young Kwon Hong, PhD; and Alex Wong, MD.

Orthopaedic surgery resident R. Kiran Alluri, MD, will focus on ways to use genetically manipu-



From left, R. Kiran Alluri, Gene K. Lee and Christopher Schlieve.

lated stem cells to treat critical sized bone defects, or fractures that are too large to heal on their own. The stem cells will produce a protein, called bone morphogenetic protein, that induces progenitor cells to become bone producing cells.

"The treatment of critical sized bone defects presents a substantial challenge in orthopaedic surgery. Large bone defects may be associated with trauma, revision total joint replacement and spine injury," Alluri said. "My current basic science research interest focuses on alternative forms of bone regeneration through tissue engineering."

Alluri will conduct this research under the mentorship of Jay R. Lieberman, MD, professor and chairman of the Department of Orthopaedic Surgery at the Keck School, and professor of biomedical engineering at the USC Viterbi School of Engineering, who is a pioneer in the field of gene therapy for bone repair.

In the laboratory of Tracy C. Grikscheit, MD, at Children's Hospital Los Angeles, surgeon-scientist Christopher Schlieve, MD, will work to create stem cell-derived intestines for patients with short bowel syndrome (SBS), which leaves them unable to absorb adequate nutrition after losing part of the intestines due to infection, impaired blood flow, injury or surgery.

The Grikscheit Laboratory has already succeeded in taking the first step in growing human stem cell-

derived tissue-engineered small intestine (TESI) in a mouse. However, this TESI lacks the proper nerves to contract the intestines and move food through the system. Schlieve's goals are not only to add nerves to the stem cell-derived TESI, but also to do so in a pig — so that the intestines will be the correct size to transplant into a human newborn baby with SBS.

"As a Broad Clinical Research Fellow, I hope to build upon my previous experiences to help advance the field of regenerative medicine and provide a better quality of life for my patients," Schlieve said. "If successful, this method may provide a novel approach to treat devastating inherited and acquired gastrointestinal diseases."

The Eli and Edythe Broad Foundation also funds clinical fellowships at the University of California, Los Angeles (UCLA) and the University of California, San Francisco (UCSF) — which, like USC, have stem cell research centers established with support from Eli and Edythe Broad and the California Institute for Regenerative Medicine (CIRM).

"Physician-investigators play a critical role in translating laboratory discoveries into patient cures," said Andy McMahon, PhD, director of USC's stem cell research center. "We are grateful to Eli and Edythe Broad for their vision in supporting these transformative and dedicated members of our stem cell research community."

PSYCHIATRY: Siegel specializes in treating schizophrenia, psychosis

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manuscripts on a variety of topics relating to schizophrenia and autism and is a physician-scientist, contributing to the investigation of the basic neurobiology of schizophrenia, autism, drug abuse and nicotine dependence.

Siegel previously spent 20 years at the University of Pennsylvania (Penn), where he was a professor of psychiatry and biomedical engineering, director of the Translational Neuroscience Program in the Department of Psychiatry, director of the Clinical Neurosciences Training Program, and associate director of the CTSA education programs. He held faculty appointments at the University of Pennsylvania School of Medicine, served as attending physician at the University of Pennsylvania Hospital, and was director of the Clinical Neuroscience Training Program.

Siegel has received numer-

ous awards, including being named one of the nation's outstanding clinicians by the National Association for Mental Illness; the Leonard Berwick Memorial Teaching Award, which is among Penn's highest awards for the teaching of translational research; and the Martin P. Szuba Award for Excellence in Clinical Teaching and Research by the Department of Psychiatry at Penn. He holds MD and PhD degrees in neurobiology from Mount Sinai School of Medicine and a bachelor's degree in neuroscience from Colgate University.

Varma and Jackiewicz thanked David Baron, OD, for serving as interim chair in the Department of Psychiatry and the Behavioral Sciences since July 2015 and described Baron's leadership of the department's clinical, research and educational missions and his work on faculty development as exemplary and invaluable.

