

Keck School jumps in *U.S. News & World Report* ranking

By Leslie Ridgeway

The Keck School of Medicine of USC improved its ranking by five places in the 2011 *U.S. News & World Report's* Annual Guide to Best Graduate Schools.

Moving up five spots from the 2010 rankings, the Keck School now ranks 34th in the category of research-intensive medical schools, and was listed in a three-way tie with Boston University and Dartmouth Medical Center.

USC's Division of Biokinesiology and Physical Therapy ranked number one in the annual listing, a ranking it has held since 2004.

The new rankings will appear in the May 2010 issue of *U.S. News & World Report* and are available online at <http://grad-schools.usnews.rankingsandreviews.com/best-graduate-schools/top-medical-schools>.

"Moving up five places in this ranking of American medical schools is a strong indication that the significant accomplishments of our faculty, staff and students are attracting national attention," said Keck School Dean Carmen A. Puliafito. "This

ranking, on the heels of the recent eight-year accreditation by the Liaison Committee on Medical Education, shows that the Keck School is advancing with tremendous momentum."

In fall 2008 and early 2009, 126 medical schools and 20 schools of osteopathic medicine were surveyed for the ranking. Medical schools are ranked based on student selectivity admission statistics (MCAT, GPA and acceptance rate) and faculty to student ratio, as well as National Institutes of Health research grants.

The Keck School's recent success in obtaining record research funding is a significant factor in the school's improved rankings. Keck's numbers for National Institutes of Health (NIH) research grants spiked, from \$144 million in federal FY08 to \$177.5 million in federal FY09, the period reported for the 2011 rankings. NIH research grants per faculty member also jumped from \$121,000 to \$144,000. The grants number includes awards to Keck affiliates: Childrens Hospital Los Angeles, Doheny Eye Institute and House Ear Institute.

Most of the Keck School's fiscal year 2009 award total of \$195.5 million in sponsored program funding comes from federal sources, primarily the NIH. Recent grant funding includes:

- \$16 million from the National Cancer Institute to establish the Physical Science-Oncology Center, led by prostate cancer specialist David Agus, and engineer W. Daniel Hillis. The five-year grant focuses on creating a set of "virtual cancer" models that will be used to simulate cancer growth and predict drug responses for patients.

- \$10.4 million from the National Cancer Institute to enhance the USC Epigenome Center. The grant made it possible for the center, directed by Peter W. Laird, USC Norris Comprehensive Cancer Center and Hospital, to join the Cancer Genome Atlas, a nationwide consortium that will map molecular changes in cancer.

- \$9 million in NIH American Recovery and Reinvestment Act funds to Pat Levitt, director of the Zilkha Neurogenetic Institute, and James Knowles, of the Department of Psychiatry and Behavioral

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'This ranking, on the heels of the recent eight-year accreditation by the Liaison Committee on Medical Education, shows that the Keck School is advancing with tremendous momentum.'

—Keck School Dean Carmen A. Puliafito

Soccer in the Streets

Hundreds of families turned out in Huntington Park on April 18 for "Soccer in the Streets," a community-wide soccer game and health fair that promotes fitness and nutrition for youths, sponsored in part by USC. The city was chosen because many of the community's youths are at risk for obesity and diabetes and because the community's majority Latino population has close cultural ties to soccer. With the support of the city, USC, UCLA, Hollywood United and the Los Angeles Fútbol Club Foundation (LAFCL), the event featured organized soccer games (right) mobile health booths, medical services and professional LAFCL coaches. Below right, volunteers Alain Toca and Carlos Sanchez from the Herman Ostrow School of Dentistry of USC provide dental hygiene kits and dental health education. Below left, event organizers Don Sheppard, founder and president of the Los Angeles Fútbol Club Foundation (left) and Jonathan Samet, the Flora L. Thornton Chair of the Department of Preventive Medicine at the Keck School of Medicine and director of the USC Institute for Global Health.



Photos by Jon Nalick

USC hospitals welcome new associate chief financial officer

By Tania Chatila

William M. Gorenstein has joined the USC hospitals as associate chief financial officer of USC University Hospital and USC Norris Cancer Hospital, effective March 8.

Gorenstein will be responsible for the hospital's revenue cycle and supply chain, and will work directly with Chief Financial Officer Jonathan Spees on a number of initiatives including process improvements and cost-savings. With a strong background in finance at academic medical centers, Gorenstein is an excellent addition to the administrative team, Spees said.

