CIRM awards USC $27 million for new stem cell facility

By Jennifer Chan

Noting the project as innovative in terms of energy efficiency and research collaboration, the California Institute for Regenerative Medicine (CIRM) has awarded nearly $27 million in funding for a new stem cell facility at USC.

USC was one of 12 California institutions considered for CIRM’s Major Facilities Grants, which will provide $271 million to build stem cell research facilities throughout California. The new facility will be named the Eli and Edythe Broad CIRM Center for Regenerative Medicine and Stem Cell Research at USC.

“We are honored to be selected for funding as a CIRM institute,” said Martin Pera, director of the Eli and Edythe Broad CIRM Center for Regenerative Medicine and Stem Cell Research at USC. “The funding will provide a tremendous boost for USC’s stem cell initiative.”

The $26.9 million will be used to establish a five-story building that would allow USC to carry out stem cell research in three categories: basic and discovery stem cell research, preclinical research and preclinical development, and clinical research. The new facility will include 53,000 assignable square feet.

“The new center at USC will be an important addition to our campus as we create new research space for discoveries that will eventually translate to patient care,” said Carmen Puliafito, dean of the Keck School of Medicine.

USC’s proposal received formal approval on May 7 by the Independent Citizens Oversight Committee (ICOC), the 29-member governing board for the institute. CIRM evaluated the technical aspects of an applicant’s building program and how the scientific program aligns with its objective.

“These facilities will house basic and clinical researchers working collaboratively, with stem-cell-specific core labs literally ‘down the hall’ – an arrangement that is critical to our ability to accelerate the pace of research toward clinical application,” said Alan Trounson, president of CIRM. “Because of this, we

School of Dentistry forges strong ties with universities worldwide

By David Peregrino

Students and faculty from the USC School of Dentistry are sharing knowledge across the globe, thanks to a growing number of collaborations with foreign universities.

After recently signing agreements with institutions in Manipal, India, and Ho Chi Minh City, Vietnam, the school now has 17 Memorandums of Understanding (MOUs) with universities in nine different countries, said Eugene Sekiguchi, associate dean for International, Professional and Legislative Affairs.

“We also have six more planned or in progress,” said Sekiguchi, who is leading the school’s effort to expand ties with institutions around the world.

Expanding USC’s global presence is one of the major goals set forth in the university’s 2004 Strategic Plan, developed under the leadership of USC President Steven B. Sample.

MOUs are umbrella agreements that cultivate relationships between schools for many projects, such as exchanges of faculty and students and sharing of research and academic information. The School of Dentistry’s efforts to build relationships around the world opened a door of opportunity for a group of dentistry students that left for Vietnam in late April and will return in early May.

The group includes junior DDS student Mary Pham, a second-generation Vietnamese-American, who will be visiting the country of her parents and grandparents for the first time.

“I had learned that many children in Vietnam have little or no access to dental care,” said Pham. “I thought it would be so good if I could go there and help.”

Pham said she speaks conversational Vietnamese. Her host parent is a former dentist who returned to Vietnam to help improve oral health, and Pham is considering a career in oral medicine.

The group will work with local dentists, train them on preventive treatments, and build a dental clinic.

“I am excited to learn more about the differences in treatment and provide a service to people who are less fortunate,” Pham said.

The annual Medical Student Research Forum and Poster Day took place May 5 in Mayer Auditorium and the Hoyt Gallery on the HSC campus. Open to all medical students, the event gave student researchers a chance to present and discuss their research in the areas of preventive medicine, dermatology, neurology and general surgery, among other research areas. Seven oral presenters and 48 poster presenters (including Avetis Azizyan, left) participated.

Keck School scientist outlines new model of limb development

By Meghan Lewit

A study led by a USC researcher has found a new model to explain how signals between cells in the embryo control limb development.

The study, which will be published in the May issue of the journal Nature and is now available online, found that secreted growth factors at the distal (farthest from the torso) tip of the embryonic limb act as instructive molecules that control the pattern of bones along the length of the limb in an animal model.

“For many years, biologists have been fascinated by the question of how the skeleton forms during embryonic development so that all the bones are in the proper place and the proper shapes,” said Francesca V. Mariani, assistant professor at the Keck School of Medicine and one of the lead authors of the study. “Much of the research has been focused on the limb as a framework for understanding the basic steps of skeletal development.”

Researchers have long known that the apical ectodermal ridge (AER), a special epithelial structure

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USC School of Dentistry tackles challenge of delivering quality care to autistic patients

By Beth Dunham

A visit to the dentist’s office, with strange sounds, sights and smells, can give even a seasoned patient a twinge of anxiety.

For patients with autism, many of whom are extremely sensitive to changes in routine, the experience can be downright horrifying.

“Autistic individuals often crave sameness and repetition,” said clinical professor Stephen Sobel. “To an autistic patient, the dental office can be a very strange new environment.”

Sobel, who instructs all USC dental hygiene students how to care for patients with autism and other challenges, said autistic patients can face many obstacles in maintaining good oral and overall health—a concern for the dental community as the rates of autism diagnoses continue to rise.

