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General David H. Petraeus gets a four-star tour of HSC

By Hope Hamashige and Cristy Lytal

David H. Petraeus, PhD, retired four-star general and former CIA director, visited the Health Sciences Campus (HSC) on Nov. 4 to see for himself what the view is like on the front lines of the life sciences revolution.

Petraeus — who also serves as the Judge Widney Professor at USC and Chairman of the KKR Global Institute — started his morning with a glimpse into the human brain. Faculty and students from the USC Laboratory of Neuro Imaging (LONI), the Eli and Edythe Broad CIRM Center for Regenerative Medicine and Stem Cell Research at USC, and the Zilkha Neurogenetic Institute shared innovative research highlights and progress with the general during a morning tour.

Highlighting the Brain

Judy Pa, PhD, a new assistant professor at LONI, discussed the future of disease mapping, sharing images depicting the contrast between the brains of healthy individuals and those afflicted by Alzheimer's disease. LONI Assistant Professor Neda Jahanshad, PhD, steered the conversation to global brain data networks specifically, the ENIGMA project initiated by Professor Paul Thompson, PhD. The project's 300 researchers are sharing brain scans and genetic information from 30,000 individuals with the goal of "cracking the neurogenetic code" underlying diseases as various as schizophrenia, addiction, HIV and post-traumatic



Graduate student Kimberley Babos explains how research at the Eli and Edythe Broad CIRM Center for Regenerative Medicine and Stem Cell Research at USC may help find effective drugs to treat amyotrophic lateral sclerosis. Military veterans are more likely than civilians to suffer from the devastating disease.

stress disorder.

Given ENIGMA's heavy computing and data storage demands, Petraeus asked, "You're not running out of storage space? Even the CIA, we actually commercially contracted out. We just couldn't build our own cloud fast enough." ENIGMA's computing and data storage needs are currently handled by USC's new Institute for Neuroimaging and Informatics (INI), which houses LONI.

Petraeus' curious mind next brought him to the new Choi Family Therapeutic

Screening Facility, at the Eli and Edythe Broad CIRM Center for Regenerative Medicine and Stem Cell Research at USC.

Finding Better Drugs

Center Director Andy McMahon, PhD, FRS, and Screening Director Justin Ichida, PhD. welcomed Petraeus to the facility, which is testing FDA-approved drugs on motor neurons formed by reprogramming skin cells from patients with amyotrophic lateral sclerosis (ALS), or Lou Gehrig's disease. For reasons that are not yet understood, military

veterans are more likely than civilians to suffer from this fatal disease.

Kimberley Babos, a graduate student in the Ichida lab, showed Petraeus how to put reprogrammed motor neurons into a robotic screening machine, which exposes them to 50,000 drugs a day. The Ichida lab has already found eight FDA-approved drugs that keep the motor neurons alive in the petri dishes - indicating possible therapeutic benefit.

"This is unbelievable robots and computers," said Petraeus.

Professor of Research Neil Segil, PhD, is collaborating with Ichida to apply a similar approach to hearing loss, which afflicts many who have served in the military. Suhasni Gopalakrishnan, PhD, a postdoctoral research associate in the Segil and Ichida labs, described how the team has used cellular reprogramming to create inner ear cells responsible for hearing. The team plans to use reprogrammed inner ear cells to search for drugs that protect against or reverse hearing damage.

"Have you gone back See **PETRAEUS**, page 3

Massry Prize winners discuss groundbreaking immunotherapy research



James Allison describes how cancer cells evade immune system attacks — and how that ability can be blocked.

By Hope Hamashige

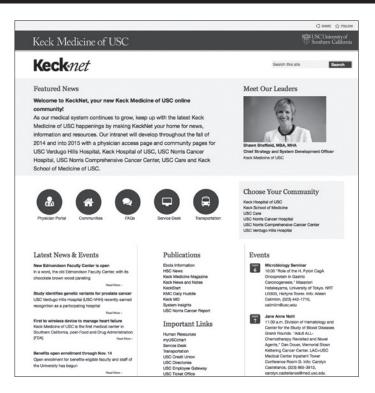
Steven Rosenberg recently began treating a patient with bile duct cancer who had already undergone chemotherapy, but the treatment had failed to stop the cancer from spreading to her lung and liver. He treated her with a new form of immunotherapy, personalized to attack her tumor cells that are unique to her cancer. Today, a year later, her tumors are still shrinking.

