The Keck School of Medicine of USC welcomed David H. Petraeus, PhD, retired four-star general and former CIA director, on Nov. 4 to see the life sciences revolution underway at USC.

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.

Faculty leaders 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 neuro-genetic code” underlying diseases as various as schizophrenia, HIV and post-traumatic stress disorder.

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. 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. Neil Segil, PhD, is collaborating with Ichida.

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Campagn gifts boost key cancer research, clinical advances

With generous new contributions supporting Keck School of Medicine of USC and USC Norris Comprehensive Cancer Center researchers, the Keck Medicine Initiative, has surpassed $667 million in gifts and pledges.

The Initiative, part of the Campaign for the University of Southern California, is striving toward an ambitious $1.5 billion fundraising goal, and has raised more than $16 million since the last Dean’s Report.

We are grateful for the generosity of our donors and their commitment to improve and expand research and clinical programs, student education and faculty support at USC. Gifts of note include:

**Vicki and Robert Latter** — A generous commitment of $5 million to the Norris Comprehensive Cancer Center. In recognition of this gift the outpatient clinic in the Norris Comprehensive Cancer Center will be named the Vicki and Robert Latter Outpatient Clinic. Vicki and Ron are grateful patients and cancer survivors who have been loyal and generous donors for many years.

**Butch Walts and Donald Skinner Urological Cancer Foundation** — A gift of $551,845 to support clinical urology research at the USC Institute of Urology and the Catherine and Joseph Aresty Department of Urology at the Keck School. The Foundation has supported the Aresty Department since 1989 and has provided more than $3,560,700 for urologic cancer research at USC.

**Kevin and Gail Balz** — A $175,000 gift supporting the cancer research of Martin Kast, PhD, molecular microbiology and immunology, obstetrics and gynecology and urology at the Keck School, and Julie Lang, MD, PhD, associate professor of surgery at the Keck School.

**Bob and Kent Lucas** — A $100,000 gift from father-and-son alumni to aid prostate cancer research at USC Norris.

**Dolores A. Lasker** — A $100,000 bequest gift from to support the Department of Orthopaedic Surgery.

**Richard Cadarette** — A $100,000 gift from in honor of Lawrence D. Dorr, MD, professor of clinical orthopaedics at the Keck School.

**Henry and Paulette Matson** — A gift of $100,000 to support prostate cancer research of Osamu Ukimura, MD, professor of clinical urology, at the USC Institute of Urology, as well as funding to help renovate the lobby conference room at USC Norris Cancer Hospital.

**Charles Mathewson** — A $100,000 gift to help with the fundraising drive to endow the J. Terrence Lanni Chair in Gastrointestinal Cancer Research.

**Susan Simms** — A $100,000 gift supporting the colon cancer research of Heinz-Josef Lenz, MD, professor of medicine and preventive medicine at the Keck School.

**Geliebter Foundation** — A $50,000 gift to support the prostate cancer research being conducted David Quinn, MD, associate professor of medicine at the Keck School.

**The Uluanl Foundation** — A $25,000 gift to support Jeffrey C. Wang, MD, professor of orthopaedic surgery and neurosurgery at the Keck School, and his innovative research that targets the proliferation and spread of cancer in the spine and other areas.

To learn about opportunities to join our community of donors, please contact Melanie Duval, associate vice president of health sciences development and senior associate dean at the Keck School of Medicine of USC, at (323) 442-2358 or melanydu@usc.edu.

USC neuroscientists awarded $22 million in grants

Professors Arthur Toga and Paul Thompson receive awards to explore the human brain

In a rare distinction for one university, neuroimaging world leaders and USC professors Arthur Toga, PhD, and Paul Thompson, PhD, will receive two major research center awards to advance their exploration of the human brain.

Toga and Thompson each will establish a Center of Excellence under a National Institutes of Health initiative to mine discoveries from the vast and exponentially growing amounts of data created by imaging science, genetic sequencing and many other biomedical fields.

The awards total $12 million and $11 million for Toga and Thompson, respectively, over four years. NIH is funding several Centers of Excellence, including the two at USC, under its Big Data to Knowledge initiative.

