

Zach Hall assumes new role as director of Zilkha Institute

Zach W. Hall, a renowned scientific leader who has become the driving force behind the Keck School of Medicine's basic science recruitment efforts, has been named director of the Zilkha Neurogenetic Institute.

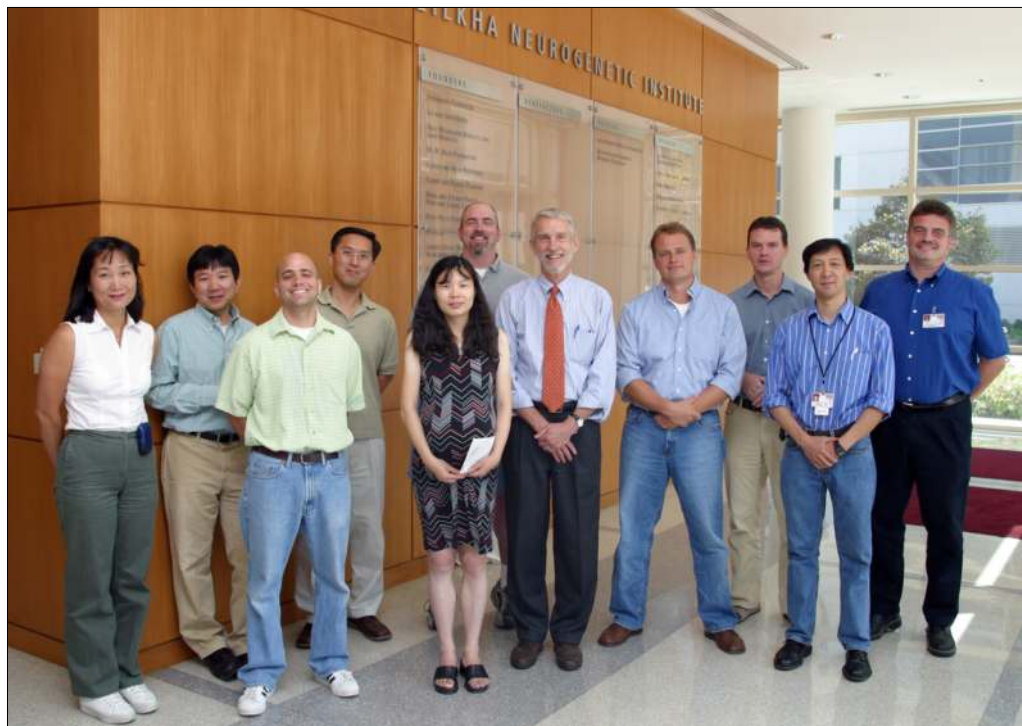
Hall will be continuing the work begun by Keck School Dean Brian E. Henderson to create an environment that catalyzes interdisciplinary research collaborations between basic and clinical sciences—and that ultimately leads to cutting-edge scientific findings and treatments for a wide range of neurological and psychiatric disorders.

In accepting these new responsibilities, Hall will give up his position as senior associate dean for research on Oct. 1. He will continue to oversee the recruitment of research faculty, however, in the newly created position of senior associate dean for academic development.

"Over the past couple of years, Zach has been largely responsible for the recruitment of new faculty to the Keck School," said Henderson. "Now he'll be mentoring them as well."

The Zilkha is a perfect place for Hall to take on this expanded role, Henderson added.

An internationally acclaimed neuroscientist who spent much of his career making fundamental contributions to the investigation of the molecular structure and function of the neuromuscular junction, Hall also led from 1994 to 1997 the National Institute of Neurological Disorders and Stroke—one of the National Institutes of Health. During that time, he shepherded the institute through a major reorganization of its research programs, increased its budget from \$650 million to \$740 million and oversaw a staff of more than 700 scientists and administra-



Jon Malick

The Zilkha's roster of faculty, which continues to grow, now includes (from left) Jeannie Chen, Li Zhang, David Conti, Woojin An, Huizhong Tao, Judd Rice, Zach Hall, Ralf Langen, Janos Peti-Peterdi, Robert Chow, Martin Kast.

tors. Before coming to the Keck School in 2002, Hall served on the external advisory committee that was

charged, in part, with guiding the formation of the Zilkha Neurogenetic Institute.

