NIH awards $56.8 million for clinical, translational research

By Alana Klein Prisco

The Keck School of Medicine of the University of Southern California has received a prestigious $56.8 million Clinical and Translational Science Award from the National Institutes of Health (NIH) to support and promote scientific discoveries and their application in real-life settings to health and health care. The award will have an important focus on health issues of people living in densely populated urban environments.

The award, which will be distributed over the next five years, was given to the USC-based Los Angeles Basin Clinical and Translational Science Institute (CTSI). Principal investigator is Thomas A. Buchanan, director of the Los Angeles Basin CTSI and associate dean for clinical research at the Keck School of Medicine.

“We congratulate principal investigator Dr. Tom Buchanan and the highly interdisciplinary USC team for winning this award,” said Carmen A. Puliafito, dean of the Keck School of Medicine. “An extraordinarily strong grant application resulted in USC receiving the first Clinical and Translational Science Award in Los Angeles.” The application received a score of 12 on a scale of 10 to 90, where 10 is a perfect score.

Faculty from eight USC schools and Children’s Hospital Los Angeles will partner with Kaiser Permanente Southern California, the Los Angeles County departments of Health Services and Mental Health, the Community Clinic Association of Los Angeles County, and more than 30 community health organizations in greater Los Angeles to address the specific needs of the urban and diverse patient populations found in USC’s backyard of downtown Los Angeles.

“We positioned our CTSI as not only an academic focus on health research, but also as a partnership among some of the largest providers of health care in Los Angeles. We are working collaboratively with others on campus and off campus, using L.A. as a real world laboratory to address issues that are important to the community here,” Buchanan said.

With this award, USC joins a consortium of 55 health research centers in 28 states and the District of Columbia that are developing new ways to advance medical research in many disease areas and conditions, including cancer, diabetes, neurological disorders, cardiovascular disease, diabetes and obesity.

Funded through Clinical and Translational Science Awards (CTSA), consortium members share a common vision to reduce the time it takes for laboratory discoveries to become treatments for patients, to engage community members in clinical research efforts and see CTSI, page 5

Keck School overhauls its website, adds key features

The new website for the Keck School of Medicine of USC, launched July 1, features improved functionality, an engaging new graphic design, customized content for key audiences and a user-friendly content management system allowing departments to update their own pages in a timely manner.

The new Web address is keck.usc.edu.

“The new site will be a valuable resource for faculty, staff, students, alumni and donors, while serving as an important public face for the Keck School,” said Dean Carmen A. Puliafito. “The website is an important communications tool that supports research advancement, fundraising, student admissions, faculty recruitment and many other activities.”

Phase I of the website redevelopment project began a year ago in response to the growing demand for an online presence that more accurately reflects and serves the medical school’s constituents.

With the refit of the Keck School’s new online presence, the Stanford School of Medicine’s website served as a model for the Keck School’s new online presence.

Key elements of the new site include a more user-friendly interface and dynamic user experience, an engaging new design template, enhanced navigation, a master calendar application for all Health Sciences Campus events, and ease in updating and expanding site pages.

Health Sciences Public Relations and Marketing staff led the redevelopment project in collaboration with IT staff and the marketing firm Swanson Russell.

“The new Keck School site is our first step toward a more robust website, adds key features

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Oncology symposium seeks novel approaches to fighting cancer

By Imelda Valenzuela
Magicians don’t typically give keynote speeches at medical conferences, but then again, the first Physical Sciences in Oncology Center (PSOC) Symposium on June 18 was no typical meeting.

“We’re taking a different approach to cancer here,” said David Agus, senior scientific investigator on a grant from the National Cancer Institute (NCI) that funded the center and the symposium. He is professor of medicine at the Keck School of Medicine and David W. Daniel Hillis (left), research professor of engineering at the USC Viterbi School of Engineering and professor of research medicine at the Keck School.

“Cancer research for the last multiple decades has been predominantly to understand cancer, not necessarily to control cancer, and so we need to bring in different ways of approaching and thinking about cancer.”

