

FDA panel recommends approval of retinal implant

By Robert Perkins

The U.S. Food and Drug Administration (FDA) Ophthalmic Devices Advisory Panel recommended approval for the Argus II retinal prosthesis system on Sept. 28.

The Argus II restores some visual capabilities for patients whose blindness is caused by RP, or Retinitis Pigmentosa. RP is an inherited retinal degenerative disease that affects about 100,000 people 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. He was among the present-

ers and responders who spoke on behalf of the Argus II at the FDA hearing.

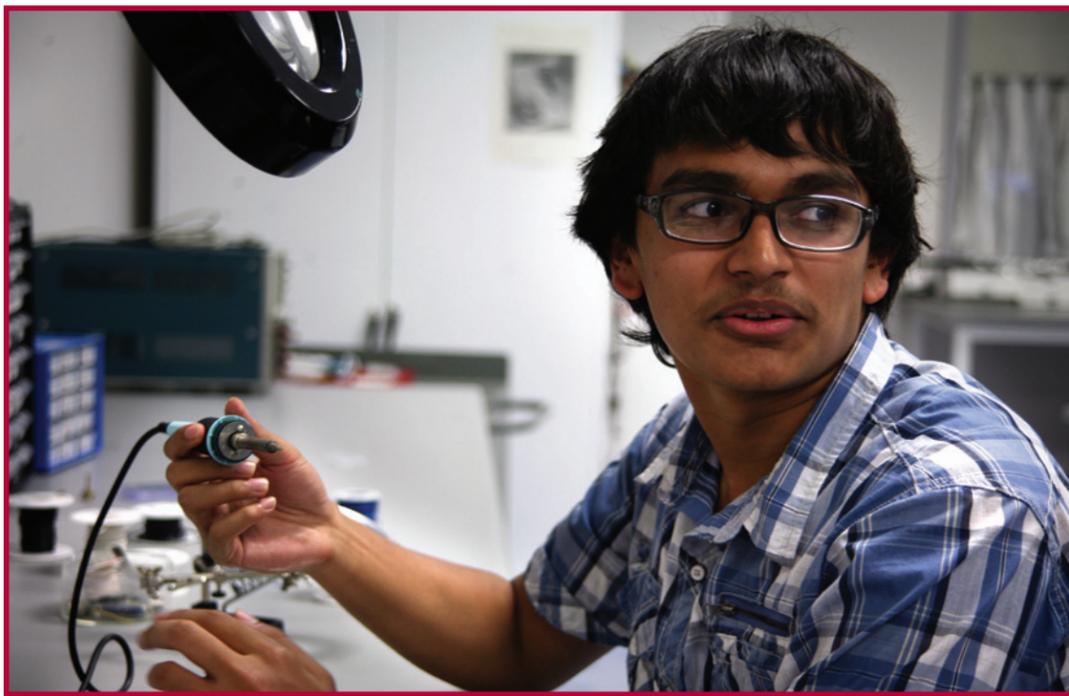
"We're excited and thrilled to have this positive outcome from the FDA panel, and we will be happy to see this device eventually get to patients for whom there has been no treatment until now," said Humayun, who is also associate director of research at the Doheny Retina Institute at USC.

The Argus II is manufactured by Second Sight, a company based in Sylmar, Calif. It was approved for use in Europe last year and has been implanted in 30 patients in a clinical trial that began in 2007. Humayun performed many of the surgeries to implant the device.

The Argus II system uses a camera mounted on special glasses that sends a signal to an electronic receiver with 60 electrodes that is implanted inside the eye.

The receiver sends to the retina signals that travel through the optic nerve to the brain, where they can be interpreted as a visual picture. The researchers hope that one day the device can be improved to also help individuals with age-related macular degeneration, a similar but far more common disease.

Funding for the development of the device came from the National Eye Institute, the U.S. Department of Energy, the National Science Foundation and private investment.



Hope Hamashige

Molovi Shuba, a senior in the Engineering for Health Academy at Francisco Bravo Medical Magnet High School, said the opportunity to study engineering in high school is what drew him to Bravo.

High school students turn biomedical engineers

By Hope Hamashige

Cellular engineering, nanovesicles, implantable prosthetics are not subjects that come up often in the course of regular study at most high schools in California.