"I'm delighted to be in this position at the Zilkha," Hall said. "This See **ZILKHA**, page 2

Class of 2008 feted in white coat ceremony

Entering freshmen at the Keck School of Medicine of USC underwent their traditional rite of passage on Aug. 20, receiving crisp, new doctor's jackets in the school's annual White Coat Ceremony.

Welcomed by the school's new leader, Dean Brian E. Henderson, and Clive R. Taylor, senior associate dean for educational affairs, the students eagerly donned their coats as symbols of their hard-earned status as physicians-in-training.

In addition to listening to inspiring remarks from keynote speaker Raquel Arias, associate professor of obstetrics and gynecology and associate dean for women, and Peter Katsufakis, associate dean for student affairs, students also took the Hippocratic Oath, promising to aid and protect their patients throughout their future careers.

Members of the class of 2008 are a special group, according to school leaders. Out of 5,107 students who applied to the school, only 168 students were selected and enrolled.

Women make up 54 percent of the freshman class, continuing a national trend of increasing female enrollment in medical school.

Three of every four Keck freshmen comes from



Linda Werner

Keck School of Medicine Dean Brian Henderson presents a first-year student Bonny Lee with her white coat.

California, officials said. Overall, students come from 30 states, 15 countries, and 59 colleges and universities.

And their college achievement was exceptional: Their average undergraduate grade point average was 3.60, while their Medical College Admissions Test scores were nearly 33. Interestingly, 17 students were participants in the Baccalaureate/M.D. program, while eight students enrolled in the M.D./Ph.D. program.

Officials also noted that members of the class are, quite simply, interesting people:

- Of the class, 52 participated in sports while in col-

See **COAT**, page 3

Study shows new drug zeroes in on cancer cells

A novel anti-cancer drug that inhibits a process known as DNA methylation is preferentially taken up by tumor cells as compared to normal cells, according to a group of researchers led by scientists from the Keck School of Medicine.

In addition, this drug—a methylation inhibitor called zebularine—is effective at inhibiting cell growth and promoting gene expression in cancer cells, noted Peter Jones, director of the USC/Norris Comprehensive Cancer Center and the principal investigator on the study. In a study of zebularine's effect on the rate of division of cancer cells, Jones and colleagues showed that zebularine slows growth by as much as 68 percent in cancer cells, but only by 21 percent or less in normal cells.

These findings were reported in the August 2004 issue of *Cancer Cell*.

Only recently have scientists begun to recognize the important role that DNA methylation—the



Peter Jones

addition of a methyl group to a stretch of DNA, which can lock, or silence, that gene—can play in the development of cancer.

If methylation silences a gene that normally would control cell growth or prompt the cell to commit suicide, then the cell will grow unchecked—the hallmark of cancer.

The good news: Methylation—and its effects—can be reversed. Enter the emerging field of epigenetic therapy, in which methylation inhibitors are playing a key role.

"The concept that the silencing of genes is a critical part of the cancer process is a major conceptual advance in this field," Jones said. "Realizing that, it becomes very important to find keys to unlock those silenced genes."

In the *Cancer Cell* study, Jones, M.D./Ph.D. student Jonathan Cheng, and graduate student Christine Yoo—along with colleagues from the See **DRUG**, page 2

National Cancer Institute honors USC cancer researcher

Mimi C. Yu spends her days illuminating potential causes of cancer; now her peers are shining the spotlight on her.

Yu, professor of preventive medicine at the Keck School of Medicine of USC, has received the National Cancer Institute's Division of Cancer Epidemiology and Genetics (DCEG) Special Recognition Award in appreciation for her many contributions to the field.

A USC investigator since 1978, Yu has steadily built a body of research focused on identifying lifestyle and environmental causes of cancer and how genetic factors modify the level of risk in exposed individuals.

From her base at the USC/Norris Comprehensive Cancer Center, Yu has conducted extensive studies on diet and cancer,

viral hepatitis and other risk factors in liver cancer, analgesics and other risk factors in kidney cancer, and arylamine exposure in bladder cancer.

Yu is principal investigator for the Singapore Chinese Health Study, which comprises more than 63,000 men and women ages 45-74 in Singapore.

The prospective study has greatly advanced what is known about dietary and lifestyle factors and their interaction with genetic factors important to the development or deterrence of cancer.