The PSOC Symposium, which was held at the Davidsson Conference Center on the University Park Campus, brought researchers from the physical sciences, including physicists and mathematicians, together with biological scientists, in hopes of creating new paradigms in which to approach and treat cancer.

The featured speaker at the event was former intellectual property attorney and magician, Michael Weber, whose work as a magic consultant has appeared in numerous motion pictures including Forrest Gump, Cazino, Ocean’s Thirteen and The Illusionist.

His presentation focused on the historical impacts made by physical sciences that eventually transformed the field of magic.

According to Agus, the presentation set the tone for the meeting and helped attendees begin to engage with one another and think creatively: “We wanted to make people think; we wanted to push people to be different.”

Agus’ research partner and principal investigator on a NCI grant is noted technology innovator and entrepreneur W. Daniel Hillis, research professor of engineering at the USC Viterbi School of Engineering and professor of research medicine at the Keck School.

“One of the great strengths of our center here at USC is that we can bring people together from science, medicine and engineering,” said Hillis.

“Cancer is complex, and this is the kind of interdisciplinary effort that is required to tackle it.”

Last year, the NCI designated USC as one of 12 PSOCs across the country and funded the program with a $16 million grant to be used over five years.

“This program is different in that we are not bringing together people who are traditional [NCI] investigators, and because of that, we wanted to generate new knowledge and bring new people in who bring in new perspectives,” said Larry Nagahara, NCI’s PSOC program director, speaking at the symposium. “We’re not looking at new techniques just to do better science. We really want to make this paradigm shift in science. Which is why we’ve assembled this team of people from the physical sciences and people from the medical world.”

Nagahara used cell migration as an example to illustrate what the NCI is trying to achieve, noting that a biologist would approach the process differently than a physical scientist. “The physical scientist might ask how much force is required to do this, whereas the cancer biologist would ask a totally different question. If you combine these two questions, do you get a better understanding of how cancer initiates and how it progresses? That’s what we’re getting at,” he said.

The symposium drew 140 people with another 60 who viewed the live streaming video of the event.

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— David Agus, professor of medicine at the Keck School of Medicine

USC researchers examine social networks, implications for disease

By Meghan Lewit
Keck School of Medicine researchers have developed a new measure that identifies “bridging individuals” in social networks. These individuals act as critical connectors, facilitating the flow of information or spread of diseases between social networks and communities.

“The new measure will enable researchers, policymakers and public health professionals to better understand how information or behaviors move from group to group, said Thomas Valente, professor and director of the Master of Public Health program at the Keck School of Medicine, and David W. Daniel Hillis, research professor of engineering at the USC Viterbi School of Engineering and professor of research medicine at the Keck School.”

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“Past research has focused on identifying central individuals, or leaders, in the group to accelerate behavior change or stem disease spread within groups, organizations or communities,” Valente said. “This study shows that identifying bridging individuals who connect two otherwise disconnected subgroups is a more efficient way to achieve these same goals.”

While central individuals or opinion leaders in the group are more inclined to maintain the status quo, bridging individuals may be more open to new ideas and practices. Central individuals may also have less capacity to persuade any one individual in the group because they must spread their persuasive energies across many people. In order to calculate an individual’s bridging, the team systematically deleted each link in the network and calculated the resulting changes in network cohesion. The average change for each person’s links is a measure of bridging. A person with two links to members in two different groups when no one else links the groups is a perfect bridge.

“The findings may have particular significance for disease prevention,” Valente noted. “To prevent diseases from spreading within communities, researchers and public health experts usually advocate immunizing central individuals, as they have the greatest effect on preventing further spread. To prevent disease from spreading between communities, however, bridging individuals should be immunized,” he said.


The Weekly

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 event or story ideas are welcome. Permission to reprint articles with attribution is freely given.

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Next Issue: July 30
WEB: Easy updating of pages is key feature of new site

For those interested in smoking cessation, two informational sessions will be held this month to provide information on cessation programs available at USC. The first will be from noon to 1 p.m. on July 23 in Room 503/504 of the Hadyline Norris Research Tower. A second will be held from noon to 1 p.m. on July 26 in the Colehouse Room of USC University Hospital.