But then again, most high schools in California do not have a partnership with USC's Health Sciences campus. It was that partnership with HSC that created an opportunity for Francisco Bravo Medical Magnet High School students to enroll in a unique program, a sort of school within a school, that gave them an insight into the opportunities that exist in the world of biomedical engineering.

The Engineering for Health Academy (EHA) was launched five years ago by the National Science Foundation-sponsored Biomimetic Micro-Electronic Systems Engineering Research Center (BMES ERC) at the Keck School of Medicine of USC. For the last two years, it is one of the programs associated with the Health Sciences campus that has received funding from the Good Neighbors Campaign, which raises money for organizations that promote the health for people in the areas near USC's two campuses.

The EHA students within Bravo receive special instruction in their first two years in science. Like most high school students, they study chemistry and physiology, but all their courses have an engineering component.

In their senior year, the EHA students all spend two hours per day working in one of the laboratories on one of the USC campuses.

Many sign on to work in labs on the HSC campus, but others travel to laboratories on the University Park campus. Since many high

school teachers don't know a lot about biomedical engineering, the BMES ERC also supports training Bravo teachers, who spend summers at USC working in laboratories in order to gain the knowledge they need to teach their students.

Now in its fifth year, the EHA instructs 70 students in three grade levels. By enrolling in Bravo Medical Magnet in the first place, the students have already indicated their interest in pursuing an education in the science fields. Even so, Joseph Coccozza, assistant professor of ophthalmology at the Keck School, who directs the EHA, said introducing them to engineering really opens their eyes.

"They become really excited when they learn about the ways that engineering fits into medicine," said Coccozza. "There are other medical magnet schools, but none of them has an engineering angle and none of them has the backing of an institution like USC. This is what makes us stand out."

Molovi Shuba, one of the Bravo seniors who is now working in a lab at the Doheny Vision Research Center, said the opportunity to learn about implantable electronic circuitry in the laboratory is truly unique.

"I have always known I wanted to build things, and EHA gives me the chance to learn about so many different things," he said, explaining that he is also interested in robotics and got the chance to study it through his EHA computer science course. "I would not be working here if I was in a different high school."

To donate to the Good Neighbors Campaign, visit: <http://usc.edu/1nt>.

Keck Medical Center unveils its long-term strategic plan

By Tania Chatila

The Keck Medical Center of USC has set its vision for the future, emphasizing five critical areas of focus that will serve as the foundation of its long-term strategic plan.

People, growth, service and access, resource management, and quality were identified as key areas of emphasis at a recent strategic planning retreat that brought together more than 50 leaders from across the clinical enterprise, including hospital administrators, clinical department chairs and ambulatory care leaders.

The areas of focus were selected following the results of internal and external stakeholder interviews and an internal survey of more than 4,000 employees to gauge the organization's strengths, weaknesses, opportunities and challenges. The survey netted 1,104 responses and more than 400 write-in comments from staff and physicians across the medical center.

"It is going to take hard work and collaboration for us to be recognized among the top academic medical centers in the U.S.," said Shawn Sheffield, chief strategy and system development officer for the Keck Medical Center of USC, at the Sept. 13 retreat. "We are starting with so much strength and talent, and we must continue to grow. We have to focus on our patients, improve our quality, be more efficient, and we must renew our investment in the people of this organization—the staff and physicians who make us great."

At the core of the survey results, staff and physicians ranked quality and improvements in patient experience as top priorities for the medical center. They also felt strongly about reinvigorating a sense of pride, empowerment and engagement among the workforce, and the importance of continued investments in infrastructure and clinical priorities.

"Unquestionably our organization has been through significant changes over the last few years, and alignment of the clinical enterprise has been our top priority," said Scott Evans, chief executive officer of Keck Hospital of USC and USC Norris Cancer Hospital. "Our work in strategic planning brings everyone together to focus on common goals, shared priorities, and prepares us for actionable steps that serve the best interest of our patients."

At the retreat, medical center leaders discussed preliminary plans for enhancements in the five strategic areas of focus, including growth of clinical volumes, establishing enterprise-wide metrics to promote efficiency and a service-oriented culture, optimizing resources, enhancing staff and physician communication and engagement, standardizing utilization of evidence-based practices, increasing physician outreach, and improving patient flow.