Though some scientists have suspected for more than a century that boosting the body's immune system could be an effective cancer treatment, it is only now being used to treat people. Three of the scientists whose pioneering work on T cells that made immunotherapy a reality — Rosenberg, Zelig Eshhar and James Allison — were named the winners of the 2014 Massry Prize.

All three recently delivered lectures at the Keck School of Medicine of USC and all three drove home their belief that the immunotherapy, already an important part of treating some types of cancer, will eventually change we treat all cancers.

Rosenberg, MD, PhD, chief of surgery at the National Cancer Institute, discussed treating several melanoma patients with immunotherapy. Rosenberg described treating his first melanoma patients with a treatment called adoptive cell therapy,

See MASSRY, page 2



Check out the new intranet site for Keck Medicine of USC faculty and staff

Keck*Net*, a new intranet site providing system-wide communications for the faculty and staff of Keck Medicine of USC launched on Nov. 3, along with a new online community for USC Verdugo Hills Hospital.

As our medical system continues to grow, keep up with the latest Keck Medicine of USC happenings by making KeckNet your home for news, information and resources. It is located at kecknet.usc.edu.

Our intranet will continue to grow in 2015 as we develop online communities for Keck Hospital of USC, USC Norris Cancer Hospital, USC Norris Comprehensive Cancer Center, USC Care and Keck School of Medicine of USC.

MASSRY: Prize winners discuss key insights

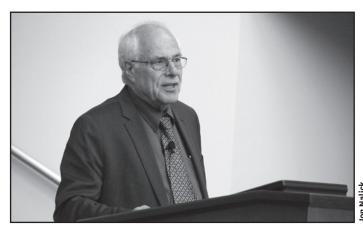
Continued from Page 1 which helped many of

which helped many of them achieve a complete regression.

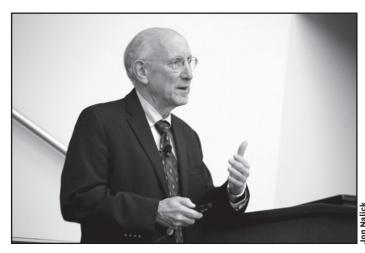
One limitation of early immunotherapy was its ability to attack only some types of cancers. Adoptive cell transfer was developed by Eshhar, PhD, professor of immunology at the Weizmann Institute of Science in Rehovot, Israel, and is a technique to expand the range of T cells to attack cancers.

Allison, PhD, chair of the department of immunology at the University of Texas MD Anderson Cancer Center, exposed how cancer cells evade immune system attacks and developed antibodies that block this ability.

All agreed that much more research needs to be done, but this wholesale shift, from treating tumors to treating the immune system represents a major breakthrough in cancer treatment. Though it is still new, this treatment represents hope for a growing number of cancer patients.



Zelig Eshhar discusses the adoptive cell transfer technology that he developed.



Steven Rosenberg describes how several melanoma patients treated with immunotherapy saw their cancers greatly reduced or eliminated.

The Meira and Shaul G. Massry Foundation established the international Massry Prize to recognize outstanding contributions to the biomedical sciences.

Construction set to begin on major Health Sciences Campus building projects

By Hope Hamashige

Major changes are underway on the corner of Alcazar and San Pablo Streets on the Health Sciences Campus, where several bulldozers are preparing the land for the construction of three new buildings.

Work has begun on a sixstory parking structure that will provide an additional 1,200 parking spots for both staff and patients. The parking structure is going to be the first structure to rise from the space. It is expected to be complete by the fall of 2015.

Student housing for 450

students will be the next building on two acres of the parcel.

Developer American Campus Communities is scheduled to break ground on the project by the end of this year with a projected completion date of fall 2016.

"The housing project is going have really nice amenities — a business center, swimming pool, fitness center and a 10,000-square-foot child care center" for the campus, said Melissa Schild, USC's executive director of land use and planning.

The third project will be a 200-room Hyatt House

hotel, an extended-stay hotel that has apartmentstyle suites and a host of services for people who are spending weeks, rather than days, at the hotel.

