Farnham named to key graduate affairs post at Keck School

Peggy Farnham has been named associate dean for graduate affairs (doctoral programs) at the Keck School of Medicine of USC. Farnham succeeds Debbie Johnson, professor of biochemistry and molecular biology, who has resigned to pursue new opportunities after serving as associate dean since 2003.

A respected educator and international leader in the field of genomics, Farnham holds the W. M. Keck Chair in Biochemistry in the Department of Biochemistry and Molecular Biology and USC Norris Comprehensive Cancer Center. As associate dean, she will provide oversight and management of all Ph.D. programs and the PIBBS access program, Office of Graduate Affairs, and graduate-level courses and curricula at the Keck School of Medicine.

Farnham said she was eager to begin her work, adding, “I am excited about the possibility of developing new Ph.D. programs that are closely aligned with the research strengths of our outstanding faculty here at Keck.”

In a memo to faculty and staff, Keck School Dean Carmen A. Puliafito said that Farnham “has a recognized, long-standing passion for and experience with mentoring students and faculty.”

As associate dean since 2003, Farnham joined the Keck School in 2011 from the University of California, Davis, where she was professor of pharmacology, associate director of genomics at the UC Davis Genome Center, and a member of the UC Davis Graduate Council, which oversees all graduate programs at the university. At the University of Wisconsin-Madison, where she was professor at the McArdle Laboratory for Cancer Research and chair of the Graduate Program in Cellular and Molecular Biology, she twice received “Outstanding Mentor” awards from the School of Medicine and Public Health. Farnham has trained 16 postdoctoral fellows, 27 Ph.D. students, six M.S. students and 32 undergraduates. Her trainees have received more than 50 awards or fellowships while under her direction.

Farnham received her bachelor's degree in biochemistry from Rice University and doctorate in molecular biophysics and biochemistry from Yale University. She performed her postdoctoral training at Stanford University. She is an author or co-author of more than 130 peer-reviewed publications, of which more than 60 have been cited more than 60 times. In 2012, she won the prestigious Herbert A. Sober Lectureship from the American Society for Biochemistry and Molecular Biology. Farnham’s priorities as the new associate dean will include restructuring and reorganizing the Ph.D. graduate programs, with the goals of attracting the best and brightest students to work with faculty in graduate programs aligned with the school’s current and developing research strengths.

USC President C.L. Max Nikias (right) converses with Peter Corin, director of the PET Imaging Science Center, at the Feb. 13 address to the Health Sciences campus faculty.

USC scientist’s retinal implant wins FDA approval

By Robert Perkins

The U.S. Food and Drug Administration (FDA) has approved the Argus II retinal prosthesis system for use in the United States.

Mark Humayun, who holds joint appointments at the Keck School of Medicine of USC and the USC Viterbi School of Engineering, was a key member of the team that developed the device, which will be available to qualified patients at the Keck Medical Center of USC.

The Argus II, which received a unanimous recommendation for approval by the FDA’s Ophthalmic Devices Advisory Panel in September, restores some visual capabilities for patients whose blindness is caused by Retinitis Pigmentosa (RP), an inherited retinal degenerative disease that affects about 100,000 people nationwide.

“It is incredibly exciting to have FDA approval to begin implanting the Argus II and provide some restoration of vision to patients blinded from RP,” said Humayun, Cornell & A. Alfred P. Sloan Professor of Biomedical Sciences and professor of ophthalmology, biomedical engineering, and neurobiology at USC. “In the patients that have been implanted to date, the improvement in the quality of life has been invaluable.

“The fact that many patients can use the Argus implant in their activities of daily living, such as recognizing large letters, locating the position of objects and more, has been beyond our wildest dreams,” Humayun added, “yet the promise to the patients is real, and we expect it only to improve over time.”

By Ina Fried

This is the century of biology and medicine, and USC is reaping the results of aggressive investment in those fields, said USC President C.L. Max Nikias during his annual address to Health Sciences campus faculty. He spoke on Feb. 13 at Areyt Auditorium.

“USC’s medical enterprise represents a significant 42 percent of our overall annual budget of $3.4 billion,” Nikias said. “USC’s medical sciences research, health care delivery and policy efforts are assuming a central role in the life of our community.”

Nikias gave a comprehensive update on the university’s progress and thanked faculty members for their dedication and commitment to excellence.