"This is going to be the single most important thing we do as an academic medical center," said

New M.S. in management of drug development trains leaders

By Laura Sturza

If you've ever had sticker shock at the pharmacy, you may have wondered why the price was higher than a pair of tickets to a Trojan football game. If you received a new drug, it probably took about 15 years to bring it to market, after traveling an expensive, rigorous path from new idea to clinical testing, Food and Drug Administration (FDA) approval, and finally, reaching the market.

The escalating investment in time and resources needed for successful discovery and development of new medications is a serious unmet medical need, demanding professionals to ensure a safer, faster and better course to bring new drugs to the patients who need them.

To educate these professionals, the Regulatory Science program at the USC School of Pharmacy has launched the master of science degree in Management of Drug Development (MDD), a novel degree program designed for students with a background in preclinical biological and pharmaceutical science.

Since it can cost a billion dollars or more to develop one drug, and those that are tested are more than 90 percent likely to fail, "there's an urgent medical/business need for professionals adept at innovating this process," said MDD Program Director Daryl Davies. "Our unique program will make people

highly employable."

The MDD is ideal for people with a background in science or those already working in the pharmaceutical industry who want to advance their careers. "They want to be team leaders. They want to drive research," Davies said. "They are the people who can put regulatory and basic science together."

MDD students take on projects such as working for a mock company and following a drug's development from conception to market—if it makes it to market. The teams explore the potential hurdles they'll jump with real-world employers. Once a drug's basic structure is developed, the real work begins. People graduating from the MDD will be ready to discover how a new drug works in the lab and on people, the safest ways for it to be ingested, and how the drug compares to other drugs on the market.

Since students in the program are at very different points in their careers, they experience the everyday life of someone working as a drug development manager; someone who oversees people fresh out of school and those who have worked in industry for years. In addition, they interact with classmates studying on a distance basis, another real-world experience they will encounter at current and future jobs.

Megan Yardley is a dual degree student, pursuing both the MDD and the



Laura Sturza

Megan Yardley, an M.S. MDD/Ph.D. dual degree candidate, said her studies focus on the big picture of drug development, including the steps that occur after research is completed.

Ph.D. in molecular pharmacology and toxicology at USC School of Pharmacy. She initially thought she would stay on the research side of things but said she realized that while a lot happens during the research stage, "so much happens afterwards." Yardley is referring to the steps that usually follow research including protecting the research with patent laws, applying to the FDA for approval, and conducting market research to reach those who will benefit

from the new drug.

"Ph.D. students don't always think about the bigger picture of what needs to be done five to 10 years down the line," Yardley said. But in her studies toward the MDD, her classmates have included people employed by Pfizer and Allergan, who keep her apprised of that bigger picture. They tell her about their daily work and their excitement about it, she said.

Since she is also pursuing the Ph.D., Yardley's studies include research on a new drug, a project with Davies and a multidisciplinary team of researchers. "The knowledge Megan brings to our laboratory discussions regarding the regulatory pathways that will need to be traveled to get our discovery into humans would not be happening without the training she received in the MDD program," Davies said.

Yardley is realistic about the time needed to make progress on this project and knows that all of her goals for the development of the drug won't be reached before she completes her Ph.D. However, "long term you hope what you are doing can make a difference," Yardley said. "I hope I'm in some way pushing the field forward."

For more information on the MDD and Regulatory Science programs, visit <http://regulatory.usc.edu/Masters.htm> or email regsci@usc.edu or call (323) 442-3521.



Jon Nalick

Welcoming new faculty—Keck School Dean Carmen A. Puliafito welcomed dozens of new faculty members to the school at a party at his Pasadena home on Oct. 7. At the event, Giri Ramsingh (left), assistant professor of hematology, and Hussein Yassine, assistant professor of medicine, chat with a colleague.

PLAN: Employee involvement is crucial to success

Continued from Page 1

Vaughn Starnes, chair of the Department of Surgery and surgeon-in-chief at the USC hospitals, of the strategic planning process. "The real work begins now. We have set the strategic foundation for our future, and now we must continue to work collaboratively to identify and execute priority goals that will transform our organization into a model for academic medical centers across the globe."

Design teams around each area of focus have been

formed and will meet regularly through December to define and hone the organization's strategic direction. Medical center leaders hope to finalize the strategic plan by the end of the year.

