

## Symposium highlights key stem cell advances

By **Ellin Kavanagh and Cristy Lytal**

USC stem cell researchers discussed the promise of regenerative medicine and cellular therapies — from curing HIV to building organs such as kidneys and intestines — at The Saban Research Institute of Children’s Hospital Los Angeles Annual Symposium, held on Feb. 21.

The panel of speakers included investigators from USC, Children’s Hospital Los Angeles (CHLA), Children’s Hospital of Philadelphia, the University of Colorado and City of Hope. Several of the presenters are also participants in USC Stem Cell, a collaborative, multidisciplinary initiative working to translate the potential of stem cell research to the clinical imperative of regenerative medicine.

D. Brent Polk, MD, director of The Saban Research Institute and chair of pediatrics at the Keck School of Medicine of USC, welcomed speakers and guests.

“This is an exciting and fast-moving field,” he said, “where the promise of lifesaving stem cell therapy, organ regeneration and tissue engineering are quickly becoming a reality.”

Andrew McMahon, PhD, keynote speaker and head of USC Stem Cell, announced a call for proposals for free small molecule screens, which allow researchers to test the effectiveness of 3,000 potential drugs to treat various diseases. The screenings will take place at The Choi Family Therapeutic Screening Facility, located at the Eli and Edythe Broad CIRM Center for Regenerative Medicine and Stem Cell Research at USC.

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## Lasker Lecturers shed light on major breakthroughs

By **Amy E. Hamaker**

Keck School of Medicine of USC students and faculty gathered to learn more about genetic cancer therapy and neurotransmitter release in the brain at the 2014 Lasker Lectures Program, held on March 4 at Mayer Auditorium.

Richard H. Scheller, PhD, executive vice president, research and early development at Genentech, and Thomas C. Südhof, MD, Avram Goldstein Professor and professor of molecular and cellular physiology at Stanford University School of Medicine, were co-winners of the 2013 Albert Lasker Basic Medical Research Award for their work over the course of two decades on the mechanisms that underlie neurotransmitter release.

The Lasker Foundation’s mission is to foster the prevention and treatment of disease and disabilities by honoring excellence in basic and clinical science, educating



Lasker Lecturers Thomas C. Südhof (left) and Richard H. Scheller (center) speak with Keck School of Medicine Dean Carmen A. Puliafito at the Keck School on March 4.

Steve Cohn

the public and advocating for support of medical research. Its awards program recognizes contributions of those who have made major advances in the understanding, diagnosis, treatment, cure or prevention of human disease.

“We’re here today for a celebration of science,” said Keck School Dean Carmen A. Puliafito, MD, MBA, who welcomed attendees. “This is the first time in the history of the Albert and Mary Lasker Foundation that an academic

medical center has hosted both the Albert Lasker Basic Medical Research and Clinical Award recipients.” **(The clinical award recipients will speak at the Health Sciences Campus on April 10.)**

Increasing awareness of research translation is vital in today’s funding climate, added Clair Pomeroy, MD, MBA, president of the Albert and Mary Lasker Foundation, during her welcoming remarks.

“The NIH budget has

flatlined for the last 10 years, resulting in a 25 percent loss in purchasing power,” she said. “We’re thrilled that the Lasker Foundation and Keck School of Medicine are collaborating on this very special event.”

Scheller’s lecture, “The War on Cancer 2014,” focused on gene mutations that have been found to initiate or increase tumor growth, and the promising regulators and inhibitors that are being tested to impede that growth.

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## Ron Smith, former chair of the Department of Ophthalmology, 71

By **Sara Reeve**

Ronald E. Smith, MD, former chair of the Department of Ophthalmology at the Keck School of Medicine of USC, died on Monday, March 17. He was 71. He led the department from 1995 until retiring in 2013, and was one of the founding members of the department, having joined USC in 1975.

“Ron Smith helped establish USC as a local and national powerhouse in

ophthalmology,” said Keck School Dean Carmen A. Puliafito, MD, MBA. “He was a pioneering researcher, a compassionate clinician and an inspiring leader. He will be missed.”

