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This December photo shows the leaking Aliso Canyon well pad that is polluting the Porter Ranch community in Los Angeles County.

Health effects eyed in Porter Ranch leak

By Zen Vuong

Angeles County community will have long-term health consequences that USC researchers said they intend to study.

More than 87,500 metric tons of methane have leaked from a natural gas storage facility near Porter Ranch, according to the Environmental Defense Fund.

Ed Avol, MS, professor of clinical medicine in the Department of Preventive Medicine of the Keck School of Medicine of USC, is an expert on respiratory health and the public health impacts of air pollution.

Avol said he and his colleagues will study the long-term health effects of the natural gas leak in Aliso Canyon.

Question: Gas leaks happen often. Why is this one unusual?

Ed Avol: Methane gas has been spewing out at several thousand pounds per square inch since late October. It is coming out at a very high pressure and this exhaust is expected to continue for another month or two. In terms of climate change and global warming, I have seen estimates claiming that it has increased California's methane emissions by 25 percent. In some ways, the Aliso Canyon gas leak parallels the Deepwater Horizon oil spill in the Gulf of Mexico back in 2010. A blowout of a well is exuding a contaminant at great volumes for many months over a wide area,

and we can't do much about it. The Southern California Gas Co. is trying to fix the problem but can't do it very quickly. So it will continue to be a source of contamination for months.

Q: The people who continue to live and work in the Porter Ranch area are breathing in a lot of methane gas. This can't be healthy.

A: Right now, we don't think the methane exposure is as much an issue as some of the other contaminants and the potentially toxic chemicals that may come from byproduct reactions.

Q: What causes the nausea, headaches, eye irritation, nosebleeds and other symptoms Porter Ranch residents are reporting?

A: Methane makes up about 90 percent of natural gas. Methane and other chemicals emitted in natural gas can react in the open-air environment and create other gases and chemicals, such as hydrogen sulfide. Benzene, toluene, ethylbenzene and xylene also have been associated with the emission and are thought to be part of the oily residues in the well and on the walls of the storage facility. Researchers at USC are interested in investigating these chemical constituents and the long-term effects that might result from breathing in these chemicals.

Keck School panel expands diversity effort

By Amanda Busick

The importance of diversity to college campuses has been in the media spotlight recently, but the Keck School of Medicine of USC has been a leader in this arena for more than forty years.

Founded in 1968, the Office of Diversity at the Keck School of Medicine has developed numerous programs to strengthen the climate of the Keck School for underrepresented students, faculty and staff.

In an effort to continue this

momentum, Dean Carmen A. Puliafito, MD, MBA, has recently announced the formation of the Keck School of Medicine Dean's Diversity Cabinet. This cabinet, comprising six members of the Keck School faculty, will focus on enhancing recruitment and retention of students, faculty, residents and staff, and on creating a supportive and culturally sensitive campus environment.

"To ensure an intellectually See **DIVERSITY**, page 2

Stroke program hosts Armenian neurologist

By Amanda Busick

When Yekaterina Hovhannisyan, MD, arrived in Los Angeles from Yerevan, Armenia, last year, she was prepared for an intensive learning experience at the Keck School of Medicine of USC.

Hovhannisyan, a neurologist and junior faculty member at the Yerevan State Medical University, was at the USC Comprehensive Stroke and Cerebrovascular Center as part of an ongoing project between neurologists of Armenian descent from the US and Canada to improve stroke patient outcomes in that part of the world. "I am here to increase understanding of the organization of stroke patient management, and to try to improve the quality of care for stroke patients," she explained. "I want to improve stroke patient care throughout all of Armenia."

Hovhannisyan has been working closely with Nerses Sanossian, MD, associate professor of neurology at the Keck School, touring the intensive-care unit and conducting research they will present together.

Her two-month visit marks what both doctors hope will be an ongoing exchange between the two

See STROKE, page 2



Yekaterina Hovhannisyan, seen with Nerses Sanossian, right, recently visited the USC Comprehensive Stroke and Cerebrovascular Center as part of an ongoing project.