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USC hospitals to make switch to smoke-free environment on Oct. 1

Continued from page 1

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Good Neighbors Campaign slates funding for 10 area programs

Calling the 2009-2010 Good Neighbors Campaign “spectacular,” Thomas S. Sayles, USC vice president for government and community relations, gave special thanks to departmental campaign leaders who helped the campaign exceed its goal with a record $1.2 million given by USC faculty and staff. Sayles was joined at a Mar. 21 ceremony at the Edmondson Faculty Center by Deans Carmen A. Pulido of the Keck School of Medicine of USC and R. Pete Vanderveen of the USC School of Pharmacy.

“One of the key things about this campaign is that it benefits people in the community surrounding the campus,” Pulido said.

Vanderveen said the university’s civic engagement was one of the factors that attracted him to USC. Programs funded by the Good Neighbors Campaign, such as the School of Pharmacy’s FUENTE Initiative, “afford thousands of people in the neighborhood, particularly thousands of children.”

Following is a list of programs receiving USC Neighborhood Outreach Grant awards at the Health Sciences Campus ceremony.

Signature Programs, funded continuously for three years

Expanding STARS, $27,700
Community Partner: Francisco Bravo
Medical Magnet High School
University Partner: USC School of Pharmacy
Provides high school students with a mentored, hands-on science experience in a USC laboratory. In addition, 1,000 9th-12th grade students have the opportunity to conduct an inquiry-based research project as part of their academic science curriculum.

HSC Community Health and Wellness Fair 2010, $14,960
Community Partners: HSC Family of Schools
University Partner: USC Civic & Community Relations
Booths run by 150 USC Pharmacy, Dentistry and Keck School student volunteers provide health services to over 1,200 local parents, school children and community residents.

HSC Health & Science Expo 2011, $14,170
Community Partners: Griffin, Murchison, and Sheridan Elementary Schools and Francisco Bravo Medical Magnet High School
University Partner: USC Civic & Community Relations
Approximately 400 5th graders participate in an essay contest and work with 20 HSC students to develop a wide range of science projects. Culminates in a one-day science fair competition on the Health Sciences Campus.

Health/Sports Programs

From the Ground Up, $12,010
Community Partner: Community Services Unlimited, EXPO Center
University Partner: Keck School of Medicine of USC, Childhood Obesity Research Center
Workshops at the EXPO Center/CSU Mini-Farm train residents in home gardening and healthy cooking. Health education and training aim at increasing consumption of fruits and vegetables to reduce obesity and diabetes.

FUENTE Initiative, $7,420
Community Partners: East Los Angeles Occupational Center, the East Los Angeles Skills Center, and the HSC Family of Schools
University Partner: USC School of Pharmacy
Local pharmacists and student pharmacists provide poison prevention, appropriate drug-use and self-management education for children and parents in the East Los Angeles community.

Proyecto Pastoral, $7,500
Community Partner: Proyecto Pastoral
University Partner: USC Civic and Community Relations
More than 400 women and girls from Boyle Heights and the surrounding area convene at an annual women’s conference.

USC Neighborhood Mobile Dental Van Prevention Project, $37,955
Community Partners: USC Family of Schools
University Partner: Herman Ostrow School of Dentistry of USC
 Allows the mobile dental clinic to purchase the necessary supplies to provide preventive oral health services and referrals to elementary school children at USC faculty and dental hygiene students attending local health fairs to perform dental screenings, provide anti-tobacco education, and perform oral cancer screenings to adults.

USC Physical Therapy Fit Families Program, $18,830
Community Partners: HSC Family of Schools
University Partner: Department of Biokinesiology and Physical Therapy
Provides pro-bono preventive, wellness and rehabilitative physical therapy services to underserved elementary school children who are diagnosed with or at higher risk for diabetes and conditions associated with physical inactivity.