He had gained international prominence in his field and was a former president of the American Academy of Ophthalmology and former chair of the American Board of Ophthalmology. Smith earned many

awards for his achievements, including a prestigious Gold Medal from the International Uveitis Study Group.

“The world has lost an international innovator in eye care and research,” said Tom Jackiewicz, MPH, senior vice president and CEO for USC Health. “The foundation Ron Smith helped to establish here at USC lives on through a lasting legacy of research, clinical innova-

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Ron Smith, former chair of the Department of Ophthalmology



Photos/Kim Pluth

**HELPING HANDS FOR SORE BODIES** — More than 180 volunteers from the Keck School of Medicine Department of Emergency Medicine — led by Sean O. Henderson, chair of the department, and department physicians Clare Roepke and Dhara Amin — turned out to offer aid at the LA Marathon on March 9. Medical personnel and volunteers assisted more than 2,000 runners for various ailments along the 26.2-mile route. Left, Ramin Tabatabai, assistant clinical professor of emergency medicine, helps a runner in distress at the finish line medical tent. Above left, Glenn Ault, LA Marathon Medical Commissioner and associate professor of clinical surgery at the Keck School, is interviewed by KTLA about the medical service provided by the USC physicians and nurses. Above right, racers walk away from the finish line.

# Keck School holds steady in *U.S. News & World Report* ranking

By Sherri Snelling

*U.S. News & World Report* released its annual “Best Graduate Schools Guidebook 2015” today showing the Keck School of Medicine of USC ranks 31st in research among 153 medical schools nationwide. The new rankings appear online and will be published in the guidebook available in April.

Founded in 1885, the Keck School is the oldest medical school in Southern California, and is part of Keck Medicine of USC, one of the nation’s leading academic medical centers. This year’s ranking remains steady at 31, the same ranking the Keck School of Medicine held in the 2014 rankings and an in-

crease from 34th in the 2013 rankings.

“The Keck School is proud to be in the top 20 percent of nationally ranked medical schools thanks to the focus and contributions of our faculty, staff and students,” said Carmen A. Puliafito, MD, MBA, dean of the Keck School of Medicine. “I attribute this recognition to our recruitment of transformative clinician researchers and innovative administrators and staff. This ranking underscores our position as one of the best American medical schools in research.”

The Keck School is a national leader in medical education with an integrated hands-on curriculum. The

school was among the first medical schools to adopt “Introduction to Clinical Medicine” courses for first-year students to give them real-world experience in patient care from the start of medical school. The school is also home to Health, Technology and Education (HTE@USC), an innovative educational program developed in 2010 that facilitates cross-disciplinary education for medical and engineering students to work jointly on solutions to health care problems. In 1970, the Keck School led the movement toward the use of the “standardized patient” for medical training, an idea that has taken root at

schools across America.

USC’s Division of Biokinesiology and Physical Therapy and Division of Occupational Therapy were ranked No. 1 in the last ranking for those disciplines, which took place in 2012. Both divisions are housed within the Ostrow School of Dentistry of USC. The USC School of Pharmacy was ranked 10th.

The health rankings in physical therapy, occupational therapy and pharmacy are based solely on the results of peer assessment surveys sent to deans, other administrators and/or faculty at accredited degree programs or schools in each discipline.

## David Berman, distinguished emeritus professor, pharmacology teacher, 96

By Amy E. Hamaker

David A. Berman, PhD, a distinguished emeritus professor of cell and neurobiology at the Keck School of Medicine of USC and a fixture on the USC Health Sciences Campus for 60 years, passed away on Saturday, March 8. He was 96.

Berman earned his bachelor’s degree and master’s degree in Pharmacy and

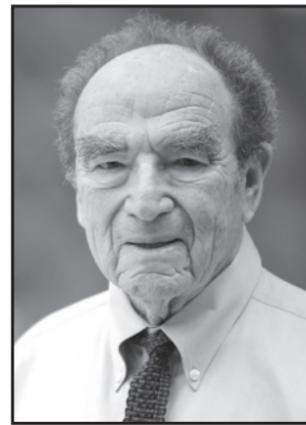
his PhD in Pharmacology at USC. He joined USC’s faculty in 1952, receiving more than 45 teaching awards during his tenure. He also sponsored several curriculum additions, including “Medicine in History, Literature and Art.”

