



Steve Cohn

KECK SCHOOL FETES NEW RECRUITS — Keck School of Medicine Dean Carmen A. Puliafito recently celebrated the recruitment of world renowned neuroscientists Arthur Toga and Paul Thompson — and more than 100 faculty, researchers and staff — to the Keck School. Above, with Traveller and rider Hector Aguilar at a June 6 party in Pasadena, are (from left), Toga, Puliafito and Thompson.

Pfizer, USC launch new R&D partnership

By Amy E. Hamaker

A significant number of drugs originate in the academic medical community, but progress toward translating new pharmaceutical breakthroughs to the clinic is often slow and prohibitively expensive.

Research suggests that since the early 1980s, the number of Food and Drug Administration-approved drugs has stayed the same, while investments in research have increased from \$5 billion to \$35 billion.

Anthony Coyle, vice president and chief scientific officer of Pfizer's Centers for Therapeutic Innovation (CTI), said: "There is a premium being placed on true innovation, and increasingly, major biomedical institutions and industry are finding they share common objectives."

To help speed the drug development process, CTI is teaming up with USC to combine academic medical center research teams with Pfizer's technological, legal, regulatory and commercial expertise.

"Pfizer has given us a unique opportunity to partner through CTI," said Stephen B. Gruber, director of the USC Norris Comprehensive Cancer Center. "We have been

'There is a premium being placed on true innovation, and increasingly, major biomedical institutions and industry are finding they share common objectives.'

—Anthony Coyle, vice president and chief scientific officer of Pfizer's Centers for Therapeutic Innovation

working together over the past year to put this project into motion, and we are excited to offer this opportunity for collaboration to our researchers."

Currently, CTI has established partnerships with 23 academic medical centers across the United States, and it supports collaborative projects from four dedicated labs in Boston, New York City, San Francisco and San Diego.

See **PFIZER**, page 3

Dept. of Ophthalmology announces new branding

Following the expiration of an agreement with the Doheny Eye Institute, the Keck School of Medicine of USC's Department of Ophthalmology will now be known by a new name, USC Eye Institute, under the campus clinical branding Keck Medical Center of USC.

The new name will be used throughout the organization, and signs bearing the new name will begin to appear in coming weeks. Newspaper and

radio ads announcing the change have already begun running.

The change will help the institute reach more people.

Senior Vice President and CEO of USC Thomas E. Jackiewicz, and Department of Ophthalmology Ronald E. Smith wrote in a letter to staff: "This brand reflects a more global approach to USC's extraordinary work and achievements in the field of ophthalmology, and enables us to create a recognizable name upon

which we can advance our reputation for leadership and high caliber research, teaching and patient care. This is a remarkable time in the field of ophthalmology, with many exciting advancements being made in the restoration of sight, and the physicians and researchers at USC Eye Institute are playing a significant role in this progress. Please join us as we celebrate this new chapter in our Department of Ophthalmology."

USC supporter John Reid weds — and presents wedding gifts to the Keck School

By Amy E. Hamaker

When his wife, Darlene Dufau Reid, passed away after a long illness in 2008, John Reid (USC BS '69), a Superior Court judge for 27 years who presently sits in the Santa Monica courthouse, was not sure love would ever find him again.

Then one day, John bumped into his future wife, Karen, by chance. "Darlene had been gone a couple of years and I was tired of eating my own cooking," recalled John. "I wandered down to the pier in Malibu, and Karen was standing on the pier talking on the phone to her son. I looked at her, and she looked at me, and I couldn't help myself — I asked her

out to dinner. We stayed talking that evening until the restaurant closed."

John and Karen were married on April 6, 2013. In lieu of gifts, the couple requested donations in support of the Darlene Dufau Reid Endowed Scholarship Fund at the Keck School of Medicine of USC. The scholarship is presented annually to an outstanding medical student. To date, donations in honor of the ceremony have reached nearly \$13,000.

Both John and his late wife Darlene had a deep connection to USC at the undergraduate level and at the Keck School. Both John and Darlene were former national directors of the

USC Parents Association, past members of the USC Alumni Association Board of Governors and parents of a 2005 graduate of the Keck School.