MOONSHOT: Summit aired online

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to the Facebook live stream. Participants included physicians, scientists, patients, patient advocates, philanthropists, elected officials and survivors. Hilda Solis, Los Angeles County First District Supervisor, welcomed guests to the event and expressed gratitude at having a National Cancer Institute-designated cancer center in her district.

In the spirit of the Cancer Moonshot Summit, the USC Norris summit began with featured moonshot priorities at USC Norris, including the development of an annotated tissue bank and biorepository and increased investment in precision oncology in underserved populations.

Dana Dornsife, USC Trustee and founder of the Lazarex Cancer Foundation, also spoke about her organization's work improving equitable access and increased participation in clinical trials. While USC Norris is a national leader in clinical trials and has an established record of facilitating enrollment for underrepresented minorities, even more can be done to increase clinical trial enrollment. Dornsife also announced her iMPACT initiative, which is helping

to develop language for the FDA to allow for reimbursement of ancillary costs from clinical trial participation.

Jorge Nieva, MD, associate professor of clinical medicine, discussed his CancerBase project, an official Cancer Moonshot initiative involving researchers across multiple schools within the university. CancerBase is a database of cancer patients that includes not only their medical information, but also their family history, location and social profile.

After Biden gave his comments via satellite, attendees divided into breakout groups focused on the Adult and Young Adult Cancer Program at USC, clinical trials and community outreach or survivorship.

"It was a remarkable experience to have such a wide spectrum of community members collaborate and address obstacles in prevention and treatment with unique perspective," said Stephen Gruber, MD, PhD, MPH, director of the USC Norris Comprehensive Cancer Center. "The Vice President set aggressive milestones to end cancer as we know it, and by working together, we will make progress toward this goal."



The USC Norris Comprehensive Cancer Center was a satellite host for the National Cancer Moonshot Summit, held June 29 in Washington, D.C.

Ricardo Carrasco III

Gehr Family Center holds inaugural speaker series

By Douglas Morino

Steven Asch, MD, MPD, professor of Medicine at Stanford University, was the featured speaker on July 5 at the inaugural Gehr Family Center for Implementation Science Guest Speaker Series.

Asch's lecture, "The New Science of Implementation" examined implementation research and outcomes.

"Implementation science sounds like a good idea — but are we doing it?" Asch said. "I think we could do better."

Asch is vice-chief for research in the division of general medical disciplines at Stanford University and chief of health services research at the VA Palo Alto Healthcare System. He develops and evaluates quality measurement and improvement systems, often in the care of patients with communicable or chronic disease.

Asch has led several national projects developing broad-based quality measurement tools for veterans, Medicare beneficiaries and the community.

The speaker series was held at



Ricardo Carrasco III

From left, Rebecca Trotzky-Sirr and Welmoed Kirsten van Deen participate in a panel discussion with Steve Asch, right, during the inaugural Gehr Family Center for Implementation Science Guest Speaker Series.

Aresty Auditorium and hosted by Michael Hochman, MD, MPH, assistant professor of clinical medicine, and director, Gehr Family Center for Implementation Science, Department of Medicine, Keck School of Medicine of USC.

"The Gehr Family Center for

Implementation Science Guest Speaker Series is an opportunity to educate health care students and professionals on implementing evidence-based practices in real-world settings," Hochman said. "We are grateful for the opportunity to present the speaker series."

Endowment to fund cultural enrichment programs at Keck School

By L. Alexis Young

Local philanthropist Elaine Sarkaria, EdD, on behalf of herself and her late husband Daljit Sarkaria, MD, has designated a charitable remainder trust gift to the Humanities, Ethics, Arts, and the Law (HEAL) program at the Keck School of Medicine of USC.

The \$2 million Daljit and Elaine Sarkaria Endowment for Medical Education will exist in perpetuity and provide annual funding to support HEAL along with a variety of cultural enrichment and educational programs for medical students. The four-year HEAL curriculum serves as a model for other medical schools and includes instruction in ethics and medical humanities, nar-

rative medicine and the history of medicine. It also provides students with access to a literature and art publication, as well as extracurricular activities, such as writing workshops and a book club, which are hosted at the Keck School's Hoyt Gallery.