"I'm pleased to have an executive of Bill's caliber join our USC team," Spees said. "He brings a track record of success in an academic medical center setting, and his extensive background in health care finance is a great match for the needs of our organization."

Gorenstein has more than 20 years of experience in financial leadership in academic institutions, regional health care systems, teaching hospitals and research organizations. He most recently served as vice president of financial operations at City of Hope.

Prior to that, he spent 20 years

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William M. Gorenstein

Key mechanism for heart tissue formation identified

By Meghan Lewit

Keck School of Medicine researchers have identified a key cellular mechanism that guides embryonic heart tissue formation—a process which, if disrupted, can lead to a number of common congenital heart defects.

Heart tissue forms in two distinct phases known as the First Heart Field, which includes the left ventricle and portions of both atrial chambers, and the Second Heart Field (SHF), which consists of the right ventricle and outflow tract. In humans, the process occurs within the fourth week of development. Using animal models, Keck School of Medicine researchers found that retinoic acid (RA), a derivative of vitamin A, regulates the SHF tissue formation and the septation, or division, of the outflow tract into the ascending aorta and the pulmonary artery.

The study appeared in the March 16 issue of the journal *Developmental Cell*.

“This study provides us with a much deeper understanding of the biology of second heart field development,” said principal investigator Henry Sucov, associate professor of Cell and Neurobiology at the Keck School of Medi-

cine and a researcher at the Eli and Edythe Broad Center for Regenerative Medicine and Stem Cell Research at USC.

“We now know that vitamin A is a critical regulator of this process, and too much or too little RA can lead to common congenital defects.”

RA is a signaling molecule that causes progenitor cells (cells that have the capacity to differentiate into many different kinds of cells) to take the first step toward differentiating into heart tissue. Using specific molecular markers, researchers were able to observe the process by which the cells moved to the outflow tract and began to form essential heart tissue.

The process of moving cells to form the outflow tract is similar to a conveyor belt, Sucov explained. However, in animal models that were mutated to have an RA receptor deficiency, the entire process was halted, resulting in an outflow tract that was shortened and misaligned.

When development of the SHF is compromised, alignment defects such as double outlet right ventricle (DORV; the aorta and pulmonary trunk both exit from the right ventricle) or overriding aorta (when the aorta straddles the interventricular septum) occur.

‘This study provides us with a much deeper understanding of the biology of [heart] development.’

—Henry Sucov, associate professor of Cell and Neurobiology at the Keck School of Medicine



KECK SCHOOL HITS A HIGH NOTE—The Keck School of Medicine celebrated its recent full accreditation from the Liaison Committee on Medical Education on April 14. Hundreds of students and faculty joined the celebration, which featured food and music at Harry and Celesta Pappas Quad (above), comments from Dean Carmen A. Pulliafito (right) and a visit by the USC Trojan Band.



Jon Nalick

Problems in SHF development can also compromise the septation process resulting in a single outflow vessel—a condition known as persistent truncus arteriosus. These malformations occur commonly in human infants.

“This exciting research shows how retinoic acid, a vitamin A derivative, acts to guide cells in the embryo to form parts of the heart and the major blood vessels that emerge from it,” said Martin Pera, director of the Eli and Edythe Broad Center for Regenerative Medicine and Stem Cell Research at USC. “Defects in this developmental pathway can result in serious congenital malformations of the heart in the fetus and

newborns, that may be fatal if not corrected surgically.”

Further research is needed to examine how the findings may be used to correct human heart defects, Sucov said, noting that specific treatments suggested by these results may be developed.

“Through this research, preventative strategies that prevent the occurrence of these defects may be realized,” he said.

Peng Li, Mohammad Pashmforoush and Henry M. Sucov, “Retinoic Acid Regulates Differentiation of the Secondary Heart Field and TGF-Mediated Outflow Tract Septation.” Developmental Cell. D-09-00178R4.

WELCOME ABOARD—

The Keck School of Medicine formally welcomed Preet Chaudhary to the school at a celebration in his honor on March 23. Chaudhary joined USC at the start of the year as chief of the Jane Anne Nohl Division of Hematology and Center for the Study of Blood Diseases at the USC Norris Comprehensive Cancer Center and Hospital.

An internationally renowned physician-scientist, Chaudhary now serves as professor of medicine at the Keck School, and as co-leader of the Leukemia and Lymphoma Program and associate director for translational research at the USC Norris Comprehensive Cancer Center.



Jon Nalick

FINANCE: Collaborative environment is key

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working with the University of Pennsylvania—and the last 14 in their Health System, an integrated health network that includes three teaching hospitals and two physician practice plans with more than 1,600 members.