John is also a current director of the Keck School of Medicine Parents Association.

Darlene graduated from USC with a bachelor's degree in sociology in 1967 and a master's degree in education in 1969. She became a full-time university volunteer after practicing law and working as a TWA flight attendant for 25 years.

In 2004, Darlene received the alumni association's Alumni Service Award. In 2006, while president of the USC University Hospital



Courtesy John and Karen Reid

John and Karen Reid requested that in lieu of traditional gifts for their wedding, guests consider donations to the Darlene Dufau Reid Endowed Scholarship Fund.

Guild, Darlene created the 5K Walk for Keck, a fundraising event that still takes place annually. Darlene also worked extensively with

USC's alumnae groups, most notably on behalf of the SCions program for USC legacy students.

See **REID**, page 2

Uttam K. Sinha assumes two new medical leadership roles

Uttam K. Sinha, associate professor of otolaryngology and Watt Family Chair in Head and Neck Cancer at the Keck School of Medicine of USC, has been appointed to two key new leadership positions.

Sinha will serve as medical director of head and neck surgery, and associate dean of surgical simulation, paving the way for novel, innovative programming across clinical, research and educational practices.

As medical director, Sinha will lead the development of a Head and Neck Surgery Institute focused on providing comprehensive, translational care to patients suffering from head and neck diseases.

The center will bring together multidisciplinary services to focus on improving patient survival rates,

enhancing quality of life and reducing the cost of care. Breakthrough clinical trials conducted at the institute will also help bring research from the lab to the bedside, and an international focus will expand its scope and reach on a global level.

As associate dean of surgical simulation, Sinha will also lead the establishment of a surgical simulation and innovation program to help train future clinicians.

Sinha was praised in a statement released by Senior Vice President and CEO for USC Health Thomas E. Jackiewicz, Keck School Dean Carmen A. Puliafito, and Professor and Chair of the Department of Otolaryngology-Head and Neck Surgery John K. Niparko, "Dr. Sinha is a leading



Uttam K. Sinha

international expert in the treatment of head and neck cancers, and one of a select number of national surgeon scientists in this field operating a high-volume clinical practice while also conducting translational research," they wrote. "With a career at USC that spans nearly 30 years, and breakthroughs in areas such as saliva diagnostics, nanotechnology and cancer stem cell research, Dr. Sinha is poised to make many more lasting contributions to our medical enterprise."

Tamara Brown will take on Sinha's previously held role of chief of service for the LAC+USC Medical Center. Niels Kokot will assume Sinha's role of residency program director for the Department of Otolaryngology.



Jon Nalick

From left, Robert Vance, emergency management officer at Keck Medical Center, and Jim Buck, program coordinator for the Rapid Response Team, deliver advice about household fire safety to children from the USC Child Care Center.

It's never too early to learn about fire safety

By Josh Grossberg

About 40 preschoolers from the USC Child Care Program at the Health Sciences Campus attended a June 26 presentation, where they learned ways to keep safe if they encounter a dangerous situation.

Meeting in the cafeteria at USC Norris Cancer Hospital, the tots learned safety rules such as what to do if they find matches (don't play with them) and what to do if a fire alarm goes off (find a safe place).

Leading the class were Robert Vance, emer-

gency management officer at Keck Medical Center, and Jim Buck, program coordinator for the Rapid Response Team.

Although the kids ranged in age from 2 to 5, Vance said they were ready to learn some important lessons.

"We want to educate them when they're young so it's ingrained," he said.

The kids — children of campus employees — also received a coloring book featuring Sparky the Fire Dog and their own red fire helmets.

Genetic disease linked to father's age

By Robert Perkins

Scientists at USC have unlocked the mystery of why new cases of the genetic disease Noonan Syndrome are so common. Over time, a mutation that causes the disease disproportionately increases a normal father's production of sperm carrying the disease trait.

When this Noonan syndrome mutation arises in a normal sperm stem cell, it makes that cell more likely to reproduce itself than stem cells lacking the mutation. The father then is more likely to have an affected child because more mutant stem cells result in more mutant sperm. The longer the man waits to have children the greater the chance of having a child with Noonan syndrome.