"The team-based approach to strategic planning has been an exciting way to work across the broader Keck organization," said Coreen Rodgers, chief operating officer of the Keck School of Medicine of USC, who also participated in last month's retreat. "I have

enjoyed the opportunity to work with many new people in this format, and the ideas exchanged have been really powerful. I think the group is determined to capture the needed improvements we must make internally, as well as chart an ambitious course for the medical center's future."

For more information about the strategic plan and how you can be involved, visit www.keckmedicalcenterofusc.org/strategic_planning

Legislative Day examines health care topics

Make your voice heard—that was the message to students at Legislative Day 2012, an annual event of the USC School of Pharmacy, held on Oct. 5 at Aresty Conference Center.

Student legislative directors Daniel Kudryashov and Derek Kuwahara welcomed students and speakers for a slate of presentations and discussion focusing on health care reform and its impact on patient care and the pharmacy profession.

Speakers included associate dean Fred Weissman, who reviewed recent state bills impacting the pharmacy profession, and health economics professor Geoffrey Joyce offering an overview of the Affordable Care Act and its impact on the pharmacy profession and the alternatives should the bill be repealed.

California insurance commissioner Dave Jones also talked about the ACA and the need to "expand the platforms where we provide primary care, and pharmacy is one of those platforms." State senators Ed Hernandez and Ted Lieu looked at the ACA's promise to improve care for more Californians.

A panel discussion featured Brian Warren, California Pharmacists Association, and Jonathan Nelson, California Society of Health-system Pharmacists, and brief remarks on the profession were provided by Victor Law and Robert Small, representing United Pharmacists Network, an event sponsor.

Senator Hernandez, an optometrist, advised, "Join your professional organizations and get involved because legislation is what determines what you can and cannot do in your profession."

The Weekly

Next Issue: Oct. 19

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.

Executive Director of Communications: Ina Fried

Assistant Director of Publications: Sara Reeve

Editor: Jon Nalick

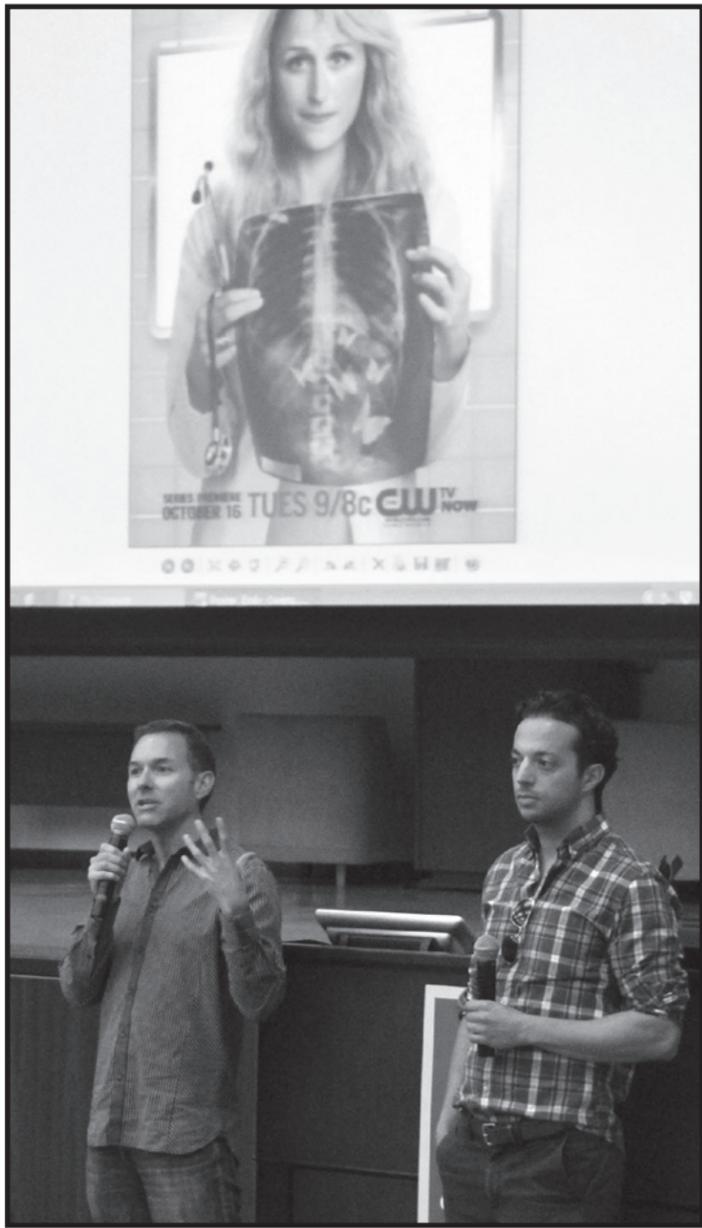
Contributors: Ryan Ball, Eva Blaauw, Tania Chatila, Amy E. Hamaker, Hope Hamashige, Carol Matthieu, Robert Perkins, Leslie Ridgeway, Laura Sturza, Alison Trinidad and Kukla Vera

