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, Arrav 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 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 flattened 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.

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 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 chief medical officer for USC Health. “The foundation Ron Smith helped to establish here at USC lives on through a lasting legacy of research, clinical innovation and purchasing power,” she said. “We’re thrilled that the Lasker Foundation and Keck School of Medicine are collaborating on this very special event.”

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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 improvement 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 across schools and universities across America. USC’s Division of Biokinesiology and Physical Therapy and Division of Occupational Therapy were ranked No. 1 in the last ranking of those disciplines, which took place in 2012. Both divisions are housed within the Outrow 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 School of Medicine of USC neurobiology at 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.”

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

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**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] pathway through treatment increased the duration of tumor inhibition by two to three times,” he said.

Scheller also described some gene mutations in metastatic cancer cells can perform their functions.

Südhof explained, and although synapses differ in properties, all synapses operate by the same principle: An action potential invades the synapse component had been molecularly described,” said Südhof. “Twenty-five years ago, not a single synapse between neurons. ‘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 terminal, an influx of presynaptic calcium ions triggers neurotransmitter release, and then those neurotransmitters bind to postsynaptic receptors and provoke an electrical signal.

Südhof 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 mechanisms 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.”

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 blockade.”
By Sara Hove

In a lab at the USC Norris Comprehensive Cancer Center, Anthony El-Khoueiry, MD, director of the Phase I Drug Development Program at USC Norris, told a crowd of donors and scientists one simple fact: “With the right support, things can move very fast.”

In this instance, the right support is a $500,000 gift from the Moore for Kids Foundation, and the things that can move fast are the research efforts of Robert Ladner, PhD, assistant professor of pathology at the Keck School of Medicine of USC. Ladner’s lab studies how and why the common chemotherapy agent fluoropyrimidine S- fluorouracil (5-FU) fails in some patients undergoing treatment, and whether new therapeutic agents can stop that failure.

“We take the drug 5-FU, which we know fails in everybody eventually, and we study why it fails — the pathways that allow the cancer cells to circumvent it,” said Ladner at the dedication of his lab in honor of Moore for Kids, held on Feb. 7. “We identified a key resistance mechanism, an enzyme called dUTPase, and that’s what we’ve been trying to inhibit.”

Ladner told attendees he has dedicated much of his research career to this effort, and that it is only now that this hard work is beginning to pay off. “What we’ve achieved in the last 12 months has been more than we achieved in the previous 10 years,” he said.

Buffalo, NY-based Moore for Kids, founded by philanthropists Kristi and Robert Moore, supports work to ease the suffering of children due to illness and adversity. Their recent gift to USC Norris is the first in their new program, the Torpedo Project, the aim of which is to raise awareness nationwide and fund research that can lead to breakthroughs in childhood cancer treatment.

“We see a lot of children struggling with cancer, and we see the work that these scientists are doing — it’s just something we’re meant to be part of,” said Robert Moore at a reception following the dedication of the Ladner lab. “We’re pleased that we could do this with USC and Dr. Ladner. We just can’t say enough about the work he’s doing. There are children we know who are fighting the good fight, but they need these scientists to do what they do, and we wanted to play our part. Our goal is to raise an additional $500,000 for USC Norris.”

Moore for Kids is a 501c(3) organization and is dedicated to raising awareness for the goodness of giving.

### Annual Scholarship Gala raises record amount for medical scholarships

By Amy E. Hamaker

The weather was a balmy 80 degrees at Town & Gown of USC on the evening of March 8 — a lovely setting to celebrate and raise funds for medical scholarship at USC, at the Keck Scholar- ship Gala.

More than 250 people attended the event, co-produced by the Salerni Collegium Alumni Association, and by Medical Faculty, Friends & Family, which is celebrating its 70th anniversary this year. This was the first year that the gala was held at Town & Gown, rather than its previous location at the Jonathan Club.

Special guest Andrew Ordon, MD (79), best known as a co-host of the Emmy award-winning syndicated talk show The Doctors, served as the event’s emcee. A cocktail reception was held at Town & Gown’s courtyard and foyer, while guests strolled among silent auction tables.

During the event, 20 Keck School students were awarded with their medical scholarships and featured in a celebratory video. Musical group Walk Like a Man inspired dancing with classic music from the 1960s. The gala had the largest number of individual sponsorships of any previous gala, and raised nearly $325,000 — almost quadrupling previous raised amounts. Funds will help support medical scholarships.

Along with the Keck Medical Center of USC, the USC Institute of Urology and the USC Office of Diversity, several Keck School departments sponsored the event, including:

- Anesthesiology
- Emergency Medicine
- Family Medicine
- Medicine
- Neurology
- Obstetrics and Gynecology
- Orthopaedics
- Otolaryngology
- Radiology
- Surgery

Funds raised will help to support medical scholarships for Keck School students.

Frank Jobe, Keck School physician, inventor of Tommy John surgery, 88

Frank Jobe, MD, a clinical professor of orthopaedics at the Keck School of Medicine of USC who was best known as the originator of Tommy John elbow surgery that helped preserve the careers of a number of Major League Baseball pitchers, passed away on March 7. He was 88.

During his time as an orthopaedic specialist with the Los Angeles Dodgers, Jobe first performed ulnar collateral ligament (UCL) reconstruction on pitcher Tommy John, who was injured during a game against the Montreal Expos in 1974. Previously, this surgery had been performed on polio patients to improve mobility, but had not been tried on athletes.

The UCL is located on the inside of the elbow, connecting the humerus to the ulna. It can be injured through repetitive stress or from trauma. Jobe transplanted a tendon from John’s right wrist to his left elbow. Following surgery and recovery, John went on to have a successful pitching career.

Jobe also developed a shoulder repair procedure that produced less trauma to tissue, which he performed for the first time on Dodgers pitcher and Cy Young Award winner Orel Hershiser.

Jobe received his medical degree from Loma Linda University, and performed his internship and residency in orthopaedics at LAC+USC Medical Center. He became the Dodgers’ orthopaedic doctor in 1968.

Jobe continued his work with athletes during his long career, serving as the medical director for the PGA Tour & Senior PGA Tour, and consulting with the Los Angeles Lakers, Los Angeles Kings and Los Angeles Angels of Anaheim. The Baseball Hall of Fame honored Jobe during a ceremony in July 2013 for his contributions to the sport.

“Frank Jobe was an inspiration to all doctors for his commitment to orthopaedic medicine and his innovative techniques for helping professional athletes recover from previously devastating injury,” said Carmen A. Puliafito, MD, MBA, dean of the Keck School of Medicine. “His techniques will continue to serve as inspiration for generations of surgeons to follow.”

See JOB page 4

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JOBE: Physician pioneered key orthopaedic techniques in sports medicine

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Jobe was also the founder of the Western Orthopaedic 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 men- tor to many of the leaders in sports medicine today. Our hope is that one day he will be inducted into the Basketball Hall of Fame in recognition of his contribu- tions to baseball.”

in a 2008 photo, Frank Jobe, a former clinician 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.

SMITH: Contributions to ophthalmology will live on

Continued from page 4

McMahon also shared his research about the genera- tion 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 Peter, 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 (TBL) at The Saban Research Institute, spoke about the goal of TBL: 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 Glucksie, 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.

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