The two researchers’ teams have gathered what they believe to be the world’s largest collection of brain scans. The collection is housed at the USC Institute of Neuroimaging and Informatics and continues to double in size every two years.

The two center grants will allow the researchers to move from data collection to large-scale analyses that could point to new treatments for autism, Alzheimer’s disease, mental illness and many other neurological diseases and disorders.

Toga and Thompson came to USC a year ago as leaders of a massive neuroimaging cluster of 110 faculty, researchers and multidisciplinary staff. Their recruitment was a signature moment in the university’s drive to attract scholars with the potential to transform their fields.

When the recruitment was announced, USC President C. L. Max Nikias remarked that “it will help us move one step closer to understanding the structure and function of the human brain.”

The NIH initiative signals the agency’s commitment to invest in the same goal. The university’s own Digital USC initiative, established last year by Provost Elizabeth Garrett, supports neuroimaging research as part of a commitment of $1 billion over 10 years toward gathering, interpreting and applying digital data on a massive scale.

Toga’s NIH award will establish the Big Data for Discovery Science Center, which aims to develop database systems and computational strategies to help scientists and physicians mine complex data about the brain.

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PETRAEUS: Hails Keck School life sciences research

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to apply a similar approach to hearing loss, which afflicts many who have served in the military.

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.

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. He 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.

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.

After his 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 for 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 physician and general Joseph Warren, who died fighting British forces at the Battle of Bunker Hill.

Amgen CEO foresees ‘major breakthroughs’ in era of biotech

Robert A. Bradway says challenges ahead call for cooperation between industry and academia

A s chair and chief executive officer of Amgen, Robert A. Bradway is keenly aware of how tough and how expensive it is to bring new drugs to market.

He also knows pharmaceutical companies must strike a delicate balance between pleasing shareholders and creating next-generation pharmaceuticals. At a time when research and development are becoming more expensive and research funding is declining, it’s a difficult task.

And yet, he is an optimist when it comes to the future of the biotechnology. Why? He credits the success of the human genome project with ushering in a new era in biotechnology, one that has made it possible for scientists to home in on human genetic variants quickly and relatively inexpensively.

“The challenges for all of us are profound,” said Bradway, who was the first speaker of the 2014-2015 Dean’s Distinguished Lecturer series. “But I believe there are going to be some major breakthroughs.”

To facilitate such breakthroughs, Amgen acquired an Icelandic company that specializes in identifying genetic risk factors for human disease.

Before a packed house in Aresty Auditorium on Aug. 13, Bradway said that the company’s focus on identifying rare variants is helping it develop potential treatments for several serious diseases. Amgen is also testing an oncolytic virus for the treatment of metastatic melanoma.

It is in the area of cancer treatment, however, that Bradway said the company is “on the verge of exciting breakthroughs.” The company earned a breakthrough therapy designation from the U.S. Food and Drug Administration for a type of immunotherapy for acute lymphoblastic leukemia. Amgen is also testing an oncolytic virus for the treatment of metastatic melanoma.

Bradway said he doesn’t expect the challenges to become easier, and he hopes that both the biotechnology industry and scientists in academia will come together and face them head on.
University Kidney Research Organization (UKRO) honored USC Provost and Senior Vice President for Academic Affairs Elizabeth Garrett at its fifth gala dinner on Sept. 12 held at The Beverly Hilton.

The evening raised funds for the USC/UKRO Kidney Research Center at the Keck School of Medicine of USC. The USC/UKRO Kidney Research Center will be part of the Keck School of Medicine of USC and will focus on both basic and applied research to identify the causes of, improve upon existing treatments for, and — ultimately — find a cure for all forms of kidney disease.

At the gala, UKRO presented its award for Extraordinary Achievement in Academic Leadership to Garrett. As the university’s second-ranking officer, Garrett is responsible for a sustained effort to hire cutting-edge faculty members, particularly in the fields of the neurosciences, the humanities and the social sciences. She has shown great commitment to invigorating the research capabilities and environment of the university.