Senior Vice President, University Relations: Tom Sayles

Vice President, Public Relations and Marketing: Brenda Maceo



Phone: (323) 442-2830 Fax: (323) 442-2832
Email: hscwkly@usc.edu Web: theweekly.usc.edu



Hope Hamashige

Producer Dan Jinks (left) and writer Paul Sciarrotta field questions from the audience following a screening of their new television series, "Emily Owens M.D." The series stars Meryl Streep's daughter, Mamie Gummer (on screen in background).

Keck students preview show on fictional peers

By Hope Hamashige

One of the producers and one of the writers attended a screening of the pilot episode of a new television series, "Emily Owens M.D.," which was shown to students of the Keck School of Medicine of USC last week.

Writer Paul Sciarrotta said he hoped the character was one the Keck School students could relate to because she is a recent medical school graduate. As the series opens, Emily Owens reports for her first day as a surgical resident at a Denver hospital. There, she finds she is going to have to train side-by-side with her high school nemesis and a handsome resident, who was the object of a crush in medical school.

The title character is played by Meryl Streep's daughter, Mamie Gummer. The producer, Dan Jinks, said the series, unlike some medical shows, is primarily a character-driven piece that follows the lives of five main characters.

Discovery leads new hope against ovarian cancer

By Robert Perkins

Scientists at USC have discovered a new type of drug for treating ovarian cancer that works in a way that should not only decrease the number of doses that patients need to take, but also may make it effective for patients whose cancer has become drug-resistant.

The drug, which so far has been tested in the lab on ovarian cancer cells and on mice tumors, was unveiled on Sept. 17 in the *Proceedings of the National Academy of Sciences*.

"We need a new generation of drugs. We need to overcome the drug-resistance issue," said Shili Xu, a USC School of Pharmacy graduate student and the lead author of the *PNAS* paper.

The drug is a member of a new class of cytotoxic agents abbreviated as PACMA that was discovered by testing roughly 10,000 chemical compounds on cancer cells in the lab of Nouri Neamati, professor of pharmacology and pharmaceutical sciences at the USC School of Pharmacy, and a co-corresponding author of the *PNAS* paper.

These initial findings led to a collaboration with Nicos A. Petasis, co-corresponding author of the *PNAS* paper and professor of chemistry at the USC Dornsife College of Letters, Arts and Sciences, with joint appointments at the USC School of Pharmacy and the USC Norris Comprehensive Cancer Center of the Keck School of Medicine.

This joint effort led to a study of PACMA compounds that was reported last year in the *Journal of Medicinal Chemistry*.

In order to investigate and optimize the anticancer

properties of PACMAs, co-author Alexey N. Butkevich, a graduate student in the Petasis lab, synthesized over 80 newly designed compounds. One of these, called PACMA31, was eventually found to be very toxic to ovarian cancer cells and was shown to be a potentially highly effective drug.

In the *PNAS* paper, Xu and his co-authors report that PACMA31 is a potent and selective inhibitor of a protein called Protein Disulfide Isomerase (PDI) that is highly expressed in ovarian cancer. PACMA31 can be taken orally and accumulates in cancer cells, which means that it is less likely to cause harmful side effects in normal tissues. It also is what is known as an "irreversible" drug, meaning that it latches on to its target, PDI, permanently and refuses to wear off until the protein is degraded.

That irreversibility may result in prolonged duration of drug action that could translate into giving the patients lower doses of drugs. "We are exploring combination studies in order to find synergy between our drug and first-line therapy for ovarian cancer," said Neamati.

Currently, there are two major types of drugs in the first-line treatment of ovarian cancer: paclitaxel, which hinders cancer cell division by inhibiting the disassembly of microtubules; and carboplatin, which binds to and causes crosslinking of DNA that results in cancer cell death.