While there, Gorenstein served in several leadership roles including associate vice president of finance, assistant vice president for finance and director of medical center financial operations. One of his most significant accomplishments at the

University of Pennsylvania Health System was the successful restructuring of \$700 million in debt, saving the health system more than \$50 million.

Gorenstein said he is looking forward to the collaborative working environment at the USC hospitals.

“I am honored to have the opportunity to serve this great organization,” he said. “It is extremely exciting to be a part of a team that is dedicated to furthering integration and excellence across the Health Sciences Campus.”

RANKING: PT program listed best in nation

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Science, to create a map of how genes are expressed in different regions of the brain throughout development.

In another indication of success for the Keck School, in early April the school was awarded the maximum eight-year full accreditation from the Liaison Committee on Medical Education, the best results achieved since 10-year accreditation was granted in 1981.

In addition to the USC Division of Biokinesiology and Physical Therapy’s number one ranking, the USC Division of Occupational Science and Occupational Therapy ranked

number three in the nation. Both divisions are housed within the Herman Ostrow School of Dentistry at USC.

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

The USC School of Pharmacy ranked 15. This is the same ranking as the school held last year, as pharmacy schools are ranked every other year. The USC School of Pharmacy is the top ranked private school of pharmacy in the nation.

The Weekly

Next Issue: April 30

The Weekly is published for the faculty, staff, students, volunteers and visitors in the University of Southern California’s Health Sciences Campus community. It is written and produced by the Health Sciences Public Relations and Marketing staff. Comments, suggestions and story ideas are welcome. Permission to reprint articles with attribution is freely given.

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PT chair Jim Gordon named to deliver prestigious Cerasoli Lecture

By Sarai Villagran
Jim Gordon, chair and associate dean of the division of biokinesiology and physical therapy at the Herman Ostrow School of Dentistry, has been named recipient of the 2011 Polly Cerasoli Lectureship, presented by the Education Section of the American Physical Therapy Association (APTA).

The Polly Cerasoli Lectureship, named for the former chair of the physical therapy program at the University of Colorado, recognizes distinctive contributions to the profession by educators, administrators, practitioners and mentors.

In receiving the honor, Gordon was cited for his extraordinary leadership in physical therapy education, distinguished service to the profession, vision for the profession’s future, and compelling lecture style. He will deliver the lecture at the 2011 Combined Sections Meeting of APTA in New Orleans.

Gordon joined the division in 2000, and has recruited outstanding new faculty, forged strategic alliances with other USC units for interdisciplinary research and raised substantial private and federal funding. Under his leadership, the division’s

physical therapy program has been ranked No. 1 nationwide by *U.S. News & World Report* since 2004.

Gordon has an international reputation as a leader, collaborator, clinician, scholar and mentor. In 2002, he received the APTA Educational Lead-

ership Award. In 2005, he was elected a Catherine Worthingham Fellow of APTA, the profession’s highest honor.

His research is concerned with the neural mechanisms responsible for controlling reaching and grasping arm movements, with a specific

focus on the role of proprioception (awareness of one’s own body movements) in controlling movement that involves a high degree of skill. His current projects involve translating discoveries about motor control into clinical interventions.



SAFETY FIRST—Members of the Department of Public Safety visited the USC Child Care Center on April 14 to teach children about emergency preparedness and provide important safety information. The visit was part of the national Week of the Young Child, designed to focus attention on the rights and needs of young children while raising awareness about community resources that promote their healthy development.

Air pollution exposure at schools tied to childhood asthma development

By Meghan lewit
Living near major highways has been linked to childhood asthma, but a new study led by researchers at the Keck School of Medicine suggests that traffic-related pollution near schools is also contributing to the development of asthma in kids.

The researchers found that the risk of developing asthma due to exposure at school was comparable to that of children whose exposure occurred primarily at home, even though time spent at school only accounted for about one-third of waking hours. Children in schools located in high-traffic environments had a 45 percent increased risk of developing asthma.

The study appears in the journal *Environmental Health Perspectives* and is now available online.

Asthma is the most common chronic childhood illness in

developed countries and has been linked to environmental factors such as traffic-related air pollution.

“While residential traffic-related pollution has been associated with asthma, there has been little study of the effects of traffic exposure at school on new onset asthma,” said lead author Rob McConnell, professor of preventive medicine at the Keck School. “Exposure to pollution at locations other than home, especially where children spend a large portion of their day and may engage in physical activity, appears to influence asthma risk as well.”