HSC PartnersNews Newspaper, $18,980
Community Partners: HSC Family of Schools
University Partner: USC Civic & Community Relations
A bilingual, bimonthly newspaper featuring positive news and events about HSC neighborhood schools, the HSC neighborhoods and USC community-outreach efforts. Its target audience is parents and guardians of the more than 4,000 students in the HSC Family of Schools and the local community.

Science for Life Outreach Program, $11,670
Community Partners: Murchison Elementary School and El Sereno Middle School
University Partner: Keck School of Medicine, Department of Ophthalmology
Lessons use the research of the Biomimetic MicroElectronic Systems Engineering Research Center as focal points to make science relevant to young children. Hands-on, inquiry-based activities demonstrate the scientific method of discovery and emphasize analytical skills.

Journal publishes five papers by USC researcher

The American Journal of Ophthalmology published five scientific manuscripts by Roht Varma, director of the Ocular Epidemiology Center at the Doheny Eye Institute, in its May edition, as well as an editorial on a study he led.

The papers focused on research conducted as part of the Los Angeles Latino Eye Study (LALES), for which Varma is principal investigator.

“The study showed that Latinos develop certain vision conditions at different rates than other ethnic groups,” said Varma. “The burden of vision loss and eye disease on the Latino community is increasing as the population ages, and many eye diseases are becoming more common.”

There were 45 million Latinos in the United States as of 2007, according to the U.S. Census Bureau.

LALES researchers examined more than 4,600 Latinos three years after they enrolled in the study to determine the development of new eye disease and the progression of existing conditions, including visual impairment, blindness, diabetic eye disease, age-related macular degeneration and cataracts.

“The publication of five articles in a single issue is a remarkable accomplishment for any clinician scientist,” said Ronald Smith, chair of the Department of Ophthalmology at the Keck School of Medicine. “LALES has already led to health policy changes in the United States, including Congressional action to promote health screenings in this country. We’re proud of the contributions of Dr. Varma and his team.”

LALES researchers found that during the four-year study, Latinos developed visual impairment and blindness at a higher rate than any other ethnic group in the country, when compared with estimates from other U.S. population-based studies.

U.S. Latinos were also more likely to develop diabetic retinopathy than non-Hispanic whites. Over the four-year period, 34 percent of Latinos who had diabetes developed diabetic retinopathy, with Latinos aged 40 to 59 having the highest rate.

Though increasing age did not play a role, Latinos with a longer duration of diabetes were more likely to develop the disease. In fact, 42 percent of Latinos with diabetes for more than 15 years developed diabetic retinopathy, while among participants who had diabetic retinopathy at the beginning of the study, 39 percent showed worsening of the disease four years later.

“These results underscore the importance of Latinos, especially those with diabetes, getting regular, dilated eye exams to monitor their eye health,” Varma said. “Eye care professionals should closely monitor Latinos who have eye disease in one eye because their quality of life can be dramatically impacted if they develop the condition in both eyes.”


Like other members of the Clinical and Translational Science Award consortium, the Los Angeles Basin Clinical and Translational Science Institute (CTSI) is committed to strengthening connections between scientists in the lab and clinicians who interact with patients.

But what makes this CTSI at USC distinct is the unique patient demographic it serves. "While we are trying to support a breadth of health concerns, we have also framed our CTSI to focus on diverse populations, specifically highly burdensome, diverse patient communities. That is what sets us apart from other centers," said Michele Kipke, professor in the departments of Pediatrics and Preventive Medicine at the Keck School of Medicine and associate CTSI director for community engagement.

Some of the issues that affect urban communities include: • communicable diseases • mental health • obesity • health care access and quality • risky behaviors • environmental hazards "The CTSI is to eliminate the disparities that exist between these populations and the general population," Kipke added. For example, the following new translational projects are under way to address some of the health issues: 1) Health Problem: Relationship between childhood obesity and leukemia.

Opportunity: To understand why overweight children are more favorably to leukemia treatment than non-overweight children.

Translational Goal: To identify a drug that can enhance the effectiveness of leukemia therapy for overweight children.

2) Health Problem: The disparity between sickle cell anemia patients in Los Angeles and patients elsewhere.

Opportunity: To identify the barriers to high-quality care for patients with sickle cell disease in Los Angeles.