PACMA31 attacks cancer cells in yet a different way, targeting PDI and thus interrupting the folding process during which proteins assume the shapes that allow

them to function properly. Accumulation of misfolded proteins in a cell causes cellular stress and eventually cancer cell death.

Because PACMA31's strategy is different than that of current anticancer drugs, it has the potential to help patients who do not respond to paclitaxel or cisplatin. "When the patient has no other choice, we could potentially treat them with our drug," Neamati said.

Other co-authors of the *PNAS* paper include Roppei Yamada, Yu Zhou, Bikash Debnath, and Professors Roger Duncan and Ebrahim Zandi. Additional contributors to the PACMA project and co-authors to the team's first paper include Xuefei Cao, Melissa Millard, Srinivas Odde, Nick Mordwinkin, Rambabu Gundla, and Professor Stan Louie.

"The discovery of this new drug and its novel mechanism of action is a great example of the power of interdisciplinary collaborations between chemists, biologists, pharmacologists and other biomedical researchers," said Petasis.

The drug will still require additional testing but so far appears to be nontoxic and effective at halting tumor growth. It may also have potential for treating other types of cancer, Neamati said. "Obviously, we think that it will go beyond ovarian cancer," he said.

Funding for the research came from the USC Zumberge Research and Innovation Fund, the American Chemical Society, the William Cockrell Endowed Cancer Research Fund and the Department of Defense Ovarian Cancer Program.

The Weekly NEWSMAKERS

An Oct. 8 article in *InformationWeek* quoted **Tom Jackiewicz**, senior vice president and CEO for USC Health, about "big data." "Big data is going to change the rules of IT departments and beyond. ... We have to become experts at managing data," Jackiewicz said.

An Oct. 6 column in the *Los Angeles Times* quoted **Leslie Saxon**, professor of clinical medicine and chief of the division of cardiovascular medicine at the Keck School, about the safest place to have a sudden cardiac arrest—a casino: "They have cameras all over, they have defibrillators all over the place and tons of employees" trained in their use.

An Oct. 5 article in the *Beverly Hills Courier* reported that pediatric

interventional cardiologist **Frank Ing** has been named associate chief of cardiology and director of the Cardiac Catheterization Laboratory at Children's Hospital Los Angeles. Ing will also serve as professor of clinical pediatrics in the Keck School's Department of Pediatrics, division of cardiology.

An Oct. 4 post on Qmed previewed the sixth annual Body Computing Conference, which was hosted on Oct. 5 by USC Body Computing Center Director **Leslie Saxon**, professor of clinical medicine and chief of the division of cardiovascular medicine at the Keck School.

An Oct. 3 story in the *Los Angeles Times* quoted **Namir Katkhouda**, professor of surgery at the Keck School

and director of bariatric surgery at Keck Hospital of USC, about weight loss surgeries performed on teenagers.

An Oct. 3 broadcast on CW News New York affiliate WPIX-TV interviewed internist **Sharon Orrange**, assistant professor of clinical medicine at the Keck School, about GoodRX, an online service that helps patients compare prescription medication prices.

An Oct. 3 story in *Technology Review* quoted **Leslie Saxon**, professor of clinical medicine and chief of the division of cardiovascular medicine at the Keck School, about how a car that monitors its driver's habits could help the driver's health. While the people who drive such a car would likely be in it for the sports experience, they could still

benefit from the body education.

"Why shouldn't they use those same sensors to find something that they need to get care for, or learn that they need to keep their heart rate within a certain range?" Saxon asked.

An Oct. 3 report in the *San Gabriel Valley Tribune* profiled **Charles Gomer**, professor of pediatrics and radiation oncology at the Keck School and vice president/president-elect of USC faculty. Gomer is a longtime Glendora resident and four-term member of the Glendora Unified Board of Education.

An Oct. 3 story in *The Rafu Shimpo* quoted **Helena Chui**, Department of Neurology chair at the Keck School, about the diagnosis and prevention of Alzheimer's disease.

California ShakeOut set for Oct. 18

On Oct. 18 at 10:18 a.m., an estimated 9 million people will participate in the fifth annual Great California ShakeOut. The world's largest earthquake drill, the ShakeOut aims to inform people on how to prepare for, survive and recover from the next major quake.