When Berman turned 70 during the 1980s, USC faculty members were required to retire. Berman was able to continue teaching pharma-

cology to first- and second-year students by being rehired annually — hence his “emeritus” designation. He officially retired in June 2012.

The David A. Berman Pharmacology Achievement Award was established in his honor in 1997, and is presented annually to an outstanding pharmacology student.

“Being with students



David A. Berman

keeps you young — you pick up on their energy and excitement,” he said, in a *Keck Medicine* magazine article in January 2012. “It has always been a special moment when a student would come to me, introduce him or herself and say, ‘My mom or dad was in your class.’”

Berman is survived by his wife Miriam, two daughters and three grandchildren.



**HOSPITALS ARE GOOD NEIGHBORS** — Keck Hospital of USC and USC Norris Cancer Hospital proved they’re good neighbors in the Los Angeles community by matching funds raised in the 2013 USC Good Neighbors Campaign. Hospital employees raised \$106,000 — an increase of 33 percent over 2012 — and the hospitals gave a matching gift of \$100,000. Pictured, Sanjit Mahanti, executive administrator, hospital performance, presents an oversized check to Craig Keys, associate senior vice president for civic engagement, and Tom Sayles, senior vice president for university relations, during a USC basketball game on Feb. 27 at the Galen Center.

## LASKER: Pioneering research in bioscience

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For example, according to Scheller, 40 to 60 percent of melanoma patients have a BRAF V600 gene mutation; BRAF mutations stimulate cell growth. Scheller cited research showing that the drug vemurafenib inhibits tumor growth. “We also found that adding a Mek inhibitor [chemicals or drugs that inhibit certain enzymes along signaling pathways] partway through treatment increased the duration of tumor inhibition by two to three times,” he said.

Scheller also described some gene mutations in metastatic disease that are extremely difficult to treat. “In the genomic landscape of somatic mutations in a lung tumor, we found that there were over 50,000 point mutations and over 20 major genome rearrangements,” Scheller said. “We wondered, why doesn’t the immune system recognize these cells as mutant and attack them? The answer is that although T cells are programmed to find tumors, the tumor itself turns off the T cell’s response. We’ve only recently begun to understand the mechanisms whereby this takes place.”

Scheller described research that targets these tumors with the protein Anti-PD-L1, which inhibits tumor response so that the T cells can perform their functions.

Südhof’s lecture, “The Mechanism of Neurotransmitter Release,” focused on the basic mechanisms that he and his team discovered about how neurotransmitter release between synapses happens that resulted in his Lasker Award. (Südhof also received the 2013 Nobel Prize in Physiology or Medicine for discoveries of machinery regulating vesicle traffic.)

Neurotransmitters are chemicals that transmit signals across a synapse between neurons. “Twenty-five years ago, not a single synapse component had been molecularly described,” said Südhof. “Today we understand the structure and know how the machinery works. This is work at a very fundamental level of biology.”

Synapses are the fundamental computational units of the brain, Südhof explained, and although synapses differ in properties, all synapses operate by the same principle: An action potential invades the presynaptic nerve terminal, an influx of presynaptic calcium ions triggers neurotransmitter release, and then those neurotransmitters bind to postsynaptic receptors and provoke an electrical signal.

Synaptic transmission happens extremely quickly, said Südhof. “Three processes enable this speed: synaptic vesicle fusion, the triggering of that fusion through calcium and the fact that the calcium influx is localized right next to vesicles that are ready to fuse — any distance between the calcium channel and the vesicle release sites would result in neurotransmitter release blockage.”