In the medical arena, he pointed to improving numbers and other accomplishments:

- Over the past year, hospital admissions have increased 8 percent and surgeries 26 percent.
- The inpatient acute rate at Keck Hospital is the highest rate west of the Mississippi.
- Revenue at Keck Hospital of USC and USC Norris Cancer Hospital has surged from $390 million to $620 million over the past three years.
- USC-affiliated Children’s Hospital Los Angeles ranks among the top five children’s hospitals in the nation.
- The footprint of the USC health system has expanded throughout Southern California with satellite locations and expanded affiliation with Hoag Hospital in Newport Beach.
- The process of merging a new hospital into the health system is under way, with the impending

By Robert Perkins

FEBRUARY 15 • 2013

The Weekly

Published for the USC Health Sciences Campus Community

Volume 19 • Number 5
USC researchers elucidate human organ development

By Leslie Ridgeway

Using cutting-edge time-lapse photography, researchers at the Keck School of Medicine of USC have discovered clues to the development of the head at the cellular level, which could point scientists to a better understanding of how organs and birth defects form in humans.

A team of researchers at the Eli and Edythe Broad Center for Regenerative Medicine and Stem Cell Research at USC has, for the first time, determined the role of two important molecular signaling pathways that help control the number and position of repeated units of cells that pattern the head and face.

Two members of a “Wnt” signaling pathway are instrumental in forming pharyngeal pouches that organize the structure of the head and face. Problems with forming the pouches can result in birth defects, including the rare DiGeorge syndrome, which causes an array of symptoms including an abnormal facial appearance, cleft palate, congenital heart disease, and loss of the thyroid and thymus.

The research, “Wnt-Dependent Epithelial Transitions Drive Pharyngeal Pouch Formation,” was published Feb. 11 in Developmental Cell. Principal author is Chong Pyo Choe, research associate at the Keck School of Medicine.

The research, conducted over a five-year period, was accomplished by photographing live zebrafish embryos every 10 minutes for 36-hour periods with a sophisticated microscope, enabling the researchers to see the pouches forming in real time, said Gage Crump, assistant professor in cell and neurobiology, and corresponding author on the research.

“Zebrafish and humans are similar at the genetic level and the organ level,” Crump said. “They have almost all the same organs that we do, which makes the fish a very relevant system for understanding human health and disease.”

The pharyngeal pouches develop the gills in fish, and in human fetuses they also form gill-like structures, which later organize the head skeleton and organs such as the thymus and thyroid. Birth defects like DiGeorge syndrome can be traced back to malformations in the development of the pharyngeal pouches, Crump said.

Choe developed more than 100 different transgenic lines, transferring key genes into live zebrafish embryos. The new transgenic lines, Crump said, “will allow us to study any gene we are interested in.”

The team is now studying congenital heart disease, “the most common birth defect,” Crump said. “We hope to be able to bioengineer these cells to make a particularly shaped organ.”

The team is now studying other signaling pathways and their possible contributions to organ development and defects.

Funding for the research was provided by the California Institute for Regenerative Medicine (CIRM). Also contributing to the research were Andres Colazo of the House Research Institute, Le A. Tinth of the Molecular and Computational Biology department at USC and Biological Imaging Center at the California Institute of Technology, and Luysan Pan and Cecilia B. Moens of the Fred Hutchinson Cancer Research Center.

USC scientists turn off the ability to feel cold

By Robert Perkins

UCS neuroscientists have isolated chills at a cellular level, identifying the sensory network in the skin that relays the sensation of cold.

David McKemy, associate professor of neurobiology at the USC Dornsife College of Letters, Arts and Sciences, and his team managed to selectively shut off the ability to sense cold in mice while still leaving them able to sense heat and touch.

Elle point scientists to a link between the experience of cold and a protein known as TRPM8 (pronounced trip-em-ate), which is a sensor of cold temperatures in neurons, taste buds, as well as a receptor for menthol, the cooling component of mint.

Now, in a paper that appears in The Journal of Neuroscience on Feb. 13, McKemy and his co-investigators have isolated and ablated the neurons that express TRPM8, giving them the ability to test the function of these cells specifically.

Using mouse-tracking software program developed by one of McKemy’s students, the researchers tested control mice and mice without TRPM8 neurons on a multi-temperature surface.