Noonan Syndrome is among the most common genetic diseases with a simple inheritance pattern. About one of every 4,000 live births is a child with a new disease mutation. The disease can cause craniofacial abnormalities, short stature, heart defects, intellectual disability and sometimes blood cancers.

By examining the testes from 15 unaffected men, a team led by USC molecular and computational biologists Norman Arnheim and Peter Calabrese found that the new mutations were highly clustered in the testis, and that the overall proportion of mutated stem cells increased with age. Their computational analysis indicated that the mutation gave a selective edge over non-mutated cells.

"There is competition between stem cells with and without the mutation in each individual testis," said Arnheim, who has joint appointments at the USC Dornsife College of Letters, Arts and Sciences and the Keck School of Medicine of USC. "But what is also unusual in this case is that the mutation which confers the advantage to testis stem cells is disadvantageous to any offspring that inherits it."

The new findings also suggest an important new molecular mechanism to explain how certain genetic disease mutations can alter sperm stem cell function leading to exceptionally high frequencies of new cases every generation.

REID: Scholarships trump wedding gifts

Continued from Page 1

Although Karen did not attend USC, she has quickly become part of the Trojan Family. Both Karen and John felt that the suggestion of donations in lieu of wedding gifts was natural.

"We both have our own households and didn't need the traditional wedding gifts — we have too many irons and toasters as it is," John explained. "Our first thought was to ask for no wedding gifts, but we'd like to try to add to Darlene's scholarship to enable it to help more students.

"Karen is a wonderful woman," added John. "She's kind and giving, and we wanted to do our best to give back to USC students and

their parents — and most importantly, help wonderful, highly educated people achieve their goals. As part of the Trojan Family, helping others reach their goals is just an ongoing thing you do."



Did you know?

The USC Norris Cancer Hospital opened to patients in mid-March of 1983, with 30 beds available for patient care. At that time, the hospital boasted a medical staff of just 50 people.

The Weekly

Next Issue: July 26

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.

Associate Vice President, Health Sciences Public Relations and Marketing: Deborah S. Fullerton

Assistant Director of Publications: Sara Reeve

Editor: Jon Nalick

Contributors: Eva Blaauw, Tania Chatila, Josh Grossberg, Amy E. Hamaker, Carol Matthieu, Robert Perkins, Leslie Ridgeway and Alison Trinidad

Vice President, Public Relations and Marketing: Brenda Maceo

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

USC research IDs potential treatment for deadly, HIV-related blood cancer

By Alison Trinidad

Researchers at the USC Norris Comprehensive Cancer Center have discovered a promising new way to treat a rare and aggressive blood cancer most commonly found in people infected with HIV.

The USC team has shown that a class of drugs called BET bromodomain inhibitors effectively targets primary effusion lymphoma (PEL), a type of cancer for which those drugs were not expected to be effective.

“It’s a reversal of the paradigm,” said Preet Chaudhary, chief of the Nohl Division of Hematology and

Blood Diseases at the Keck School of Medicine of USC and principal investigator of the study. “Our results suggest that this new class of drug may be an effective treatment for a wider range of cancers than previously thought.”

PEL is caused by infection with Kaposi’s sarcoma-associated herpes virus, the most common cause of cancer among patients with AIDS. The prognosis for PEL is poor, with a median survival of three to six months. Thus, there is a critical need for new therapies for the disease.

Chaudhary and his colleagues have shown that inhibitors targeting the BRD4 protein blocked growth of PEL cells in a test tube and in a mouse model. The results were surprising because BET inhibitors were thought to be only effective against cancers linked to an overexpression of the Myc gene.

“We actually found that cancers that overexpress Myc are not as responsive to BRD4 inhibitors. PEL is more responsive,” Chaudhary said.

Cancers, such as multiple myeloma and Burkitt’s lymphoma, overexpress

the Myc gene and have been shown to respond to BRD4 inhibitors. In PEL, the Myc gene is moderately expressed and there is no chromosomal translocation as is seen in multiple myeloma or Burkitt’s.