"A 'Big One' is going to come, and when it does, we are committed that Californians be fully prepared to survive the shaking and recover quickly," said ShakeOut founder Mark Benthien, lead communicator for the Southern California Earthquake Center (SCEC) and executive director of the Earthquake Country Alliance, both based at USC.

For more information and resources on earthquake preparedness, visit shakeout.org or earthquakecountry.info. To learn more about emergency preparedness at USC, visit emergencyprep.usc.edu/emergency.

Calendar of Events

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

Saturday, Oct. 13

2 – 4 p.m. USC Norris Cancer Hospital and Bloomingdale's Breast Cancer Awareness Month Event. "In the Kitchen," Michael Press and Carmen Martinez, USC. Bloomingdale's Century City, Bcuisine on Level 3. Info: (310) 772-7183

4 – 6 p.m. USC Norris Cancer Hospital and Bloomingdale's Breast Cancer Awareness Month Event. "Ready, Set, Pink Fashion," Sue Ellen Casalenuovo and Alicia Syres, USC. Bloomingdale's Beverly Center. Info: (310) 772-7183

Monday, Oct. 15

Noon. Infectious Diseases Conference. "Malaria Eradication: A Most Audacious Goal," Joel Breman, Fogarty Center. KAM Mayer Auditorium. Info: (323) 442-5100

Noon. Global Health Service Partnership Recruiting Event. Vanessa Kerry, founder and CEO of GHSC, will give a presentation to introduce the program and provide interested candidates with more information on the requirements and application process. NOR 7409. Info: (323) 865-0419

Noon. Keck Research Seminar. "Ganging Up on Lung Cancer: 16 Exciting Years of USC Teamwork to Tackle the Nation's Most Deadly Cancer," Ite Laird, USC. NRT Aresty Auditorium. Info: (323) 442-7732

Tuesday, Oct. 16

Noon. Infectious Diseases Conference. "Ebola Hemorrhagic Fever Up Close and Personal," Joel Breman, Fogarty Center. MCH 149. Info: (323) 442-5100

Thursday, Oct. 18

Noon. KSOM Research Center for Liver Diseases Seminar. "HNF4 and other Nuclear Receptors: From DNA Binding to Disease," Frances Sladek, UC Riverside. HMR 100. Info: (323) 442-1283

5 – 8 p.m. USC Norris Cancer Hospital and Bloomingdale's Breast Cancer Awareness Month Event. "Ready, Set, Pink Fashion," Sue Ellen Casalenuovo and Alicia Syres, USC. Bloomingdale's Santa Monica. Info: (310) 772-7183

Friday, Oct. 19

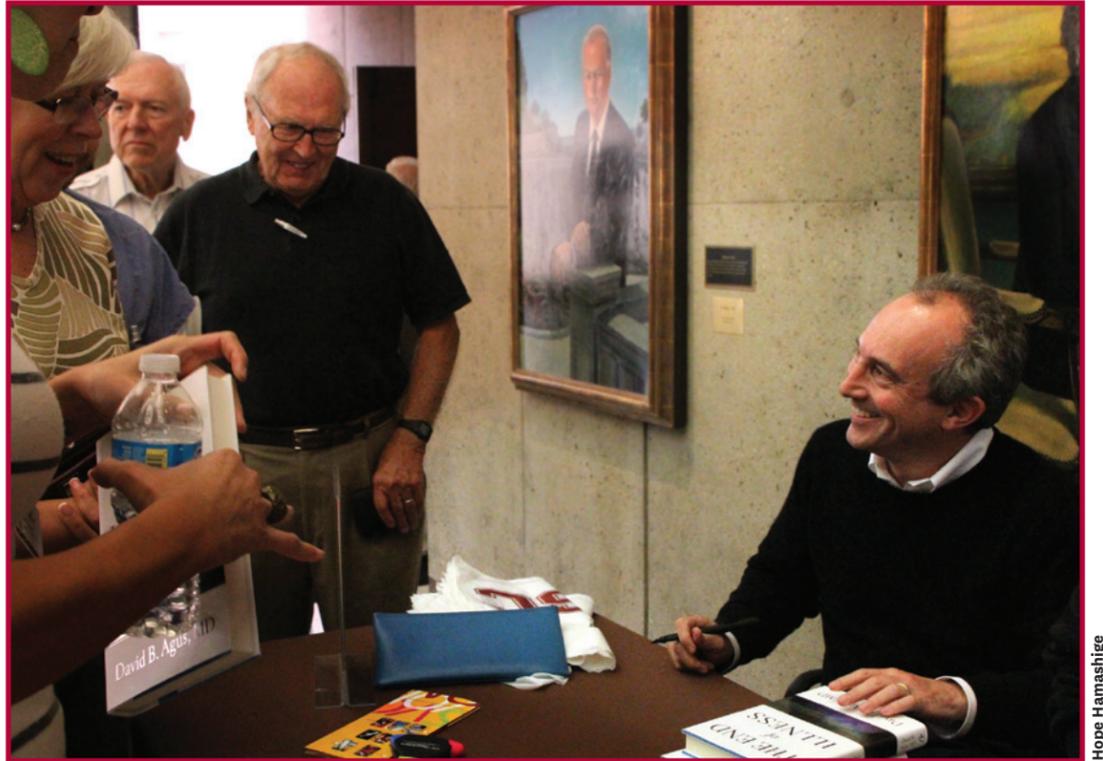
8:30 a.m. Surgical Grand Rounds. "Heart Regeneration – Lesion from Animal Models," Ching-Ling Lien, USC. DOH 100. Info: (323) 442-9064