Study: Too much screen time raising rate of childhood myopia

By Meg Aldrich

The largest study of childhood eye diseases ever undertaken in the U.S. confirms that the incidence of childhood myopia among American children has more than doubled over the last 50 years. The findings echo a troubling trend among adults and children in Asia, where 90 percent or more of the population have been diagnosed with myopia, up from 10 to 20 percent 60 years ago.

The Multi-Ethnic Pediatric Eye Disease Study (MEPEDS), con-

ducted by researchers and clinicians from the USC Eye Institute at Keck Medicine of USC in collaboration with the National Institutes of Health (NIH), adds to a growing body of research into the incidence and potential causes of myopia, or near-sightedness, in children and adults.

The possible culprit? Too much "screen time" and not enough sunlight, according to Rohit Varma, MD, MPH and director of the USC Eye Institute. "While research shows there is a genetic component, the rapid proliferation of myopia in the matter of a few decades among Asians suggests that close-up work and use of mobile devices and screens on a daily basis, combined with a lack of proper lighting or sunlight, may be the real culprit behind these dramatic increases," Varma said. "More research is needed to uncover how these environmental or behavioral factors may affect the development or progression of eye disease." Myopia is a condition where objects up close appear clearly, while objects far away may appear blurry. With myopia, light focuses in front of the retina (the light-sensitive tissue at the back of the eye) rather than on the retina. There currently is no cure, although its progression can be slowed.

The USC study found that the incidence of childhood myopia in the U.S. is greatest in African-American children, followed by Asian-American See MYOPIA, page 3

Award winners tackling heart disease, ALS

By Cristy Lytal

wo collaborative teams within USC Stem Cell are developing new approaches that could eventually help patients with heart disease, frontotemporal dementia (FTD) and amyotrophic lateral sclerosis (ALS).

The teams are the winners of the Audrey E. Streedain Regenerative Medicine Initiative Awards, supported by a generous bequest by the Audrey E. Streedain Trust to the Department of Stem Cell Biology and Regenerative Medicine at the Keck School of Medicine of USC. Totaling \$140,000 each, the awards support USC-affiliated faculty members pursuing multi-investigator research collaborations with the goal of curing diseases using stem cells as tools.

One winning proposal combines the complementary expertise of researchers Justin Ichida, PhD, and Paula Cannon, PhD, two faculty members with appointments in the Department of Stem Cell Biology and Regenerative Medicine. The team aims to develop a technique for correcting a gene mutation responsible for 10 percent of all cases of FTD and ALS, two fatal diseases in which nerve cells degenerate.

A leading expert in reprogramming stem cells into neurons, Ichida has already demonstrated that correcting or "editing" mutations in a gene called C9ORF72 can rescue neurons in a petri dish. In order to move beyond the petri dish, he will team up with Cannon, who develops cuttingedge techniques for delivering gene editing technology to cells in living organisms. In this case, Cannon and Ichida will deliver their gene editing technology by putting it inside of an adeno-associated virus (AAV), which can naturally enter cells.

They hope that these experiments will demonstrate the effectiveness of their approach in mice, and lay the foundation for a clinical trial to treat patients with these devastating neurodegenerative diseases.

The other winning proposal brings together basic scientist Jian Xu, PhD, and cardiac surgeon-scientist Ram Kumar Subramanyan, MD, PhD, in an effort to find new strategies for healing damaged hearts.

Damage occurs when clogged



Motor neurons derived from an ALS patient.

arteries block blood flow to the heart, starving it of oxygen, and injuring and scarring its muscle. This can eventually lead to heart failure.

In an attempt to reverse this process, the researchers are studying a gene called p53, which sends signals to cells known as fibroblasts, instructing them to transform themselves into cells that line new blood vessels. thereby promoting the growth of new arteries. This improves blood flow

to injured hearts, which can in turn improve healing.

As Andy McMahon, PhD, chair of the executive committee of USC Stem Cell, explained, "These collaborative projects share an ambitious goal: to move basic research into the clinic. By enabling scientists and clinicians from across USC to work together, these awards lay the groundwork for the regenerative therapies of tomorrow."