More research is needed to create compounds ready for testing in people. Once those drugs are ready for clinical trial, data from this study suggest that they may treat a wide range of cancers. Chaudhary anticipates testing them alone and in combination with other drugs.

The study, “Targeting Myc in KSHV-associated

primary effusion lymphoma with BET bromodomain inhibitors,” appears in *Oncogene*, a peer-reviewed scientific journal from the Nature Publishing Group.

Bhairavi Tolani, a 2013 graduate of the Keck School of Medicine, is the study’s first author. Co-authors include Ramakrishnan Gopalakrishnan, Vasu Punj and Hittu Matta, all of the hematology division at the Keck School. Their work was supported by grants from the National Institutes of Health (5R01CA139119, 5R01DE019811, P30CA014089) and STOP Cancer Foundation.

PhD student’s research graces journal cover

Zhengfei Lu, a PhD candidate in the lab of Michael Lieber, the Rita and Edward Polusky Professor in Basic Research at the Keck School of Medicine of USC, is the first author of a research study featured on the cover of the May 30 issue of *Blood*, the journal of the American Society of Hematology. The paper is titled “BCL6 breaks occur at different AID sequence motifs in Ig–BCL6 and non-Ig–BCL6 rearrangements.”

According to Lu, “chromosomal rearrangements are common in human cancer. By analyzing chromosomal break sequences collected from patients, we have discovered the fingerprints left by the process that caused the lymphoma.

Lieber described the placement of the study on the journal cover as “an important recognition of the quality and importance of the research.” For Lu, this honor and distinction has energized his passion for research.

“I am excited and will continue to devote myself toward understanding how human lymphomas arise,” Lu said. “Some day this knowledge will help prevent people from getting this and other types of cancer.”



Zhengfei Lu, a PhD candidate at the Keck School of Medicine of USC, is the first author of a research study featured on the cover of the May 30 issue of *Blood*.

PFIZER: USC partnership aims to boost drug development

Continued from Page 1

The laboratories are small, semi-autonomous units located near academic medical centers. Laboratory staff includes both Pfizer employees and medical center postdocs.

Selected USC researchers will have access to Pfizer’s proprietary drug discovery tools and technologies and support for IND (investigational new drug)- and clinical-enabling functions (toxicology, regulatory, etc.)

The research process begins with a pre-proposal and, if successful, a full proposal that is jointly prepared.

Selected researchers enter into a two-year agreement based on agreed-upon deliverables. According to Coyle, current areas of CTI research interest include oncology (antibody drug conjugates, immunomodulator agents, etc.), rare diseases,

immunology/ inflammation, pain and renal disease.

A joint steering committee with equal representation from Pfizer and USC will govern the partnership and have overall accountability for program progress. Steering committee members will include Gruber; Thomas Buchanan, vice dean for research at the Keck School of Medicine of USC and director of the Southern California Clinical and Translational Science Institute; Sarah Hamm-Alvarez, Gavin S. Herbert Professor and executive vice dean at the USC School of Pharmacy; Coyle; Torben Straight-Nissen, managing director of CTI; and Richard Lindberg, California site head for CTI.

“Our researchers share a common goal to see their concepts translated into therapeutic treatments for patients,” said Senior Vice President and CEO for USC Health Tom Jackiewicz.

“This new partnership with Pfizer will be a benefit to both our scientists and, ultimately, the patients they serve.”

Carmen A. Puliafito, dean of the Keck School, added, “Pfizer’s goal for its CTI program is ultimately to bring medical science to the patient bedside in order to treat patients with unmet medical needs, and that fits perfectly with the Keck School’s mission to make scientific discoveries and translate them into improved health.”

Two-page, non-confidential pre-proposals must be submitted to the Office of Foundation Relations at the Keck School of Medicine on or before July 15; all researchers, clinicians and postdocs may apply.

For more information, contact Kavita Munjal, senior executive director for Foundation Relations at the Keck School, at (323) 442-2355 or munjal@usc.edu.