From left, UKRO President Ken Kleinberg, singer and UKRO Board Member Natalie Cole and Dean Puliafito appear at the event. Kleinberg lauded Garrett at the event, saying she “has a tireless commitment to building the University of Southern California and to elevating its position in the pantheon of top American universities.”

UKRO honors USC provost for excellence in academic leadership

Xavier Becerra, representative for California’s 34th congressional district since 1993, addressed a capacity crowd at the Dean’s Distinguished Lecturer Series on Sept. 3.

Becerra, whose district includes the USC Health Sciences Campus, provided a behind-the-scenes look at the Affordable Care Act, discussed national security concerns and responded to difficult questions from a well-informed audience. He likened the Affordable Care Act to a “clinical trial that needs more work.”

Other topics included abuse of tax dollars in health care and the effect of sequestration on research funding. Another highlight of the evening was when Becerra played the voicemail message he received from President Obama on the evening of March 10, 2010, when the U.S. House of Representatives passed the Affordable Care Act.

In the Congressional tradition of declaring resolutions for special occasions, Puliafito presented Becerra with a formal certificate of appreciation for his role as a Dean’s Distinguished Lecturer.

Congressman Becerra tackles thorny health-care topics

Five Keck School researchers have been named by Thomson Reuters as having “The World’s Most Influential Scientific Minds” for 2014. The New York City-based multinational media and information firm assessed papers indexed between 2002 and 2012 in 21 fields of study. It tracked authors who published numerous articles ranking among the top 1 percent of the most cited in their fields in the year of publication.

The Keck School researchers named are:

• Inderbir Gill, MD, MCh, founding executive director of the USC Institute of Urology and professor and chair of the Department of Urology;
• Paul Thomas, PhD, associate professor of preventive medicine;
• Paul Thompson, PhD, professor of neurology, psychiatry, radiology, engineering and ophthalmology;
• Arthur Toga, PhD, professor of neurology; and
• Berislav Zlokovic, MD, PhD, director of the Zilkha Neurogenetic Institute.

Keck School scientists named among world’s ‘most influential’
BROAD: The promise of stem cell research at USC is ‘limitless’

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Thompson will head the ENIGMA Center for Worldwide Medicine, Imaging and Genomics, a global consortium of more than 300 researchers sharing data to study nine major brain diseases. The global effort is developing tools to discover predictive factors in the genome that affect brain development and disease.

“In a way, we are extending the mathematics currently used for code-breaking and pattern recognition to find patterns in the brain.”

The NIH launched the BD2K initiative in 2013 to support research, implementation and training in data science that would enable biomedical scientists to maximize the use of large datasets in their studies.

USC welcomes its inaugural class of stem cell master’s students

USC welcomed its first class of master’s students in stem cell biology and regenerative medicine to one of the first programs of its kind in the United States. To celebrate the launch of this unique master’s program, the 30 students gathered for an orientation and ice cream social at the Eli and Edythe Broad CIRM Center for Regenerative Medicine and Stem Cell Research at USC.

“The inaugural class of master’s students in stem cell biology and regenerative medicine gather for orientation on Aug. 21 at the Eli and Edythe Broad CIRM Center for Regenerative Medicine and Stem Cell Research at USC.”

“Stem cell biology is and continues to be the hot subject in biomedical science,” said master’s program director Henry Sucov. “Stem cell biology is a field that came with its own technology that gives the opportunity to ask and answer scientific questions that couldn’t be asked and answered before, as well as to address medical problems that couldn’t be addressed before.”

The opportunities at this biomedical frontier attracted an accomplished inaugural class from all reaches of the globe — with two-thirds of the students from the United States and one-third from abroad. Many students have earned previous master’s or medical degrees, and have gained prior research experience in the labs of top stem-cell scientists.

At USC, these students are venturing into cutting-edge territory through course work in developmental and stem cell biology, human embryology, regenerative medicine, and the translational and therapeutic aspects of stem cell technology. They are also donning lab coats and gaining hands-on experience with stem cells.