STROKE: Visit continues new learning exchange

Continued from page 1

countries. Sanossian would like the program to continue in perpetuity, bringing a greater understanding of patient care to the Keck School and the Armenian healthcare system.

Hovhannisyan's longterm plans include establishing a database of stroke patient metrics nationwide in Armenia to share with other neurologists at home and abroad, and developing standardized protocols for stroke patient care and rehabilitation.

Stroke is a leading cause of death in Armenia and Hovhannisyan hopes to make a major change in this statistic by creating a new treatment standard.

It's not a matter of having qualified physicians, Sanossian says.

"Armenian neurologists are really good. Their level of expertise is very high but they have to treat patients without the same resources that we have," he said. "The intelligence and the ability is there, it's the system that doesn't support patient care. We are working to change that."

Sanossian's group is optimistic about future changes. Recently, they introduced the use of tissue plasminogen activator (t-PA), a drug that breaks down clots, to stroke patients at two hospitals in Armenia.

This drug is commonly used in the US but had only been administered in Armenia once before the implementation of this program.

DIVERSITY: School encourages inclusion

Continued from page 1

stimulating environment, the Keck School of Medicine recognizes the need to support, encourage, and facilitate diversity and inclusion in all aspects of academic life," Puliafito stated in a memo to faculty, staff and students. "This includes training medical and graduate students, improving the working environment for staff, enriching the research environment and, finally, recruiting top residents and faculty.'

The cabinet will be led by Henri Ford, MD, MHA, vice-dean of medical education. "Diversity has always been part of the intrinsic fabric of the Keck School of Medicine of USC; it is a vital core of our DNA and that of the entire Trojan family," he said. "The Dean's Diversity Cabinet is designed to embrace, promote and champion

diversity throughout the Health Sciences Campus."

Joyce Richey, PhD, chief diversity officer and assistant dean of educational affairs, has been instrumental in the establishment of many diversity programs at the Keck School. According to Richey, keeping the lines of communication open between administration and faculty, staff and students is a top priority.

"We are being very proactive and taking these matters quite seriously," she said. "We want to make sure that our students, faculty and staff are well informed, and that they feel comfortable engaging in necessary and important discussions about diversity with peers and others. We want everyone to feel valued and respected here - attaining these goals will ensure a campus environment that welcomes and

embraces diversity and inclusivity."

Other members of the cabinet include: Ite Laird-Offringa, PhD, associate dean of graduate affairs; Larry Opas, MD, associate dean of graduate medical education; Jeffrey Upperman, MD, associate dean of faculty diversity; and Suzanne Palmer, MD, president of the Keck Faculty Council.

The Keck School has a long-established reputation for providing students and staff with support and resources to explore race, ethnicity, gender, sexual orientation and gender identification. Programs such as Bridging the Gaps, MED-COR and the Latino Medical Student Association all encourage underrepresented college and high school students to find avenues into the school and flourish once they arrive.

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Calendar of Events

Friday, Jan. 29

11 a.m. Jane Anne Nohl Division of Hematology and Center for the Study of Blood Diseases Grand Rounds. "Peripheral T-Cell Lymphoma," Dennis Weisenburger, MD, City of Hope Medical Center. LAC+USC Medical Center Inpatient Tower Conference Room D. Info: Carolyn Castellanos, (323) 865-3913, castellanos_c@med.usc.edu

Noon. Department of Medical Education Seminar. "Faculty Development Seminar - Writing NBME-Style Test Items," Cha-Chi Fung, PhD. NML East Conference Room. Info: Cris Argosino, (323) 442-2746, argosino@usc.edu, http://bit.ly/1UrHw60. RSVP: Cris Argosino, (323) 442-2746, meded@med.usc.edu

Noon. Zilkha Neurogenetic Institute Seminar. "What Does the Olfactory Bulb Contribute to Odor Perception: Comparing Input and Output," Lawrence B. Cohen, PhD. Herklotz Seminar Room, ZNI 112. Info: Emily Chu, (323) 442-3219, Emily.Chu@med.usc.edu, http://www.keck.usc.edu/zilkha/