The study drew upon data from the Children’s Health Study (CHS), a longitudinal study of children in Southern California communities that was designed to investigate the chronic effects of air pollution on respiratory health. Using a cohort of 2,497 kindergarten and first grade

children who were asthma-free when they entered the CHS, researchers examined the relationship of local traffic around schools and homes to diagnosis of new onset asthma that occurred during three years of follow-up.

Traffic-related pollution exposure was assessed based on a model that took into account traffic volume, distance to major roadways from home and school, and local weather conditions. Regional ambient ozone, nitrogen dioxide and particulate matter were measured continuously at one central site in each of the 13 study communities. The design allowed investigators to examine the joint effects of local traffic-related pollution exposure at school and at home and of regional pollution exposure affecting the entire community.

Researchers found 120 cases of new asthma. The

risk associated with traffic-related pollution exposure at schools was almost as high as for residential exposure, and combined exposure accounting for time spent at home and at school had a slightly larger effect.

Although children spend less time at school than at home, physical education and other activities that take place at school may increase ventilation rates and the dose of pollutants getting into the lungs, McConnell noted. Traffic-related pollutant levels may also be higher during the morning hours when children are arriving at school.

Despite a state law that prohibits school districts from building campuses within 500 feet of a freeway, many Southern California schools are located near high-traffic areas, including busy surface streets.

“It’s important to un-

derstand how these micro-environments where children spent a lot of their time outside of the home are impacting their health,” McConnell said. “Policies that reduce exposure to high-traffic environments may help to prevent this disease.”

The study was funded by grants from the National Institute of Environmental Health Sciences, the U.S. Environmental Protection Agency, the South Coast Air Quality Management District and the Hastings Foundation.

Rob McConnell, Talat Islam, Ketan Shankardass, Michael Jerrett, Fred Lurmann, Frank Gilliland, Jim Gauderman, Ed Avol, Nino Kuenzli, Ling Yao, John Peters, Kiros Berhane. “Childhood Incident Asthma and Traffic-Related Air Pollution In A Longitudinal Cohort Study.” Environmental Health Perspectives.

The Weekly NEWSMAKERS

An April 16 article on the Red Orbit website featured research by **Peter Laird**, director of the USC Epigenome Center, which may lead to better insight into the clinical outcome for some patients with a particularly aggressive type of brain cancer. Laird and colleagues from Johns Hopkins School of Medicine and M.D. Anderson Cancer Center used epigenomics to determine that tumor DNA methylation profiles were distinctly different in roughly 10 percent of patients

with glioblastoma multiforme (GBM). Laird was mentioned as a co-author in a story published in Medical News Today, and in an April 19 article in *Ethiopian Review*.

The April 14 online *U.S. News & World Report* featured several USC schools and programs in its new edition of “Best Graduate Schools,” and noted that the Keck School of Medicine rose to No. 34 from No. 39 among medical schools (research).

An April 14 AOL News article featured a talk by **Leslie Saxon**, chief of the division of cardiovascular medicine, at the April 13 TEDx Conference at USC about medical innovation and implantable devices.

An April 13 *U.S. News & World Report* article featured a study led by **Rob McConnell**, professor of preventive medicine, linking asthma in children to traffic-related exposure at schools located near freeways

and busy streets. The research was also featured by KCBS-TV, the *Daily Breeze* and Health.com and in an April 19 business brief in the *Los Angeles Times*.

An April 12 *Los Angeles Times* article quoted **Pulin Sheth**, assistant professor of radiology and director, breast imaging at the Harold E. and Henrietta C. Lee Breast Center, about new technologies for breast cancer screening.

Calendar of Events

This Calendar of events is also online at www.usc.edu/hscalendar for the Health Sciences Campus community

Monday, Apr. 26

Noon. USC Wellness Workshop for Students. “Self-Awareness & Embracing Diversity.” NML East Conference Rm. Info: (323) 442-3340

Noon. KSOM Research Seminar. “TGF-beta Signaling Specificity in Regulating Craniofacial Morphogenesis,” Yang Chai, USC. NRT Aresty Aud. Info: (323) 442-1144

4 p.m. “Mechanisms of Muscle Contraction,” Walter Herzog, Univ. of Calgary. CHP 147E. Info: (323) 442-2911

Tuesday, Apr. 27

11 a.m. “Cutaneous Manifestation of Diabetes,” Binh Ngo, USC. HMR 100. Info: (323) 442-2806