"It's such a generous gift," said Pamela Schaff, MD, associate dean for curriculum and director of the HEAL program. "The program's future is assured. This gift will allow us to expand both the formal and informal curriculum."

Schaff said Sarkaria was impressed that a medical school was embracing students' education in the arts and humanities.

"There are things you can't learn

from textbooks," Schaff explained. "Our students go to art galleries and we discuss issues of interpretation. Engaging with contemporary art is very similar to the complex environment when you enter a patient's room and can't quite make sense of what you see."

The Sarkarias have a history of philanthropic support to higher education, and developed a fondness for USC after their daughter and two grandsons attended the university.

"When my grandson Ryan (Sarkaria) graduated from the Keck School of Medicine two years ago and I asked him what he would have appreciated at the school that wasn't available, he said music,"

Sarkaria recalled. "Music is a huge part of my psyche. Medical students don't always have time to leave campus to enjoy all of the music and concert halls Los Angeles has to offer, so I purchased a grand piano for the school."

The grand piano was placed in Mayer Auditorium and is available for all students to play. The HEAL curriculum incorporates music and has partnered with USC Visions and Voices arts and humanities initiative to bring notable musicians and artists to the Health Sciences campus.

"We've given a lot of money to different schools, so I'm really glad to see this gift is being put to good use," Sarkaria said.

Researchers innovate during annual Big Data workshop

By Crystal Stewart

Nearly 30 investigators from across the country, with expertise in biomedical and data science, gathered at Lake Arrowhead beginning June 15 for the second annual Data Science Innovation Lab. Organized by the Big Data 2 Knowledge Training Coordination Center (BD2K TCC), based at the USC Mark and Mary Stevens Neuroimaging and Informatics Institute, the Innovation Lab is a five-day, facilitated, residential workshop where multidisciplinary investigators create new collaborations.

Progress in biomedical research depends greatly upon new innovation. While many seek to apply the latest technologies and analytics in assessing their research questions, being truly innovative without the right team of researchers in place can be challenging.

The main goal of the Innovation Lab is to form new collaborations between early-career professionals in the field of biomedical and quantitative science, which may lead to the invention of cutting-edge technologies, offer applications around novel biological research questions and provide profound insight regarding major public health concerns.

Senior faculty mentors and invited

"provocateurs" provide insight and feedback on proposed projects from newly formed teams. This year's theme involved addressing the data science needs arising from the use of wearable or ambient sensors to study health and disease.

Innovation Lab attendees formulated proposals for mobile sensor technology beneficial in monitoring health conditions such as obesity, mild brain trauma, asthma, chronic pain, social-emotional agnosia, inflammatory bowel disease and cardiovascular diseases. These proposed sensor technologies would be internet-connected devices aiming to assist in physical health monitoring and to promote research for disease treatment and prevention by collecting individual information (e.g. "big data") regarding their physical activity, lifestyle and environment.

Prior experience and knowledge in the development of mobile sensors is valuable. For example, Nanshu Lu, PhD, an assistant professor in the Department of Aerospace Engineering and Engineering Mechanics at the University of Texas at Austin, included applications using her invention of an epidermal sensor "tattoo" which can be placed directly on the skin to measure heartbeat and cardiac electrical activity.



Crystal Stewart

Investigators with expertise in mathematical, statistical and biomedical fields exchange ideas for new wearable or ambient mobile sensors at the Data Science Innovation Lab, held June 15-19 in Lake Arrowhead.