Financial challenges are common; caregivers often place a higher priority on paying for the patient’s other medical care and forgo dental care unless a major problem arises, Sobel said.

“Caregivers can have a significant burden, and dental care is often not given priority,” he said. “In 2000, Surgeon General David Satcher stated in his report, ‘Oral Health in America,’ that one can’t have good health without oral health. Caregivers need to recognize that the mouth is not a separate health issue.”

Difficulty in establishing a good oral hygiene routine for the patient, as well as using cariogenic foods, such as sweets and sodas, as behavioral rewards can cause painful—and expensive—dental problems, Sobel added.

Clinical assistant professor Piedad Suarez said practitioners in the USC School of Dentistry Special Patients Clinic work to identify and serve the unique needs of patients, including the many autistic individuals they serve.

Operating the Special Patients Clinic for 24 years, USC is one of only a few dental schools in California to have a clinic dedicated to treating patients with medical, mental and physical challenges.

“One can find help locating a dentist to treat a special needs patient by contacting the USC School of Dentistry,” Suarez said. “We try to work not only with the patient but also with the whole family and keep them involved in the patient’s care,” Suarez said. “We take the time, help them create a routine and make sure they know just how important oral hygiene is. Sometimes, we can spend a whole morning with a patient just to desensitize them to the feeling of a toothbrush.”

Suarez said the Special Patients Clinic receives many referrals from regional centers and hospitals due to their ability to tailor the dental experience for a patient’s unique concerns, including the use of sedation, progressive exposure to the dental clinic before the first exam and employing parents or caregivers to help calm the patient in the exam room.

“Many dentists don’t feel comfortable treating patients with special needs,” she said. “It can be because of fear of medical complications, lack of knowledge or understanding about the patient’s condition, or the fact that spending hours with a single special needs patient, instead of seeing several patients, doesn’t bring in as much money.”

USC School of Dentistry

“Many dentists don’t feel comfortable treating patients with special needs. It can be because of fear of medical complications, lack of knowledge or understanding about the patient’s condition.”

—Piedad Suarez, clinical assistant professor of dentistry

USC physical therapist named CEO of Rancho Los Amigos

Jorge Orozco, adjunct instructor of clinical physical therapy and Board of Councilors member of the Division of Biokinesiology and Physical Therapy at the School of Dentistry, has been appointed chief executive officer of Rancho Los Amigos National Rehabilitation Center in Downey.

His appointment was announced following a national executive search. Orozco has been serving as interim CEO since 2007.

Rancho is one of four hospitals run by Los Angeles County and has been a leader in rehabilitation medicine for more than half a century, providing highly specialized treatments for traumatic injuries. In 2007, U.S. News & World Report ranked Rancho as one of “America’s Best Hospitals” for rehabilitation.

Orozco began an impressive 19-year career at Rancho as a physical therapist in 1989, and was promoted to chief of rehabilitation therapy in 2001. In 2005, he was named chief operating officer with responsibility for oversight of all facility operations. His clinical and management expertise have driven significant organizational change and growth at the facility.

“Under Jorge’s steady stewardship, Rancho continues to grow in stature as a hospital that provides among the most complex medical care in the country,” said DHS Director Bruce Chernof.

“His cultivation of world-class faculty has strengthened the hospital’s historic mission of research and leadership in rehabilitative medicine.”

Orozco has been a member of the faculty and a member of the Board of Councilors member at USC PT since 2002. His leadership as chair of the board’s Outreach Committee has resulted in the successful establishment of USC Fit Families, a pro-bono community clinic in the neighborhood surrounding the Health Sciences Campus that provides preventive and wellness physical therapy services to underserved elementary–school-aged children diagnosed with or at high risk for diabetes and conditions associated with physical inactivity.
LIMB: Study details embryonic cell signaling

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at the distal tip of the embryonic limb, is important for limb outgrowth. Less clear has been the role of the fibroblast growth factor (FGF) family that emanate from the AER, Mariani said.

“Our study shows that FGFs are not just important for limb outgrowth but act as instructive molecules that control the pattern of bones along the length of the mouse limb,” she said. “The study of limb development may help contribute to the further understanding of how limbs might regenerate.”

Mariani, a recent recruit to the Eli and Edythe Broad CIRM Center for Regenerative Medicine and Stem Cell Research at USC, conducted the research while at the University of California, San Francisco. She worked in collaboration with Gail Martin, a pioneer in embryonic stem cell research.

Researchers concluded that FGFs act as instructive molecules by examining the expression of a gene called Meis1 found at the proximal (nearest to the torso) portion of the developing limb bud. The new model presented in the study proposes that proximal and distal domains are specified by two opposing signals: a proximal signal from the flank and a distal signal from the AER, and that a middle domain forms as an interaction between the two domains or two signals.

The model proposed by the study is provocative because it is similar to a model proposed for limb regeneration in amphibians, Mariani said.

“The findings could have a significant impact on future study in this area.”