11 a.m. Hematology Grand Rounds. "Pulmonary Hypertension in SS Disease," Cage Johnson and Vijay Kaira, USC. IPT C2J103. Info: (323) 865-3950

Monday, Oct. 22

9 a.m. – 2:30 p.m. Center for Excellence in Research Workshop. "Conducting Experiments Under Good Lab Practices: When and How," Frances Richmond, USC. CHP 106. Info: (213) 740-6709

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 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.



David Agus signs copies of his book, *The End of Illness*, after the Oct. 2 Visions and Voices lecture at Mayer Auditorium.

Agus relishes role as health care rebel at Visions and Voices lecture

By Hope Hamashige

David Agus, professor of medicine and engineering at the Keck School of Medicine of USC and the USC Viterbi School of Engineering, acknowledged during a lecture last week that his views on the practice of medicine have, at least on occasion, made him a lightning rod for criticism.

"I get hate mail all the time because I am always taking away people's crutches," he said to Keck School Dean Carmen A. Puliafito, who joined Agus in an Oct. 2 conversation, in a departure from the traditional Visions and Voices lecture.

One of those crutches Agus snatched away from audience members attending the lecture in Mayer Auditorium: vitamins.

He scoffed at the notion that vitamins in some way promote health, noting that not only is there no scientific research to back taking multivitamins, but that in women they are associated with higher death rates.

He later declared drinking juice to be "one of the worst things you can do for your body," noting that squeezing the fruits starts the process of degrading the nutrients.

And he stated that New York City Mayor Michael Bloomberg is a "health hero" for his positions on trans-fats and for banning the sale of oversized sodas in the nation's largest city, a policy that has drawn much criticism.

Agus also defended recommending an ABC News correspondent a heart scan earlier this year, which was done while Bill Weir was taping a segment on Agus' book, *The End of Illness*. The scan revealed that Weir had heart disease and was on course for a possible heart attack.

Agus said that scan landed him in hot water with critics, including the American Heart Association, who noted that scans are expensive procedures that also expose patients to

radiation and should not be encouraged for the general public.

"That scan saved his life," Agus pointed out. "The arguments that were made against this are completely messed up. Instead groups like the American Heart Association should be lobbying for more dollars to create better screening technologies."

Agus is an unabashed promoter of the use of technology in medicine. He stated, in his conversation with Puliafito, that genetics should be part of modern medicine's toolbox, in spite of ongoing ethical concerns.

"It can help you target exactly what you are up against," said Agus.

And he believes that knowing what people are up against,

turning medicine around to focus on preventing patients from getting sick in the first place, has to be pursued more aggressively.

Agus noted that "there have not been major inroads in treating the big cancers—lung, breast and prostate—in recent years," which is why there needs to be more focus on prevention and better methods of screening, some of which he called "barbaric."

He drove that point home by giving one example of how better technology can lead to better outcomes for patients. He noted a blood test will soon be used to determine whether a patient has polyps and is at risk for colon cancer.

"We need to make all screenings for cancer better so people will actually do them,"

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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://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.