The hotel will have 15,000 square feet of conference space and 15,000 square feet of retail space. Hyatt is responsible for signing leases with retail tenants, none of which have been determined. However, Schild said the hotel did ask campus officials to recommend the type of retail they would like in the hotel.

Across the street, on the south side of Alcazar, another construction project is about to get underway on the Norris Healthcare Center, a seven-story building for outpatient

oncology services, is under construction and slated to be complete by November of 2016.



USC Norris celebrates friends and family — Stephen B. Gruber (right), director of the USC Norris Comprehensive Cancer Center, and Casey O'Connell, assistant professor of clinical medicine in the Jane Anne Nohl Division of Hematology and Center for the Study of Blood Diseases, addressed attendees at the USC Norris Ambassadors Friends and Family Luncheon on Oct. 16. The luncheon was attended by USC Associates and USC Norris Ambassadors, who helped promote and share the cancer center's mission with family and friends. O'Connell's presentation was titled "Breakthroughs in Cancer Care: How We are Reviving the Body's Own Defenses Against Malignant Cells."

HSC News Next Issue: Dec. 12

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Calling all faculty: Register on Doximity to vote in U.S. News rankings

U.S. News & World Report ranks many of our excellent clinical departments in its Best Hospitals issue each year. These rankings are important brand recognition and reputation opportunities that are very visible to the public.

Each department's reputation among physicians is a vital component of scoring. In previous years, *U.S. News* sent its paper survey to a small group of randomly selected board-certified specialists across the country. This year, *U.S. News* has announced it will expand the survey to include all board-certified physicians who are registered Doximity members (an online physician network) before Dec. 5, 2014.

If you register on Doximity in time, you will be automatically able to vote online. If you do not, you will be in the randomly selected paper survey pool (200 physicians per specialty except pediatric specialties, which will have only 150).

To vote online, you will need to register for a free account or update your profile with Doximity by Dec. 5, 2014. You may already have a profile because Doximity pulls information from physician databases.

By visting www.doximity.com/signin, you can establish or activate your account

quickly by locating your profile and clicking on "Claim/Edit Profile."

For those who register before Dec. 5, voting will occur by either an email prompt by Doximity or a notification on your Doximity account when you log in during the voting period. *U.S. News* does not publish its voting period but it usually occurs from late January through February.

We will send email reminders to faculty when the voting season arrives to prompt you to visit your Doximity account or to be on the lookout for the Doximity email.

While *U.S. News* will be weighting the online votes differently from the paper survey votes, we feel online Doximity voting gives us a slightly better chance of having a voice in these rankings than relying on receiving the randomly selected paper survey. The key will be ensuring our doctors register and vote.

To learn more about the U.S. News physician survey, see http://tinyurl.com/q5gahjt. Time is of the essence. You must register on Doximity (www.doximity.com) before Dec. 5, 2014, to be eligible to vote online for this year's rankings.

PETRAEUS: Military, intelligence leader hails 'unbelievable' life sciences research at HSC

Continued from Page 1

to Walter Reed National Military Medical Center?" asked Petraeus. "The hearing loss issue there is really important. That's where we get our most seriously wounded combat veterans."

Continuing his exploration of neural degeneration in its many forms, Petraeus headed to the lab of Berislav Zlokovic, MD, PhD, director of the Zilkha Neurogenetic Institute.

Postdoctoral researcher Axel Montagne, PhD, described a new test for detecting blood brain barrier (BBB) leaks, which contribute to the development of Alzheimer's disease. A drug called 3K3A-APC, currently in a Phase 2 clinical trial for stroke victims, has shown potential for stopping these leaks in Alzheimer's patients.

Meeting the Troops

Petraeus did get a chance to relax a bit over lunch, which he shared with several students from the Keck School who are also members of the armed forces. After getting to know each of them, Petraeus shared a piece of advice that has served him well, which is to leave their intellectual comfort zones as often as



Petraeus greets Joe Durso, a second-year medical student and ROTC member, at a luncheon for Keck School students.

possible and never fear bucking convention.

One of the students, Katie Ross, said this advice will stay with her as she finishes school and faces career decisions. "Being able to meet him is something I will remember for the rest of my life," she said.