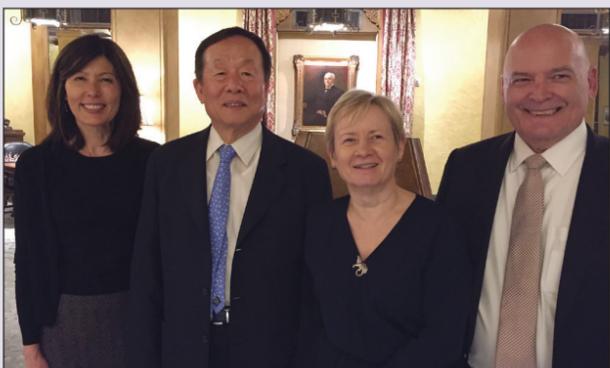
"Many researchers seek the most innovative research methodologies by which to address challenges in biomedicine," said Jack Van Horn, PhD, BD2K TCC principal investigator and associate professor of neurology at the Keck School of Medicine of USC. "Bringing novelty to analysis methods is a critical element of any research project proposal. By holding this event, we seek to encourage the

formation of new, multi-disciplinary teams who can bring their skill sets to vexing biomedical problems and maximize the innovation of their proposed approaches."

The Data Science Innovation Lab is an annual event and will return in spring of 2017. For further details about the Data Science Innovation Lab and similar BD2K TCC programs, go to <http://www.bigdata.org>.

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:



From left, Eunjoo Pacifici, D.K. Kim, Frances Richmond and USC School of Pharmacy Interim Dean Glen L. Stimmel.

Gift supports international programs in regulatory science

A \$200,000 GIFT TO THE INTERNATIONAL CENTER for Regulatory Science by businessman D.K. Kim will expand global outreach efforts by the USC School of Pharmacy by establishing international service and summer scholars program funds. The gift will create the D.K. Kim International Service Fund to support clinical service programs to train pharmacy students to become primary health care providers to patients living in underserved areas of developing countries. The gift also will establish the D.K. Kim Summer Scholars Program Fund, advancing regulatory science internationally by supporting a one-month summer scholars program for students from a variety of countries. “The funding allows us to advance unique programs related to global engagement that otherwise would be very difficult to support,” said Frances Richmond, PhD, director of the International Center for Regulatory Science. — **Michele Keller**

Study: Piping hot drinks may lead to cancer of the esophagus

DRINKING PIPING HOT COFFEE, TEA AND the caffeine-infused beverage yerba mate probably causes cancer, the World Health Organization announced recently. Beverages surpassing 149 degrees Fahrenheit may increase the risk of tumors in the esophagus, which resides in the chest area below the throat, according to USC’s Mariana Stern, PhD, and 22 other scientists from 10 countries. They met at the WHO’s International Agency for Research on Cancer in Lyon, France, in May to determine if drinking coffee, mate or other very hot beverages causes cancer. Their results were published in the journal *Lancet* on June 15. “There is physical evidence that very hot beverages can contribute to cell injury in the esophagus and thus contribute to cancer formation,” said Stern, an associate professor of preventive medicine and urology at the Keck School of Medicine of USC. — **Zen Vuong**



Sarah-Jeanne Salvy

Research shows friends provide health benefits among youth

NEW FINDINGS PUBLISHED BY USC RESEARCHER Sarah-Jeanne Salvy, PhD, show that the quality of adolescents’ social and familial relationships predicts their obesity-related health behaviors, including eating habits, physical activity and amount of “screen time” using multimedia devices. Results appear in an early online access article of the *Journal of Pediatric Psychology*. Salvy, a research associate professor at the USC Chan Division of Occupational Science and Occupational Therapy, and her colleagues at Santa Monica’s RAND Corporation examined longitudinal data gathered from more than 2,100 adolescents across Southern California enrolled in a middle school drug and alcohol prevention program. Over time, the researchers found that stronger peer social functioning is associated with healthier eating habits. — **Mike McNulty**

Reflections on a storied career

By **Melissa Masatani**

One of the transformative leaders of neuroscience at the Keck School of Medicine of USC has taken his last bow. Leslie Weiner, MD, retired June 30 after spending 41 years at the university, including 23 as chair of the Department of Neurology. *HSC News* sat down with the self-described “neurologist, physician, scientist and teacher” recently to hear how the school has changed and his plans after retirement. The conversation has been edited for length and clarity.

Question: How has the Keck School changed since you’ve been here?

Answer: It’s a totally different place. When I came here in 1975, the university hospital didn’t exist and outpatient practice didn’t exist.