Saturday, Jan. 30

7 a.m.-4:30 p.m. Continuing Medical Education 3rd Annual USC Multi-Disciplinary Breast Cancer Symposium. USC program organizers: Eric L. Chang, MD; Eugene Chung, MD, PhD, JD; Christy A. Russell, MD; Naomi R. Schechter, MD; Stephen F. Sener, MD. Intercontinental Hotel, Los Angeles. Info: Anika Bobb, (323) 442-2547, anika.bobb@med.usc.edu, http://usc.edu/cme

Thursday, Feb. 4

11:30 a.m. Institute for Integrative Health Seminar. "Dance Medicine," Margo K. Apostolos, PhD. Sullivan Center, CHP 157. Info: Quintilia Avila, (323) 442-2638,

iih@usc.edu, http://integrativehealth. usc.edu. RSVP: Quintilia Avila, (323) 442-2638, iih@usc.edu, http://integrativehealth.usc.edu

7 p.m. Visions and Voices Discussion. 'Something's Not Right with Alice: Understanding Alzheimer's, A Conversation with Lisa Genova and Arthur Toga, Moderated by Ina Jaffe." Bovard Auditorium. Info and RSVP: http://bit.ly/1nQ0AR6

Thursday-Saturday, Feb. 4-6

7 a.m.-3:30 p.m. Continuing Medical Education 1st Annual Conference: Practical Urology. USC course directors Inderbir S. Gill, MD; René Sotelo, MD; and Monish Aron, MD. Aresty Auditorium. Info: Anika Bobb, (323) 442-2547 anika.bobb@med.usc.edu, http://usc.edu/cme

Friday, Feb. 5

Noon. USC Research Center for Liver Diseases Seminar. "Intravital Imaging Approach to Study Nephron Repair,' Janos Peti-Peterdi, MD, PhD. Hastings Auditorium. Info: Dolores Mendoza, (323) 442-1283, dmmendoz@usc.edu

Wednesday, Feb. 10

Noon. Zilkha Neurogenetic Institute Seminar. "Molecular Structures of Amyloid-Fibrils, In Vitro and In Vivo: Insights from Solid State NMR." Robert Tycko, PhD. Herklotz Seminar Room, ZNI 112. Info: Emily Chu, (323) 442-3219, Emily.Chu@med.usc.edu, http://www.keck.usc.edu/zilkha/

Notice: Calendar items are due at least 10 days before publication date. Timely submission does not guarantee publication in print. See more calendar entries at hscnews.usc.edu/calendar-of-events. Submit items at tinyurl.com/calendar-hsc. Include day, date, time, title of talk, first and last name of speaker, affiliation of speaker, location and a phone number/email address.



From left, Russian Deputy Health and Science Minister Lyudmila Ogorodova, Paul Thompson and co-directors of the Scientific Center of Children's Health, Alexander Baranov and Leyla Namazova-Baranova, seen in Russia in December 2015.

ENIGMA leaders travel to Moscow Science Week

Keck School of Medicine of USC researchers traveled to Russia recently to participate in Moscow Science Week as part of an effort to increase participation in ENIGMA, an international, collaborative study of the brain.

Paul Thompson, PhD, Keck School of Medicine of USC professor and principal investigator and co-founder of the Enhancing Neuro Imaging Genetics Through Meta Analysis (ENIGMA) network, joined Vladimir Zelman, MD, PhD, ENIGMA coordinator in Russia and professor and co-chair of the Department of Anesthesiology, for a week of ENIG-MA-related events in Russia.

"We see a great surge of interest in ENIGMA, which is widely known across Russia," Zelman told Rossiya 24, a national news channel of the Russian Federation.

In a series of interviews on Russian national television, Zelman noted the vibrant partnerships in ENIGMA across Russia that now are producing groundbreaking discoveries about the human brain. The Russian Deputy Minister for Education and Science, Lyudmila Ogorodova, attended ENIGMA's meetings and noted her strong support for ENIGMA and its established and extensive partnerships with other Russian science initiatives, such as Co-Brain, and NeuroNET.