The researchers found that mice depleted of TRPM8 neurons could not feel cold but still responded to heat. Control mice tended to stick to an area around 30 degrees Celsius (86 degrees Fahrenheit) and avoided both colder and hotter areas. But mice without TRPM8 neurons avoided only hotter plates and not cold—even when the cold should have been painful or was potentially dangerous.
NIKIAS: President lauds USC’s ‘audacious actions’

Continued from page 1

USC recruits renowned neurosurgeons to multidisciplinary spine care center

By Allison Trinidad

USC has recruited two esteemed spine surgeons who will play critical roles in expanding a multi-discipli- nary, state-of-the-art-based spine center at the Keck Medical Center of USC.

John C. Liu and Frank Acosta, previously practice- ing at Cedars-Sinai Medical Center, joined other neu- rosurgeons and orthopaedic spine surgeons at USC and began seeing patients on Feb. 1.

Liu, a recognized leader and pioneer in minimally invasive surgical techniques for the spine, has been named professor of neuro- surgery and director of the spine division at the Keck School of Medicine of USC. Acosta, a fellowship-trained neurosurgeon in complex spinal deformities, has been named associate professor of neurosurgery at the Keck School of USC. Both are experts in the clinical care of compli- cated spinal disorders and join USC from the Cedars- Sinai Spine Center.

“At the Keck Medical Center of USC, we are committed to ensuring that our patients have access to the best doctors,” said Tom Jackiewicz, senior vice president and CEO for USC Health. “Both Dr. Liu and Dr. Acosta are tremendous additions to the medical cen- ter’s comprehensive spine program.”

Liu, a board-certified neurosurgeon, had been vice chairman of spine services and co-medical director of the spine center at Cedars-Sinai since January 2011. Prior to Cedars, Liu was director of spinal surgery at Northwestern University in Chicago. One of the coun- try’s preeminent specialists in intracranial and minimally invasive spine surgery, Liu is leading research to study innovative techniques and techniques for the treatment of conditions such as spinal deformities, scoliosis and spinal cord injuries.

“The opportunity to join a team of doctors as distin- guished as those at USC and help them build a premier academic spine center was difficult to turn down,” said Liu. “I am honored to have this opportunity.”

Acosta, who has published more than 70 peer-reviewed articles, led a clinical practice at Cedars-Sinai that focused on complex spinal reconstruction and deformity surgery. His research, which concentrates on the diagnosis and treatment of spinal disorders, has been funded by National Insti- tutes of Health, Harvard Medical School and Howard Hughes Medical Institute grants and fellowships. “In so much looking forward to joining the USC family,” Acosta said. “I think the team approach that we will bring to both the clinical and basic research settings will not only make USC’s spine program one of the best in the nation, but will ultimately improve the lives of patients suffering from spinal problems who seek treatment at USC.”

The Keck Medical Center of USC hosts physicians and surgeons with expertise in a range of neurological disorders, including minimally invasive surgical techniques, diagnos- tic tests and medicine. Spinal disorders that change the structure of the spine or damage the verte- brae often cause pain and can restrict movement. Treat- ment varies by disease, but USC has assembled a cadre of specialists to provide care for the patient with spinal problems.

“Collaborating with the doctors in USC’s Depart- ment of Orthopedic Surgery, we are building the leading spinal surgery program on the West Coast,” said Steven Giannotta, chair of the Department of Neuro- logical Surgery. “Dr. Liu and Dr. Acosta, along with Dr. Patrick Hsieh and Dr. Thomas Chen, are integral in setting that initiative into motion.”

A lieutenant colonel of the United States Army Reserve, Liu has earned several honors including the Global War on Terrorism Service Medal, the Bronze Army Medical Center Com- manding General Award for Excellence and the Army Achievement Medal for Meritorious Service. He earned his medical degree from the University of California, Los Angeles and completed a surgical internship, a residency in neurological surgery and a fellowship in minimally invasive spine surgery and mini- surgically at the North- western University Feinberg School of Medicine.

Acosta earned his bach- elor’s degree in chemistry magna cum laude from Har- vard College and his medical degree from Harvard Medi- cal School. He completed an internship and neurological residency at the University of California, San Francisco, and a fellowship in complex and reconstructive spine surgery at Northwestern University.