Petraeus also paid a visit to the USC Navy Trauma Training Center, a program of the U.S. Navy, the Keck School of Medicine of USC and LAC+USC Medical Center, which provides armed forces medical caregivers — including medics, nurses, physicians and Special Forces personnel — crucial first-hand experience treating traumatic injuries. While

there, he swapped war stories with the nurses, doctors and medics from the U.S. Navy who spent several weeks at the training center at LAC+USC before being deployed.

The general himself is no stranger to battlefield injury. Petraeus, who spent most of his career in the U.S. Army with the 101st Airborne Division, broke his pelvis in a parachuting accident, and was shot in a training accident and required the insertion of a chest tube without anesthesia. The pain and severity of the second injury, he said, was so extreme that he wasn't sure he would survive.

"I will never forget staring into the eyes of that Army



Petraeus and Keck School of Medicine Dean Carmen A. Puliafito discussed medicine and the military and what the two different professions have in common.

medic," recalled Petraeus. He added that doctors, nurses and medics in the field comprise the "most important army of one" in the military.

Three trauma experts who work closely with naval medical personnel at the training center accompanied Petraeus on the tour: Demetrios Demetriades, MD, PhD, FACS, chief of the division of trauma and critical care, Edward Netwon, MD, interim chairman of emergency medicine, and Philip Lumb, MB, BS, MCCM, chair of the Department of Anesthesiology.

Petraeus also had the rare opportunity to step into a Keck Hospital operating room, where Inderbir Gill, MD, executive director of the USC Institute of Urology and professor of the Catherine and Joseph Aresty Department of Urology at the Keck School, was performing a robotic surgery on a patient with prostate cancer. Petraeus, who was diagnosed with prostate cancer in 2009, marveled at the advances being pioneered at Keck Medicine of USC.

Sharing Perspective

After a full day on campus, Petraeus told Carmen A. Puliafito, MD, MBA, dean of the Keck School of Medicine of USC, how impressed he was with HSC as a place of learning, healing and scientific discovery.

"This has to be the Delta force of health science

campuses," said Petraeus, as he finished the day by joining Puliafito on stage at Mayer Auditorium for a discussion as part of the Dean's Distinguished Lecturer Series.

In a wide-ranging discussion, Petraeus and Puliafito discussed medicine and the military and what the two professions have in common. Petraeus noted that advances in medicine have helped many soldiers survive serious battlefield injuries, but that, too, has created challenges.

"So many come home with life-altering injuries, and their biggest challenge is not in the hospital. It is when that individual goes home and realizes that the rest of their life will be different," explained Petraeus, best-known for leading the so-called surge strategy as commander of all U.S. troops in Iraq.

He also discussed the challenges posed by the high instance of traumatic brain injury and post-traumatic stress disorder.

At the conclusion of his visit, Puliafito presented Petraeus with a token of his appreciation: an engraving of a painting depicting the death of Joseph Warren, who died fighting British forces at the Battle of Bunker Hill. Puliafito chose a depiction of Warren to remind Petraeus of his visit to HSC, because Warren was a commissioned general, as well as one of Boston's finest doctors.

Noted author, cancer researcher to speak Nov. 21 at HSC

Cancer physician, researcher and author Siddhartha Mukherjee, MD, PhD, will deliver the Nancy Short Lecture at 1 p.m. on Nov. 21, in Mayer Auditorium on USC's Health Sciences Campus.

The Nancy Short Lecture is a collaboration between Keck School of Medicine of USC Dean Carmen A. Puliafito and the Women's Cancer Research Fund "to honor and remember Nancy Short, a friend lost to cancer who dedicated herself to teaching, helping and inspiring others to live healthier, more fulfilled lives."

Her husband Martin Short, a noted actor, comedian and singer, will deliver a special introduction at the event.

In his Pulitzer Prizewinning book, *The Emperor* of All Maladies: A Biography of Cancer, Siddhartha Mukherjee examines cancer by examining it as a biographer would research the roots, influences and impacts that shape a person's

Mukherjee tells the story of cancer from its first documented appearances thousands of years ago through the epic battles in the twentieth century to cure, control, and conquer it to a radical new understanding of its essence. Mukherjee is a an assistant professor of medicine at Columbia University and a staff cancer physician at Columbia University Medical Center.