In two days of highly animated ses-

sions of the Russian National Academy of Sciences, of which Zelman is a member, a series of workshops and symposia hailed ENIGMA's work bringing scientists together as part of Moscow Science Week. Thompson thanked senior members of the Russian Academy, including its president, noted physicist Vladimir Fortov, PhD, for supporting ENIGMA and promoting its ongoing projects to their colleagues. Karkhevich Institute Director of Information Techology, academician Alexander Kuleshov said that he is sending three mathematicians to the ENIGMA Center in Los Angeles to boost the ongoing machine-learning efforts to discover genomic markers of brain disease.

Interviewed by *V Mire Nauki*, a Russianlanguage publication of *Scientific American*, Thompson pointed to developments being accelerated by ENIGMA's Russian scientists in the fields of genomics, machinelearning, and analysis of brain connectivity, such as finding patterns in medical data to detect and classify autism spectrum disorder and Alzheimer's disease.

The ENIGMA Network brings together researchers in imaging genomics to understand brain structure, function and disease based on brain imaging and genetic data. ENIGMA's 500 scientists now study 12 brain diseases in more than 35 countries, and have published the largest-ever genomic analyses of the brain.

Keck School second-year student goes extra 26.2 miles to help patients

By Melissa Masatani

Jeremiah Wang was looking at a glucose strip in a crowded, makeshift clinic in Mexico when he knew he had made the right decision to become a doctor.

The then-first year student at the Keck School of Medicine of USC was a volunteer with Healing Hearts Across Borders (HHAB), a nonprofit organization that brings dozens of medical volunteers to Tijuana to provide free health care to some of the border city's poorest areas. The effort was founded in 1999 by the late Kevin Lake, MD, and is now led by a team of doctors.

"Some of the patients have A1C (glycosylated hemoglobin) levels that are literally off the chart," said Wang, now in his second year at the Keck School. "A1C is how we measure if someone is diabetic. A 6.5 or below is normal, but in Mexico we see numbers as high as 15 and 16 in relatively young people, and even teenagers."

The 26-year-old has returned to Mexico six more times to participate in the volunteer effort and has even run a marathon to prove how strongly he believes in being able to provide quality health care to those who need it most.

"Last year, a friend of mine organized a Keck School marathon team to raise funds for HHAB," Wang said. "I was so inspired, not only was she putting her money where her mouth is, but that she was actually going to run the Los Angeles Marathon. So I joined her and it was the most painful thing I've ever done in my life, but it was also the greatest." Wang is coordinating this



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John Rodarte, left, and Jeremiah Wang in November in Mexico.

year's Keck School marathon team and plans to organize the fundraising effort to benefit HHAB. The 2015 Keck School team raised \$5,000, which is enough to fund one of HHAB's four annual trips, so Wang hopes to at least match that amount in the 2016 Marathon, since the entire HHAB effort is funded through monetary and in-kind donations.

"The glucometers were all donated and one of my instructors donated a baby scale," Wang said. "Every little thing helps the cause."

"As a medical student, you do get very good exposure to patients at (Los Angeles County + USC Medical Center)," said Wang, who now is one of HHAB's co-presidents overseeing student involvement. "But ... they say this is the purest form of medicine we can practice because there's no bureaucracy; if you have a question for the pharmacy, you walk over to the pharmacy."

For more information about the HHAB marathon team, contact usc.hhab@gmail.com.

Author discusses severed heads, cryogenics

By Melissa Masatani

Guillotines, Mary Shelley and the likelihood of resurrecting David Bowie were hot topics on the Health Sciences Campus recently as award-winning author John Corey Whaley discussed his recent novel *Noggin*, a finalist for



MYOPIA

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children, Hispanic/Latino and non-Hispanic white children. Future research may include re-examining the MEPEDS cohort to evaluate how widespread use of "screens" and other environmental or behavioral factors may be affecting the progression of

the National Book Award.

More than 50 people attended the Jan. 25 Visions and Voices event, held at Aresty Auditorium. The discussion, titled "What We Can Learn From A Severed Head," was part of USC's arts and humanities initiative and co-sponsored by the Keck School of Medicine of USC's Program in Medical Humanities, Arts, and Ethics; the USC Pacific Center for Health Policy and Ethics; and the USC Levan Institute for Humanities and Ethics.