The Weekly NEWSMAKERS

A July 9 report in *Oncology Nurse Advisor* referenced an editorial by **Heinz-Josef Lenz**, professor of medicine and preventive medicine at the Keck School of Medicine, about a new blood test that may identify cancer before a tumor develops in the colon. “MiR-21 may not be ‘just another brick in the wall,’ but rather may be the keystone leading to a molecularly justified, miRNA-based biomarker era in colorectal cancer,” Lenz said.

A July 6 broadcast of CNN’s The Next List” featured **Leslie Saxon**, professor of clinical medicine at the Keck School of Medicine, and her work using technology to improve health. As executive director of the USC Center for Body Computing,

Saxon researches digital tools that allow doctors and patients to monitor health data together. “After 20 years, I finally understand that just telling the patient what to do in a paternalistic way doesn’t result in good outcomes. Patients have to partner with you,” Saxon said. The broadcast also featured an interview with **Joshua Lee**, chief information officer of USC Health.

A July 5 article in the *Los Angeles Business Journal* featured research by **Pat Levitt**, Provost Professor of neuroscience, psychiatry, psychology and pharmacy at USC, and **Natasha Leporé**, assistant professor of research in radiology at the Keck School of Medicine, that could improve treatments for children

with autism and attention deficit hyperactivity disorder respectively.

Brent Polk, chair of pediatrics and vice dean for child health at the Keck School of Medicine, was quoted in the story.

A July 4 broadcast on ABC News Los Angeles affiliate KABC-TV featured research by **Natasha Leporé**, assistant professor of research in radiology at the Keck School of Medicine, and **Douglas Vanderbilt**, assistant professor of clinical pediatrics at the Keck School of Medicine, pinpointing difference in the developing brain that may increase the risk of cognitive disorders like attention deficit hyperactivity disorder. “If we can show that’s predictive of developmental

problems, it could allow us to intervene early,” Vanderbilt said.

A July 5 story on KPCC-FM quoted **Daryl Davies**, associate professor of clinical pharmacy and pharmaceutical economics & policy at the School of Pharmacy, about the impact of federal funding cuts on his research for a drug that could help alcoholics kick their addiction.

A July 3 broadcast on NBC News Los Angeles affiliate KNBC-TV quoted **Jeffrey Upperman**, associate professor of pediatric surgery at the Keck School of Medicine, about firework safety. “Keep kids well away if you’re going to do a show,” Upperman said. “Only adults should be around where they’re going to light these.”

USC study sheds light on stem cell reprogramming

By Josh Grossberg

Researchers are learning how to turn regular cells into stem cells, a process called reprogramming. However, some of the mechanisms of the process remain unknown, such as why only a small proportion of the cells can be reprogrammed. Researchers have at least part of the answer: the structure of genes.

“Nobody knows anything about how the 3-D genome structure is reorganized during reprogramming,” said Wange Lu, associate professor at the Eli and Edythe Broad Center for Regenerative Medicine and Stem Cell Research at USC and the Department of Biochemistry and Molecular Biology at the Keck School of Medicine of USC. “But we found out that it is a very important process. If the structure is not established correctly, the cells may cause diseases when they are used later in clinical applications.”

Lu and his team have made a series of discoveries that shed light on the process. Their findings have been published in the July issue of *Cell Stem Cell*.

The authors chose to examine the structure of the most important gene for stem cell identity, named Oct4. They found that the structure of the gene is different in stem cells compared to other cells. The research further showed that stem cell genome structure is established only in a small percentage of cells before the cells are fully reprogrammed. This suggests building up a stem cell-specific 3-D structure is a prerequisite of generating stem cells.

The researchers observed that the stem-cell-specific organization of the Oct4 gene can facilitate its activation. During reprogramming, the cells that first gain a stem-cell-like structure are much more likely to activate Oct4, which is required for becoming stem cells.

Andrew McMahon, director of the stem cell center, praised Lu’s work. “Dr. Lu’s study adds an exciting new dimension to the organization and interaction of genes in the nucleus regulating the actions of stem cells,” he said.