“This exciting study proposes a new model to explain how signals between cells in the embryo control the growth and formation of the mammalian limb,” said Martin Pera, director of the Eli and Edythe Broad CIRM Center for Regenerative Medicine and Stem Cell Research at USC. “Tissue repair processes in the adult often use the same cellular programs in building the embryo, so these new findings may provide important clues to guide future treatment of injuries using cell-based therapies.”

The study was supported by a grant from the National Institutes of Health awarded to Gail Martin. Francesca Mariani was supported by postdoctoral grants from the NIH and the American Heart Association.

Francesca V. Mariani, Christina P. Ahn & Gail R. Martin, “Genetic evidence that FGFs have an instructive role in limb proximal-distal patterning,” Nature (2008). Doi:10.1038/nature06876

CIRM: New funding will supplement $25 million gift from Eli Broad

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believe these facilities will be an instrumental part of advancing one of CIRM’s primary objectives of helping to speed the delivery of stem-cell based therapies and cures into the clinic and to patients.”

The funding received today will supplement a $30 million gift made in 2006 by the Eli and Edythe Broad Foundation towards a stem cell facility. CIRM was established when voters passed Proposition 71 in 2004 to borrow and spend $3 billion over 10 years to support stem cell research. To date, USC has received nearly $51 million in stem cell grants from CIRM. USC is also a part of the Southern California Stem Cell Collaborative (SCSC), which is an agreement among six research institutions in Southern California allowing members to share training programs, scientific core facilities and expertise, and to team up on a wide range of research programs.

For more information on USC’s stem cell program, visit http://stemcell.usc.edu.

TIES: School of Dentistry emphasizes importance of global collaboration

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Vietnamese, and she’s eager to learn more of the language and culture during her trip.

Through the nonprofit East Meets West Foundation, Pham will help deliver dental care and education to rural Vietnamese families during part of her stay in Vietnam. Then she will spend several days with the USC group observing and sharing educational experiences with faculty and students at the University of Medicine and Pharmacy in Ho Chi Minh City.

Sekiguchi said he is excited about what the future holds, now that the school’s ties to other universities stretch from Latin America to Asia, and even to Russia, where the school has an MOU with Moscow State Medical Dental University in Kiev.

In addition to faculty and student exchanges, research opportunities are being created, such as the strong collaborations USC School of Dentistry faculty Yang Chai and Songtao Shi have developed with Peking University in China, Sekiguchi said.

“We’ve reached a critical mass with our MOUs that will allow us to develop more and more research collaborations,” Sekiguchi said.

For more information, contact Eugene Sekiguchi at sekiguchi@usc.edu.

USC School of Dentistry endeavors of Understanding:

• Peking University School of Stomatology, Peking, China
• Universidad Latinoamericana de Ciencias y Tecnología Facultad de Odontología, Managua, Costa Rica
• Universidad Evangélica El Salvador Facultad de Odontología, San Salvador, El Salvador
• Manipal Academy of Higher Education, College of Dental Science, Manipal, India
• Kanagawa Dental College, Kanagawa, Japan
• Fukuoka Dental College, Fukuoka, Japan
• Niigata University, Faculty of Dentistry, Niigata, Japan
• Showa University School of Dentistry, Tokyo, Japan
• Tsurumi Dental College, Tsurumi, Japan
• Universidad de Guadalajara Centro, Universitario de Ciencias de la Salud Coordinación, Guadalajara, Mexico
• Universidad National Autónoma de México, Mexico City D.F., Mexico
• Moscow State Medical Dental University, Kiev, Russia
• Seoul National University School of Dentistry, Seoul, Korea
• Yonsei University College of Dentistry, Seoul, Korea
• Kaohsiung Medical University School of Dentistry, Kaohsiung, Taiwan
• National Taiwan University School of Dentistry, Taipei, Taiwan
• University of Medicine and Pharmacy Faculty of Odonto-Stomatolog, Ho Chi Minh City, Vietnam

On May 4, NBC affiliate KFWB-TV featured research led by Scott Fruin and colleagues that found long commutes increase health risks.

A May 2 Reuters Health article featured research led by USC/Norris cancer researchers Heinz-Josef Lenz and Oliver Press that found gender differences in the development of colon cancer. CancerPage also covered the story.

On May 2, KFWB-AM noted that Los Angeles County + USC Medical Center and Children’s Hospital Los Angeles are among the area hospitals with pediatric trauma care units.

On May 2, KFWB-AM covered the California Assembly Health Committee hearing on the impact of health facility and emergency room closures, which included a presentation by emergency medicine expert Edward Newton.

A May 2 Jewish Journal of Greater Los Angeles story quoted Children’s Hospital Los Angeles’ Michelle Pietzak about celiac disease.

A May 1 United Press International article featured research by surgeons Peter Crookes, Namir Kakhouda, Howard Kaufman, Michael Yung-Shun Wang and colleagues that found that obese people who underwent gastric bypass surgery not only lost weight, but the surgery also improved lower back pain symptoms.