## HSC News

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## JOB: Physician pioneered key orthopaedic techniques in sports medicine

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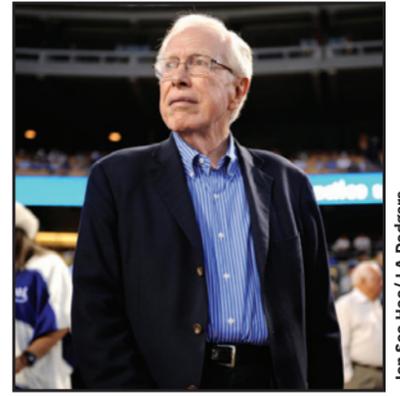
Jobe was also the founder and medical director of the Biomechanics Laboratory at Centinela Hospital Medical Center in Los Angeles, and co-founder of the Kerlan-Jobe Orthopaedic Clinic. He served as chairman of the American Orthopedic

Society for Sports Medicine, president and secretary of the Major League Baseball Physicians Association, and program director of the Western Orthopedic Association.

Jay Lieberman, MD, professor and chair of the Keck School Department of

Orthopaedic Surgery, said Jobe “was not only a superb clinician but he was mentor to many of the leaders in sports medicine today. Our hope is that one day he will be inducted into the Baseball Hall of Fame in recognition of his contributions to baseball.”

In a 2008 photo, Frank Jobe, a former clinical professor of orthopaedics at the Keck School of Medicine of USC and the pioneer of Tommy John elbow restoration surgery, watches a Los Angeles Dodgers vs. San Diego Padres game at Dodger Stadium in Los Angeles.



Jon Soo Hoo/ LA Dodgers

## Calendar of Events

### Wednesday, March 26

**Noon.** The Saban Research Institute Seminar Series Seminar. “Novel Insights in Transcriptome and Metabolic Remodeling of Failing Hearts,” Yibin Wang, UCLA. Saban Research Building, First Floor Auditorium, CHLA. Info: Harleen Gill, (323) 361-8626, hgill@ucla.usc.edu

**Noon – 2 p.m.** Center for Excellence in Research Seminar. “NIH Grants: Strategies to Get Funded,” Silvia da Costa, USC. NML West Conference Room. Info: research.usc.edu/for-investigators/training

### Thursday, March 27

**9 a.m. – 4 p.m.** KSOM Dept. of Radiology, HTE@USC, Viterbi Information Technology Symposium. “Integrating Advances in Imaging & Engineering Technologies: A Theme-Focused Technology Collaboration,” various speakers, USC. Aresty Auditorium. Info and RSVP: Bhushan Desai, (213) 359-7015, bhushand@usc.edu or tinyurl.com/ke4wu62

**Noon.** USC Institute for Global Health Lecture. “An AIDS-Free Generation: Which Generation Might That Be?” Stephen Lewis, AIDS-Free World. TCC 450. Info and RSVP: www.globalhealth.usc.edu/stephenlewis

**Noon.** Southern California Research Center for ALPD & Cirrhosis Seminar. “Deconstructing Pancreas Development Using Stem Cells,” Maik Sander, University of California, San Diego. McKibben Lecture Hall, Room 156. Info: Asma Deras, (323) 442-3121, asmadera@usc.edu

**4 p.m.** USC Diabetes & Obesity Research Institute Seminar. “Proinsulin-Transferrin Fusion Protein as a Long-Acting and Liver-Targeted Insulin Analog,” Wei-Chiang Shen, USC. MCH 256. Info: Christina Ayala, (323) 442-2500, trujille@usc.edu, dori.usc.edu

**4:30 p.m.** Jane Anne Nohl Division of Hematology and Center for the Study of Blood Diseases Lecture. “Genetic Modification of T Cell for Cancer Immunotherapy,” Stanley R. Riddell, University of Washington. Harlyne J. Norris Cancer Research Tower, LG-503/504. Info: Cathy Bergren, (323) 865-3913, cbergren@usc.edu

### Friday, March 28

**Noon.** Jane Anne Nohl Division of Hematology and Center for the Study of Blood Diseases Lecture. “Cancer and the Immune System at the Threshold — Again,” Stanley R. Riddell, University of Washington. LAC+USC Medical Center, IPT, C2J104, Conference Room B, 1200 N. State St., Los Angeles. Info: Cathy Bergren, (323) 865-3913, cbergren@usc.edu

### Saturday, March 29

**7 a.m. – 5 p.m.** Keck School of Medicine of USC Office of Continuing Medical Education. “Diagnosis and Treatment of Hepatobiliary and Pancreatic Neoplasms: State of the Art in 2014,” various speakers. Hilton Pasadena, 168 S. Los Robles Ave., Pasadena. Info: www.usc.edu/cme