The spinal surgery program at the Keck Medi- cal Center of USC is led by Patrick Hsieh, a board-certified professor of neurological surgery; Thomas Chen, professor of neurological surgery and orthopaedic surgery; and Mark J. Spoonamore, assistant professor of clinical orthopaedic surgery.

A Feb. 11 report in Science Daily featured research by Chong Pyo Choe, research associate at the Keck School of Medicine, and Dague Crump, assistant professor in cell and neurobiology at the Keck School, that determines the role of two important molecular signaling pathways that help control the number and position of repeated units of cells that pattern the head and face. The research also was featured in Science Newsline and Science Codex.

A Feb. 10 article in The Manila Bulletin (Philippines) quoted Hunter Volk, assistant professor of preventive medicine at the Keck School of Medicine, about her research findings that link in-utero exposure to traffic pollution to autism. “We’re not saying traffic pollution causes autism, but it may be a risk factor for it,” Volk said.

A Feb. 8 broadcast on KPCC-FM highlighted research by Nicole Bender, Penina Segall-Gutierrez, Sandy Najera, Frank Stanczyk, Martin Montoro and Daniel Mishell of the Keck School of Medicine about Type 2 diabetes. Their study found that healthy, obese, reproductive age women using long-term reversible contraception may have a slightly higher risk of developing the illness. The study was published by OJM (Agency, Canada). ScienceDaily, Asian News International, The Freepress Journal, Medical Xpress, Health Canal, and News-Medical.net.

A Feb. 7 story by The Associated Press featured research by Amytis Towfighi, assistant professor of neurology at the Keck School of Medicine, finding that one in 12 stroke survivors thought about suicide, more often than those who have suffered other health problems like heart attacks or cancer. “When patients have their depression treated they’re more motivated to take their medication, do therapy and live longer,” Towfighi said. Her research also was featured by The Inquisitor, GlobalPost, RedOrbit, Science Codex, Medical Xpress, CBS News and HealthDay News.

A Feb. 7 article by the Los Angeles Daily News reported that Verdugo Hills Hospital and the Keck Medical Center of USC have begun merger discussions.

A Feb. 5 broadcast on MundoFox Los Angeles affiliate KFWX-TV featured the USC School of Pharmacy and the STAR Program, which gives local high school students hands-on experience in the field. The story was featured by QMI News. The program is led by Sandy Najera, Frank Stanczyk, Chong Pyo Choe and John Chiu. Their research was featured in Science Daily, Health Canal, Asian News International, Medical Xpress, Health Canal and News-Medical.net.

A Feb. 5 story by the San Francisco Chronicle reported that Verdugo Hills Hospital and the Keck Medical Center of USC have begun merger discussions.

The Weekly NEWSMAKERS
Calendar of Events

Monday, Feb. 18

**Noon – 2 p.m.** Center for Technology Innovation in Pediatrics Industry Roundtable. “Commercializing Pediatric Medical Devices: Turning Challenges into Opportunities,” various speakers. CBLL Stuaffer A Conference Room, Anderson Pavilion. Info: (323) 442-7874

Tuesday, Feb. 19


**Noon, Cancer Center Grand Rounds.** “Protocinformed Molecular Cancer Medicine,” Eric Haura, Moffitt Cancer Center. NRT Aresty Auditorium. Info: (323) 865-0801


Thursday, Feb. 21

**Noon, Cellular Homeostasis Lecture.** “Role of Nuclear Receptor BHF4 in Cancer,” Frances Slack, UC Riverside. NU 158. Info: (323) 865-0419


**3:30 p.m.** Diabetes & Obesity Research Institute Seminar. “How Cell Differentiation into Lean and Fat Cells Implications for Prevention of Child Obesity,” Bernard Gutin, Medical College of Georgia. CSC 250. Info: (323) 442-2404

**5:30 p.m. – 7 p.m.** Orthopaedic Surgery Grand Rounds. “Skeletronics: What Does It Take to Change Our Minds?”, James Kellam, Cardenas Medical Center. NRT Aresty Auditorium. Reception: 5:30 p.m. – 6 p.m. Lecture begins promptly at 6 p.m. Info: (323) 226-7204