A Rhodes Scholar, Mukherjee graduated from Stanford University, University of Oxford and Harvard Medical School. He has published articles in *Nature*, *The New England Journal of Medicine, The New York Times* and *The New Republic*.

To attend this lecture, RSVP online at www.usc. edu/esvp (code: Mukherjee).

The event will be webcast live at http://keckmedia. usc.edu/Mediasite/Catalog/catalogs/ddls.

Calendar of Events

Monday, Nov. 17

Noon. KSOM Research Seminar. "Antiviral RNAi – A New Antiviral Immunity Mechanism in Mammals," Shou-Wei Ding, University of California, Riverside. Aresty Auditorium. Info: Mary Jane Chua, (323) 442-7732, maryjane.chua@med.usc. edu

Wednesday, Nov. 19

Noon. The Saban Research Institute Seminar. "Regulating Fat Storage and Breakdown to Improve Insulin Sensitivity in Humans," Vishwajeet Puri, Boston University School of Medicine. Saban Research Building, first floor auditorium, CHLA. Info: Laura Rabin, (323) 361-8715, lrabin@chla.usc.edu, chla.org/tecpad

Thursday, Nov. 20

Noon. Research Center for Liver Diseases Seminar. "Necroptosis Signaling and Inflammation," Kim Newton, Genentech, Inc. Hastings Auditorium HMR. Info: Dolores Mendoza, (323) 442-1283, dmmendoz@usc.edu

Noon. USC Women in Management Luncheon. "Current State of Public Health in L.A. County," Cynthia Harding, Los Angeles County Dept. of Public Health. NML West Conference Room. Info and RSVP: Ginger Mayerson, (323) 867-2200, mayerson@usc.edu, tinyurl.com/lh5uoyo. RSVP: www. uscwim.org/calendar.asp. WIM members \$18, non-members \$20

6 p.m. Orthopaedic Surgery Grand Rounds. "Functional Muscle Transfer for Upper Extremity," Milan V. Stevanovic, USC. Mayer Auditorium. Info: Sylvia Suarez, (323) 226-7204, sylsua@usc.edu

Friday, Nov. 21

11 a.m. Jane Anne Nohl Division of Hematology and Center for the Study of Blood Diseases Grand Rounds. "Coordination of Mouse Hematopoeitic Stem Cells In Vivo," Rong Lu, USC. LAC+USC Medical Center Inpatient Tower Conference Room D. Info: Carolyn Castellanos, (323) 865-3913, carolyn. castellanos@med.usc.edu

1 p.m. Nancy Short Lecture. "The Emperor of All Maladies: A Biography of Cancer," Siddharta Mukherjee, Columbia University. Mayer Auditorium. Info: deanksom@med.usc.edu, (323) 442-1900. Live webcast: keckmedia.usc.edu/Mediasite/Catalog/catalogs/ddls

Friday, Nov. 21 and Saturday, Nov. 22

7:55 a.m. - 5 p.m. Continuing Medical Education. "European Wrist Arthroscopy Society Advanced Cadaver Wrist Surgery Course," various speakers. Harkness Auditorium. Info and RSVP: (323) 442-2555, usceme@usc.edu, http://www.usc.edu/cme

Tuesday, Dec. 2

Noon. Psychiatry and the Behavioral Sciences Grand Rounds. "A Beating of Minds: PTSD and Other Wounds of War," Murray Stein, UCSD. Herklotz Seminar Room, ZNI 112. Info: Gracie Vargas, (323) 442-4065, gvargas@usc.edu

1 p.m. - 5:30 p.m. Zilkha Neurogenetic Institute Seminar. "Fifth Annual Zach Hall Lecture," Pasko Rakie Yale University School of Medicine. Herklotz Seminar Room, ZNI 112. Info: Julie Carl, (323) 442-3219, jcarl@usc.edu. RSVP: tinyurl.com/peal7xd