### Monday, March 31

**Noon.** KSOM Research Seminar Series Seminar. “Systems Genetics Approach to Cardiovascular and Metabolic Traits,” A. Jake Lusis, UCLA. Aresty Auditorium. Info: Mary Jane Chua, (323) 442-7732, maryjane.chua@med.usc.edu

### Thursday, April 3

**5:30 p.m.** Orthopaedic Surgery Grand Rounds. “Recent Developments in Ankle Syndesmotom Injuries,” Michael J. Gardner, MD, Washington University School of Medicine. Aresty Auditorium. Info and RSVP: Sylvia Suarez, (323) 226-7204, sylsua@usc.edu

**Notice:** Calendar submissions must be received at least 10 days before an issue’s publication date to be considered. Please note that timely submission does not guarantee an item will be printed. Entries must include day, date, time, title of talk, first and last name of speaker, affiliation of speaker, location and a phone number or email address for information.

Submit calendar items at [tinyurl.com/calendar-hsc](http://tinyurl.com/calendar-hsc).

## SMITH: Contributions to ophthalmology will live on

Continued from page 1

tion and education that have touched so many other leaders in this field. His contributions to medicine will live on.”

Smith graduated from Johns Hopkins University School of Medicine in 1967. After completing his residency at the Wilmer Eye Institute at Johns Hopkins, he completed a fellowship in uveitis, cornea and external disease at the Francis I. Proctor Foundation for Research in Ophthalmology, University of California Medical Center at San Francisco. He returned to Wilmer as chief resident, followed by two years in the U.S. Public Health Service as an ophthalmologist for the Alaska

Native Medical Center in Anchorage.

He practiced at USC for more than three decades, where he pursued his longstanding clinical and research interests in external disease, cornea and uveitis.

“During his term as chair, Smith led the department to new heights,” said Rohit Varma, MD, MPH, chair of the Department of Ophthalmology and director of the USC Eye Institute. “He helped make the department one of the top 10 departments of ophthalmology in the United States, and it grew in its research programs, clinical care and educational endeavors. His loss leaves a huge hole in our hearts and in our lives.”

## STEM CELL: Symposium highlights innovative research

Continued from page 1

McMahon also shared his research about the generation and regeneration of the kidney and its promise for preventing chronic kidney disease, a condition that affects one in 10 adults in the United States. As a key member of the USC Stem Cell Kidney Disease Team, he is collaborating with Laura Perin, PhD, assistant professor of urology and part of The Saban Research Institute, who spoke about the therapeutic potential of amniotic stem cell injections in treating these patients.

Scott Fraser, PhD, Provost Professor of Biological Sciences, Biomedical Engineering and Pediatrics at USC, and co-director of the new Translational Biomedical Imaging Lab (TBIL) at The Saban Research Institute, spoke about the goal of TBIL: To bring together clinicians and engineers — those who know what needs to be built and those who know how to build things — to create innovative, image-based solutions for challenges in medicine and the basic sciences.

Tracy Grikscheit, MD, assistant professor of surgery at the Keck School, presented her notable early success in creating tissue-engineered human intestine, providing hope for premature infants and others with digestive tract problems.

Paula Cannon, PhD, associate professor of molecular microbiology, pediatrics, and biochemistry & molecular biology at the Keck School and part of The Saban Institute, offered additional research results, including gene therapy that could potentially confer immunity to HIV to patients’ blood stem cells. Cannon noted that she will begin human clinical trials later this year.

Ellen Lien, MS, PhD, assistant professor of surgery at the Keck School and part of The Saban Institute, discussed her research about

cardiac vasculature and heart regeneration after injury.

The event featured a presentation of CHLA’s Pasadena Guild Endowed Chair in Developmental Biology and Regenerative Medicine to David Warburton, DSc, director of the Developmental Biology and Regenerative Medicine program at The Saban Research Institute, and professor of pediatrics and surgery at the Keck School. “The future doesn’t just happen,” said Warburton during his keynote speech. “Someone has to go into the lab and invent it.”

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