Whaley read an excerpt from the novel and then spoke about his inspiration for the book.

"I wanted to write a novel like (Kurt Vonnegut's) Slaughterhouse-Five, a book that makes you laugh so hard you're crying on one page, and then the next you're actually crying," he said.

Noggin tells the story of a 16-year-old terminal cancer patient who volunteers for a cryogenics Lynn Kysh, left, talks with author John Corey Whaley during a Visions and Voices event on Jan. 25 at Aresty Auditorium on the Health Sciences Campus.

experiment, where his head is removed from his body and frozen, then reattached to a donor's body five years later. While Whaley said he did some research into current cryogenics experimentation to write the novel — and hopes such a procedure can someday bring back the recently deceased musician David Bowie — he did not intend to explore the medical aspect of the procedure.

"I'm not a scientist and this book is not about science," he said. "It's about humanity. I wanted to write about what it's like to be out of sync with people you love." The novel also indirectly addresses the ethics of such a procedure, as Whaley said he wanted the story to focus on personal repercussions of the experiment, relating it to Mary Shelley's classic novel *Frankenstein;* or *The Modern Prometheus*.

"Noggin is very closely related to Frankenstein," he said. "Will the main character of this book ever exist the way that existence was intended to feel? Certainly for Frankenstein's monster, that's the struggle. What he learns is that he will always be a freak and Travis (Noggin's main character) can be seen as a cautionary tale, too." childhood myopia over time.

From 2003 through 2011, MEPEDS provided free eye exams at USC Eye Institute clinics to more than 9,000 Los Angeles-area children ages 6 months through 6 years.

"Typically, children do not undergo vision testing until they reach school age," Varma said. "By including younger children, we have the opportunity to identify eye diseases and their causes at the formative stages."

USC Eye Institute researchers and clinicians collected basic health information during a home visit with the child and parents, followed by a detailed eye examination under dilation that collected more than 5,000 eye measurements for each child. To date, data from the USC study has generated more than 20 academic papers on the prevalence of childhood eye diseases, including myopia, hyperopia (far-sightedness), amblyopia (so-called "lazy eye") and strabismus (abnormal alignment of the eyes).

HSC Newsmakers

A roundup of news items related to Keck Medicine of USC, which may include philanthropic donations, research grants, publication in academic journals and mentions in the news media:



New app, cloud platform could help predict child's asthma attack

USC SCIENTISTS ARE PART OF A TEAM WORKING on a smartphone app and cloud services platform that will predict the probability of a child's future asthma attack and provide personalized risk management advice. Frank Gilliland, MD, PhD, MPH, professor of preventive medicine at the Keck School of Medicine of USC, said the integrative Biomedical Real-Time Health Evaluation (BREATHE) platform he and colleagues from UCLA are developing is a potentially revolutionary approach to managing asthma, one of the most common chronic childhood diseases. "We think this is the future for asthma care," said Gilliland, coprincipal investigator of the project. "We will use real-time, high-volume information about physiology, symptoms, medication use and environmental exposures." — Zen Vuong



Surveyed teens who picked up vaping had emotional and behavioral problems that fell midway between smokers and teens who neither vaped nor smoked.

Teens with fewer mental health issues turn to e-cigarettes

A NEW STUDY HAS FOUND THAT TEENAGERS with moderate mental health problems who may not have considered smoking conventional cigarettes are turning to electronic cigarettes. Surveyed teens who picked up vaping had emotional and behavioral problems that fell midway between smokers and teens who neither vaped nor smoked. "Our study raises questions of whether e-cigarettes may be recruiting lower-risk teens with fewer mental health problems who might not have been interested in any nicotine or tobacco products if e-cigarettes did not exist," said Adam Leventhal, PhD, lead author and associate professor of preventive medicine and psychology at the Keck School of Medicine of USC. The study was published online in the *Journal of Psychiatric Research.* — Zen Vuong



From left, runners Kobe Miller, Robin Rihl, Stella Javier, Caitlin Albrecht and Alana Kizanis are seen with their coach Patrick Baker during a weekly group run in Hawaii.