Wednesday, Dec. 3

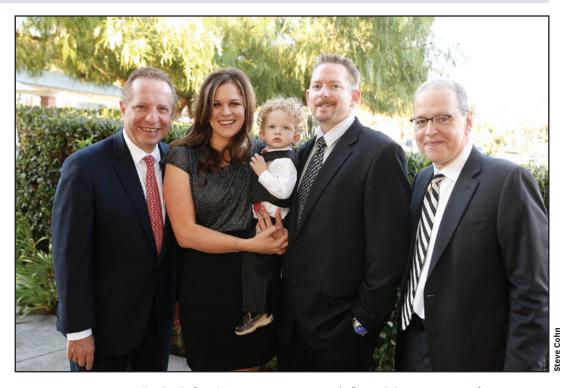
Noon. The Saban Research Institute Seminar. "Adoptive T Cell Therapy with CAR Modified T Cells," Renier J. Brentjens, Memorial Sloan-Kettering Cancer Center. Saban Research Building, first floor auditorium, CHLA. Info: Laura Rabin, (323) 361-8715, lrabin@chla.usc.edu, chla.org/tecpad

Thursday, Dec. 18

6 p.m. Orthopaedic Surgery Grand Rounds. "Alignment In TKA: Does Accuracy Count If We Don't Know The Target," Henry D. Clarke, Mayo Clinic College of Medicine. Aresty Auditorium. Info and RSVP: Sylvia Suarez, (323) 226-7204, sylvia.suarez@med.usc.edu

Notice: Calendar submissions must be received at least 10 days before an issue's publication date to be considered. Please note that timely submission does not guarantee an item will be printed. Entries must include day, date, time, title of talk, first and last name of speaker, affiliation of speaker, location and a phone number or email address for information.

 $Submit\ calendar\ items\ at\ tinyurl.com/calendar-hsc.$



HELPING TO HEAR—Keck School of Medicine Dean Carmen A. Puliafito and the Department of Otolayngology-Head and Neck Surgery hosted a USC-CHLA Center for Childhood Communication open house on Oct. 2 to showcase its world-class facilities to treat children with hearing loss and deafness. The event included tours of the facility, showcasing diagnostic equipment and therapy rooms. From left are: Dean Puliafito; Kelly, Shane and Patrick Lundie; and John K. Niparko. At the event, Kelly Lundie shared her story about her son Shane's journey to hearing. USC surgeons and audiologists — including Niparko — performed the boy's cochlear implant surgery. Other guests included Gaston Kent, CEO of the John Tracy Clinic, Los Angeles County Supervisor Mark Ridley Thomas and musician Richard Reed, who performed at the event.

Noted physician Michael S. Cann joins Keck Medicine of USC

By Meg Aldrich

Keck Medicine of USC has acquired the practice of Michael S. Cann, MD, in Glendale, CA. Together

they will provide comprehensive, world-class orthopaedic care to the Foothill communities.

The practice,
which will remain in
its current location at
1808 Verdugo Blvd. Micha
in Glendale on the
USC Verdugo Hills Hospital
campus, will be known as
USC Orthopaedic Surgery

Associates - Glendale.

"I'm very pleased to join the USC team and to be able to provide my patients access to the worldclass care and innovative research for which USC is known," said Cann. "Our patients are the big winners here, since treatment can be coordinated with rehabilitation as close to home as possible. Now they'll have the full complement of resources that only a university-based treatment and research center can offer - right here in Glendale."

"Over the years, Dr. Cann has built a thriving practice through his dedication to delivering the highest quality of care to his patients," said Jay R. Lieberman, MD, professor and chair of the Department of Orthopaedic Surgery of the Keck School of Medicine of USC. "We share his passion for helping people live full, healthy

> lives, and we are eager to partner with him and his staff as we expand orthopaedic services in the Foothill communities."

Keck School of Medicine of USC orthopaedic surgeons will join

Cann and treat patients alongside him at the practice. The Department of Orthopaedic Surgery

Michael S. Cann

at USC offers world-class treatment and rehabilitation of musculoskeletal disorders, including sports medicine injuries, joint preservation and replacement (hip and knee replacement), hand injuries, foot and ankle disorders, bone tumors, spinal disorders, and fracture

In addition to specialized orthopaedic surgeons, the team includes physical and occupational therapists and pain management professionals who provide a high standard of care from the operating room and into recovery.

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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.