The findings will help build a foundation of further studies, Lu said. “Knowing the 3-D structure is only the first step of understanding the property of stem cells. Future studies will lead to protocols which can alter the structure and manipulate the cell fate outside the human body for therapeutic applications.



Jon Naitick

SAFETY FIRST — The Injury Prevention Program at Children’s Hospital Los Angeles hosted a free car seat check for families at the USC Child Care Center on June 21, as part of an effort to reduce the potential for accidental injuries. According to the National Highway Traffic Safety Administration, three of four car seats are installed incorrectly, so

CHLA certified safety technicians checked car seats and reinstalled them to assure best placement — and also provided new ones when needed. Pictured, Anne Brison, a postdoctoral student at the Zilkha Neurogenetic Institute, and daughter Julia watch as CHLA trauma researcher Ann Lin demonstrates the proper use of a car seat.

Better patient care? Yes, there’s app for that

By Josh Grossberg

Thanks to some cutting-edge technology, inpatient nurses and Keck Medical Center of USC will soon be able to connect with patients and other nurses and receive critical alarms just by reaching into their pockets.

In August, the center will receive 300 specialty iPhones that will enable inpatient nursing staff to work faster, smarter and easier.

“This will become their communication device,” said Keith Paul, chief technology officer for USC Health Information Services. “The idea is to give them one device to do everything.”

When the devices are fully functional, nurses will be able to receive secure messages from patients and other nurses, as well as emergency alerts. The phones, which will be equipped with larger batteries than normal and a tough shell casing, can also show colleagues when a particular nurse is available.

The phones will synch with KeckCare, the hospital’s new electronic medical record system, which is currently being rolled out.

“In future KeckCare integration, when lab results come back, they can get it on the phone,” Paul said.

For security purposes, the devices will not have cellular abilities and will only function on campus. They will be able to make calls on the

devices, but only through the campus’ secure Internet link.

Nurses currently use old-style cell phones with displays too small to show much data, Paul said.

Paul said he was in the market for new telecommunications devices when the representatives for the company installing KeckCare told him that they could link the system with the phones.

“I had to buy something,” Paul said. “And we had the voice-grade infrastructure.”

Nurses will not be given their own phone. Instead, they will pick one up at the

start of their shift and enter their user identification and password to activate the device. They will return the phones to a charging station at the end of the shift.

Paul said nurses are excited about the phones, but he will see what future integration occurs before deciding whether to expand the use to other areas.

With new apps and technologies becoming available all the time, he thinks devices like this will become more and more common.

“The options are unlimited,” he said. “After all, you’re holding a computer in your hand.”

USC Health Sciences
Public Relations and Marketing
1975 Zonal Ave. KAM 400
Los Angeles, CA 90033

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Calendar of Events

Wednesday, July 17

Noon. ZNI Bioinformatics Seminar. “Co-evolution of Breast to Brain Metastasis and Neural Progenitor Cells,” Josh Neman, City of Hope. ZNI 112. Info: (323) 442-2144.

Friday, July 19

11 a.m. Hematology Grand Rounds. “A Disease Foundation’s Approach to Address the Personalized Medicine Revolution,” Joan Levy, Multiple Myeloma Research Foundation. LAG+USC IPT Conference Room D. Info: (323) 865-3950

Thursday, July 25

6:30 p.m. – 8 p.m. Health Matters: USC Physicians Discuss Health Topics You Care About. “Gastrointestinal Cancer Innovative Surgical Techniques,” Dilip Parekh and Kyle Cologne, USC. University Club of Pasadena, 175 N. Oakland Ave., Pasadena. RSVP and Info: (323) 442-2830

Friday, July 26

11 a.m. Hematology Grand Rounds. “Mechanism of Hemostasis,” Howard Liebman, USC. LAG+USC IPT Conference Room D. Info: (323) 865-3950.

Thursday, Aug. 8 – Friday, Aug. 9

7:30 a.m. – 4 p.m. 4th Annual Pain Management Symposium. Registration is currently open for the upcoming continuing medical education course. NRT Aresty Auditorium. Info and registration: 323 442-2555

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.



In case of an emergency...

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

Visit the USC Web: <http://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.