Teens to run marathon for USC Norris

By Amanda Busick

The beautiful and remote Big Island of Hawaii is the home of five young, dedicated athletes, but on Feb. 14 the teenagers will be in the big city running the Los Angeles Marathon in support of Team Concern, a group that raises money for the Adolescent and Young Adult (AYA) Cancer Program at USC.

The AYA Program is a collaborative effort between the USC Norris Comprehensive Cancer Center and USC Norris Cancer Hospital, Children's Hospital Los Angeles and Los Angeles County + USC Medical Center that concentrates on treatment, emotional needs and social support for teens and young adults with cancer. Team Concern, part of the Concern Foundation, has been one of the earliest and most consistent supporters of the AYA program, donating more than \$350,000 to the program in the last five years. The foundation is an official charity of the LA Marathon.

The program is a cause the students can easily get behind. Kobe Miller, 16, takes the matter very personally.

"I lost two immediate family members to cancer, so I would like to help prevent the same from happening to others," he said.

Kobe is not the only one among the five who has been affected by cancer. In fact, almost all of the students have had a relative or close friend battle cancer at some point.

Stella Javier, 17, was quick to point out that not only are they helping fight cancer, they are helping themselves grow as human beings.

"My favorite thing about running is the ef-

Navigating health care is topic of Agus' new book

By Mary Dacuma

t's a great time to be alive. At least, that's what David B, Agus, MD, bestselling author and director of the USC Norris Westside Cancer Center, argues in his newest book, The Lucky Years: How to Thrive in the Brave New World of Health. Agus, a professor of medicine at the Keck School of Medicine of USC, wrote his third book as a guide for consumers to navigate the health care revolution to edit their DNA for a longer lifespan, lose weight effortlessly without fad diets and prolong fertility well into their forties, among other remarkable options. "Only those who learn how to think, act, and behave certain ways will reap the benefits of the tremendous opportunities afforded to us through the power of these medical revolutions," he said. The book is available now at book retailers nationwide.

fect it has on my mental, emotional, and physical being and how the benefits have leaked into my everyday life," she said, adding that it is not always easy. "It's about finding a balance between my mental and physical capabilities, remembering 'mind over matter' and pushing through those walls I hit along the way."

Their trip will include a dinner and breakfast with Team Concern before the 26.2-mile race. But they also may find some time to go to Six Flags Magic Mountain in Valencia to let off a little steam before the big day, as well as a tour of the USC campus, as some of them are interested in attending the school.

Patrick Baker, their coach, thinks his student-athletes have what it take to complete the race, even though it's the first time running a marathon for all of them.

"They wake up early every Sunday morning when most teenagers are sleeping," he said. "They show up on time and give their best effort with a positive attitude. They inspire me with their dedication and their trust in the training process."

Their training schedule currently includes between 10-20 miles on their own during the week and a group run on the weekends of up to 15 miles. This is where they find encouragement and cheer each other on to finish their challenge.

"We run the best when we run happy and in gratitude," said Baker, who will be running with them at the marathon. "I felt this could be an opportunity that could change their lives."

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Researchers develop model for breast cancer survival rates

USC RESEARCHERS HAVE DEVELOPED A MATHEMATICAL model to forecast metastatic breast cancer survival rates using techniques usually reserved for weather prediction, financial forecasting and surfing the Web. "What the modeling does is it brings the sort of complexity of modern-day weather forecasting to trying to understand where tumors go, when they go and how they get to that location," said Jorge Nieva, MD, an associate professor of clinical medicine at the Keck School of Medicine of USC and co-author of the new study. The study, published online in npj Breast Cancer, a Nature Partner journal, looked at 25 years of data regarding 446 breast cancer patients at Memorial Sloan Kettering Cancer Center. It focused on a subgroup of women who were diagnosed with localized disease but later relapsed with metastatic disease. With that information, USC researchers uncovered a framework to explain how tumor cells circulate through a patient's bloodstream over time to settle in various organs. — Zen Vuong

HSC News

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