Translational Goal: To improve access to care by providing policy makers with information on how to reduce the barriers to care.

3) Health Problem: The relationship between air pollution and the prevalence of chronic diseases in urban communities.

Opportunity: To develop technology that assesses individual ozone exposure for use in studies of air pollution and chronic disease.

Translational Goal: A new research tool that measures individualized ozone exposure.

"It can take 20 years for the scientific knowledge and training," Buchanan said. "Some of the issues of people living in urban communities become evident, and it is a paradigm shift that will require new skills to complement traditional scientific knowledge and training."
Clinical trial examines stroke prevention options

A major study of people at risk for stroke, conducted in part at USC University Hospital, showed that two medical procedures designed to prevent future strokes are safe and effective overall. Physicians will now have more options in tailoring treatments for their patients at risk for stroke.

In the trial of 2,502 participants, carotid endarterectomy (CEA), a surgical procedure to clear blocked blood flow and considered the gold standard prevention treatment, was compared to carotid artery stenting (CAS), a newer and less invasive procedure that involves threading a stent and expanding a small protective device in the artery to widen the blocked area and capture any dislodged plaque. The study appears in the online edition of the New England Journal of Medicine.

One of the largest randomized stroke prevention trials ever, the Carotid Revascularization and Stenting Trial (CREST) took place at USC along with 116 other centers in the United States and Canada, over a nine-year period. CREST compared the safety and effectiveness of CEA and CAS in patients with or without a previous stroke. The trial was funded by the National Institute of Neurological Disorders and Stroke, part of the National Institutes of Health, and led by investigators at Mayo Clinic, Jacksonville, Fla., and the University of Medicine and Dentistry of New Jersey in Newark.

“The results of this landmark trial provide important information... which will be used for many years to come in patients with carotid stenosis.”

—Fred Weaver, chief of the division of vascular surgery at the Keck School of Medicine

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“The results of this landmark trial provide important information on the relative safety and efficacy of carotid endarterectomy and carotid stenting to prevent stroke, which will be used for many years to come in patients with carotid stenosis,” said Fred Weaver, chief of the division of vascular surgery at the Keck School of Medicine, and the principal investigator of the study at USC.

USC enrolled 18 patients in the study, which was conducted as a collaboration between the divisions of Vascular Surgery, Neurosurgery and Neurology. USC was also the leading center in minority enrollment.

The overall safety and efficacy of the two procedures was largely the same with equal benefits for both men and women, and for patients who had previously had a stroke and for those who had not. However, when the investigators looked at the numbers of heart attacks and strokes, they found differences. The investigators found that there were more heart attacks in the surgical group, 2.3 percent compared to 1.1 percent in the stenting group, and more strokes in the stenting group, 4.1 percent versus 2.3 percent for the surgical group in the weeks following the procedure.

The study also found that the age of the patient made a difference. At approximately age 69 and younger, stenting results were slightly better with a larger benefit for stenting the younger the age of the patient.

Conversely, for patients older than 70, surgical results were slightly superior to stenting with larger benefits for surgery the older the age of the patient.

Stroke, the third leading cause of death in the U.S., is caused by an interruption in blood flow to the brain by a clot or bleeding. The carotid arteries on each side of the neck are the major source of blood flow to the brain. The buildup of cholesterol in the wall of the carotid artery, called atherosclerotic plaque, is one cause of stroke. Because people with carotid atherosclerosis also usually have athemorrhagic strokes in the coronary arteries that supply the heart, the CREST trial tracked the rate of heart attacks, in addition to stroke and death.

Partial funding for the study was supplied by Abbott, of Abbott Park, Ill., the maker of the stents.

Brott, TG et al., Stenting Compared to Endarterectomy for Treatment of Carotid Artery Stenosis, New England Journal of Medicine, online first edition May 26, 2010

In case of an emergency...

Call the Emergency Information Phone: 213-740-9233 The emergency telephone system can handle 1,400 simultaneous calls. It also has a backup system on the East Coast.

Visit the USC Web: http://emergencysc.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.