Friday, Feb. 22

**8:30 a.m.** Surgical Grand Rounds. “How to Inform and Engage Patients in Their Healthcare Decisions,” Dule Yildirim, Department of Orthopedic Surgery. Center for Applied Molecular Medicine. DOH 100. Info: (323) 442-0904

**Noon, Center for Applied Molecular Medicine.** “Can Cancer Be Reversed by Engineering the Tumor Microenvironment?” Donald Ingber, Harvard. DCO 250. Info: (323) 442-3849

**1:30 p.m.** KSMO Research Seminar. “The mTOR Pathways in Nutrient Sensing, Autophagy, Cell Growth, and Cancer,” RunLiang Guan, UC San Diego. NRT Aresty Auditorium. Info: (323) 442-7732

Saturday, Feb. 23

**1 p.m. – 8:30 p.m.** “Shadows: For the Sake of the Children,” Various speakers. BGM Art Gallery. RSVP: (626) 586-2945

Monday, Feb. 25

**11:30 a.m.** KSMO Research Seminar. “Using Genomics to Search for New Viral Causes and Treatments for Cancer,” Patrick Moore, University of Pittsburgh. NRT Aresty Auditorium. Info: (323) 442-7732

Tuesday, Feb. 26


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) 442-2833, or email 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.

Melding medicine and engineering to improve patient care—The Health, Technology and Education at USC (HTE@USC) interdisciplinary program brings together medical students and engineering students to solve health care problems using a patient-centered focus. A series of videos is now available to explain the program, what the students hope to accomplish, the challenges students face in learning to work with patients and each other, and the process of choosing a project to develop. The program is a joint collaboration between the Keck School of Medicine and USC Viterbi School of Engineering. Above, in a screenshot from the “Breaking Ground” video is HTE@USC academic director Terry Sanger, discussing how to facilitate communication between doctors and engineers. For more information, go to http://hte.usc.edu.

Study shows stroke survivors at risk for suicidal thoughts

Nearly one in 12 American stroke survivors may have contemplated suicide or wished themselves dead, according to a USC-led study presented at the American Stroke Association’s International Stroke Conference 2013. The proportion of stroke survivors who contemplated suicide was striking, compared with patients with other health conditions, said Anya Towfighi, lead author of the study and an assistant professor of clinical neurology at the Keck School of Medicine of USC.

In a nationally representative sample of the U.S. population, 7.8 percent of stroke survivors reported suicidal thoughts, compared to 6.2 percent of heart attack survivors, 5.2 percent of diabetes patients and 4.1 percent of cancer patients.

“Given the high prevalence of suicidal thoughts among stroke survivors, perhaps regular screening for suicidal ideation, in addition to depression, is warranted,” said Towfighi, who is also chair of the department of neurology at USC-affiliated Rancho Los Amigos National Rehabilitation Center.

About 7 million U.S. adults have a history of stroke, according to American Stroke Association statistics. About one third of stroke survivors develop depression, but there is little data on suicidal thoughts, Towfighi said.

Researchers investigated how many stroke survivors had recent suicidal thoughts, as well as the characteristics of these patients using data from the National Health and Nutrition Examination Surveys (NHANES) conducted from 2005 to 2010. During that time, an estimated 6.2 million U.S. adults were stroke survivors.

This study focused on participants’ responses to the following question: “Over the past two weeks, how often have you been bothered by thoughts that you would be better off dead, or of hurting yourself in some way?”

Stroke survivors were more likely to have suicidal thoughts if they had a higher depression score, were younger, had higher body mass index, lower education level, lower poverty index, were single and were women.

Among the stroke survivors, 17 percent suffered from depression. Depression is the most common psychological complication after stroke. “Post-stroke depression can be associated with poorer functional outcomes, worse quality of life, higher mortality, low psychological well-being, suicidal ideation and suicide,” Towfighi said.

The researchers haven’t calculated what percentage of all NHANES participants, stroke survivors or not, might be suicidal. But Towfighi cited previous studies that found an annual suicide rate that was nearly double the expected figure for the population as a whole.

In case of an emergency...

Call the Emergency Information Phone: (213) 740-3532. The Emergency information system can be activated in case of an emergency...

Visit the USC Web: http://emergency.usc.edu. This page will be activated in case of an emergency. Backup Web servers on the East Coast will function if the USC servers are incapacitated.

In case of an emergency...