Noon. Cancer Center Grand Rounds. “Captured Alive, the Active Form of DNA Polymerase V Reveals the Mutagenic Mechanism of the RecA Nucleoprotein Filament,” Myron F. Goodman, USC. NRT Aresty Aud. Info: (323) 865-0801

Wednesday, Apr. 28

8:30 a.m. “Hypertensive Urgency & Emergency,” S. Ghaffari, USC. IRD 732. Info: (323) 226-7923

Noon. ZNI Seminar. “Neural Mechanisms of Fear and Inhibition: From Mice to Men,” Kerry Ressler, Emory Univ. ZNI 112. Info: (323) 442-3446

Noon. “Renal Biopsy Conference,” Michael Koss and Vito Campese, USC. GNH 4420. Info: (323) 226-7307

Thursday, Apr. 29

Noon. “Innovation at USC: The Evolving World of the ‘How, Why, and When’ of Research Commercialization,” Richard A. Hull, USC. NTT 4444. Info: (323) 442-1283

1 p.m. KSOM Research Seminar. “Function of Diverse Transcriptional Coactivators in Animal Cells,” Robert Roeder, Rockefeller Univ. NRT LG 503/504. Info: (323) 442-1144

Tuesday, Apr. 30

8 a.m. Pathology and Laboratory Medicine Grand Rounds. “Factor VIII Haplotypes and Implications for Personalized Replacement Therapy,” Tom Howard, VA Greater L.A. Healthcare System. NOR 7409. Info: (323) 442-1180

10 a.m. Molecular Imaging Seminar Series. “Digital Microfluidics for Molecular Imaging and High-throughput Screening,” Clifton Shen, UCLA. NTT 7409. Info: (323) 442-3858

11 a.m. “The Molecular Basis of Inherited Thrombocytopenia,” Amy Geddis, UC San Diego. IPT C2J103. Info: (323) 865-3914

Noon. “Case Presentations,” Gebran Abboud, USC. OPT A5C129. Info: (323) 409-7995

Saturday, May 1

8 a.m. “Current Trends in Gastrointestinal Malignancies,” Heinz-Josef Lenz, USC. Westin Pasadena. Info: (323) 865-3967

8 a.m. “Coronary Artery Disease 2010: When and How to Intervene,” various speakers. KAM Mayer Aud. Info: (323) 442-2555

Monday, May 3

Noon. USC Wellness Workshop for Students. “Relationship Success.” NML East Conference Rm. Info: (323) 442-3360

Tuesday, May 4

Noon. Psychiatry Grand Rounds. “A Translational View of Alzheimer’s Disease: Neuroimaging, Cognition, and Psychiatric Symptoms,” David Sultzer, UCLA. ZNI 112. Info: (323) 442-4065

Notice: Deadline for calendar submission is 4 p.m. Monday to be considered for that week’s issue—although three weeks’ advance notice of events is recommended. Please note that timely submission does not guarantee an item will be printed. Send calendar items to *The Weekly*, KAM 400 or fax to (323) 442-2832, or e-mail to eblaauw@usc.edu. Entries must include day, date, time, title of talk, first and last name of speaker, affiliation of speaker, location, and a phone number for information.



WALKING FOR DOLLARS—The USC University Hospital Guild hosted its annual “Walk the 5k for Keck” on April 14 to raise money for scholarships for Keck School students and medical research. From left: USC hospitals employees John Odom, Cherie Phelps and Sylvia Munoz are among the first participants to start the walk.

Parents Association hosts first event for medical student parents

By Ina Fried

More than 75 parents of medical students got a first-hand look at the Keck School of Medicine during a Mini Medical School this spring. The event on the Health Sciences Campus was the first one hosted by the Keck Parents Association.

Association President George Stoneman welcomed the parents as members of the Trojan family. “You may not know it, but you are members of one of the largest families you could imagine,” he said. Keck alumni, students, faculty, staff and parents are all members of the Trojan family.”

The program featured lectures by popular faculty members Raquel Arias, associate professor of obstetrics and gynecology, and Darin Signorelli, assistant professor of psychiatry and the behavioral sciences; a fourth-year student panel; and tours of the Health Sciences Campus and Los Angeles County+USC Medical Center.

“Perhaps the most powerful and valuable message that I got by experiencing this event was that the Keck School of Medicine is a very, very special place,” wrote one parent after the event. “It is so



Board members of the Keck School of Medicine Parents Association, from left, George Stoneman, M.D.; Barbara House and John Reid pause as they welcome parents of medical students.

Hilarie Withers

obvious how much you all care for our students, for each other

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