Q: Tell me about your research career. What projects were most exciting for you?

A: I developed a vaccine for multiple sclerosis (MS), which we tested and failed. That was a six- or seven-year endeavor, and that was a very exciting time — but disappointing. We’ve been involved in a number of clinical trials for MS in recent years, which have been fun. My biggest clinical observation is that in 1997, there were no treatments for MS. Now there are 14 licensed treatments, so MS is a treatable disease in the sense that you can prevent progression and attacks and so forth. It’s not a cure, but it’s such a different world for those patients now.

Q: Tell us about why you chose to retire now.

A: I just turned 80, and it was time for me to go. It’s been a good 41 years. But I’m in good health and there are lots of things I would like to do. I tell everybody that the reason I’m retiring is so I can watch Netflix all day. My

wife originally was not in favor of this, but she’s warmed to the idea.

Q: How would you like to be remembered?

A: I don’t care how I’m remembered.

Well, I have an endowed chair with my name on it, the neurology clinic has my name on it. I think that you’re always remembered by your students and your patients, but I just don’t care. My feeling is that you do the best if you’re remembered as someone who took care of patients and taught.

Q: Do you have any advice to share from your career?

A: I think the only advice I have is for the clinicians. They have to recognize their individual patients and their patients’ needs, and they frequently don’t have time to do that. That’s a difficulty. My only regret is how medicine has changed. I think that it is a technologically driven phenomenon, which has its benefits, but I think that when the clinician sits in front of the computer instead of talking to his patient, that just galls me. ... But overall I’m very proud of neurology and the medical school. This is a good place, it’s got a good heart and I think it’s important that its message has not been lost. It still considers the training of physicians who care for patients as its primary goal.



Leslie Weiner

Study: Neighborhood parks can ease youth aggression

Studies have shown that the families we grow up in, the places we work, and the friends we keep play a large role in influencing behavior. However, not much is known about how one’s outdoor environment — such as the greenery in one’s neighborhood — affects behavior.

Researchers from the Keck School of Medicine of USC were part of a team that recently conducted the first longitudinal study to see whether greenery surrounding the home could reduce aggressive behaviors in a group of Southern California adolescents living in urban communities.

The study, published in the July issue of the *Journal of the American Academy of Child and Adolescent Psychiatry* (JAACAP), reports that adolescents in urban communities may have less aggressive behaviors if they live in neighborhoods with more greenery, such as parks, golf courses or fields.

The team, part of the Department of Preventive Medicine at the Keck School and the Department of Psychology at the USC Dana and David Dornsife College of Letters, Arts and Sciences, followed 1,287 adolescents, age 9 to 18 years. They assessed the adolescents’ aggressive behaviors every two-to-three years, asking parents if their child physically attacked or threatened others, destroyed things or exhibited other similar behaviors.

The researchers then linked the adolescents’ residential locations to satellite data to measure the levels of greenery in their neighborhoods.

The study found that 9- to 18-year-olds who lived in places with more greenery had significantly less aggressive behaviors than those living in neighborhoods with less greenery.

Both short-term (one-to-six months) and long-term (one-to-three years) exposure to greenspace within 1,000 meters surrounding residences were associated with reduced aggressive behaviors. The behav-

ioral benefit of greenspace equated to approximately two to two-and-a-half years of adolescent maturation.

Based on this study, USC investigators and their collaborators estimate that increasing greenery levels commonly seen in urban environments could result in a 12 percent decrease in clinical cases of aggressive behavior in California adolescents living in urban areas.

USC Health Sciences
Public Relations and Marketing
2011 N Soto Street - SST-2830
Los Angeles, CA 90032

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Editor: Melissa Masatani

Director, Internal Communications: Virginia Baca

Assistant Director, Publications: Sara Reeve

Contributors: Meg Aldrich, Amanda Busick, Ricardo Carrasco III, Joanna Clay, Mary Dacuma, Michele Keller, Cristy Lytal, Mike McNulty, Douglas Morino, Claire Norman, Crystal Stewart, Carol Sussman, 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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