But Yu also has served the international community of cancer researchers in other



Mimi C. Yu

ways. During the 1980s and 1990s, she served three terms on the National Cancer Institute's Board of Scientific Counselors, which advises the institute on its future research directions and evaluates the progress of programs within the institute.

Yu chaired the advisory group for the institute's Breast Implant Study, a long-term follow-up of 13,500 women who received silicone breast implants.

She also chaired the data safety monitoring board for the Shandong Intervention Trial, a study to determine if certain vitamins and minerals and garlic could delay the progres-

sion of precancerous gastric lesions in people in the Chinese province of Shandong. Gastric cancer is the leading cause of cancer deaths in China.

According to the DCEG, Yu's "expertise and dedication were crucial to ensuring that these studies were conducted according to the highest standards."

Yu also continues to chair the advisory committee for the ongoing Long Island Breast Cancer Study Project.

The National Cancer Institute previously honored Yu with its Outstanding Investigator Award. The Special Recognition Award was announced at the Board of Scientific Counselors meeting in July.

—Alicia Di Rado

CHLA makes pediatric cancer drug more effective—and tasty

Researchers at the USC-CHLA Institute for Pediatric Clinical Research have found a way to make a common chemotherapy a little more palatable for kids: turning it into a powder that tastes like raw cookie dough.

The formulation of fenretinide is the first one ever specifically designed to make it easier for pediatric cancer patients to take their medicine, a feat that garnered the research team a prize at a recent national conference.

The research team at Childrens Hospital Los Angeles included Barry J. Maurer, assistant professor of pediatrics and cell and neurobiology at the Keck School of Medicine of USC, and C. Patrick Reynolds, professor of pediatrics and

pathology at the Keck School and director of the Developmental Therapeutics Program at the Institute for Pediatric Clinical Research. Medical doctors David Yesair of BioMolecular Products Inc. and Walt Shaw of Avanti Polar Lipids Inc. were industry partners on the research team.

Maurer explained that improving drug formulations for children is important not only because adult forms may be unwieldy for kids, but also because there may be more effective ways to get the drugs into the system.

"A past problem with fenretinide has been that its large capsules are difficult for children to swallow and hard for the body to absorb,"

Maurer said. In the new formulation, the fenretinide is encased in a sort of glove of fats—going by the trademark of Lym-X-Sorb—that helps carry the drug into the bloodstream.

The new fenretinide formulation can be "mixed with food or drinks to make it easy for children to take," Maurer said. More importantly, the new fenretinide powder appears to be much better absorbed than the capsules and the researchers hope that getting more drug into the body will increase its anti-tumor effect.

The new fenretinide formulation was awarded the 2004 Eurand Award Grand Prize for Novel Approaches in Oral Drug Delivery at the 31st Annual Meeting and Exposition of the

Controlled Release Society in Honolulu in June. The Controlled Release Society is the world's largest professional society dedicated to drug formulations. A clinical trial of the new fenretinide formulation in children with cancer, led by Maurer, will begin later this year.

The fenretinide formulation work is supported, in part, by the National Cancer Institute (NCI) Rapid Access to Intervention Development Program, which supports drug development by investigators in academic institutions. NCI investigators Rao Vishnuvajjala and Shanker Gupta also supported the project.

The USC-CHLA Institute for Pediatric Clinical Research was established in 2004 with an anonymous gift of \$15 million to develop new strategies for the prevention and cure of serious childhood diseases.

—Alicia Di Rado

DRUG: Fungus derivative is shown to inhibit DNA methylation

Continued from page 1

National Cancer Institute, the University of Miami School of Medicine, and Aarhus University Hospital in Denmark—looked at the effects zebularine had on a panel of seven different human tumor cell lines, and compared them to its effects on four different cell lines of normal human fibroblasts, which are cells that produce collagen fibers and retain an ability to differentiate and grow. The difference between tumor cells and normal fibroblasts is that the growth of tumor cells tends to continue unchecked.

What the researchers found was that, in all seven cancer cell lines, treatment with zebularine slowed tumor-cell growth by anywhere between 32 and 68 percent. The fibroblasts, on the other hand, showed only a 12 to 21 percent slowdown. Much of the difference, Jones notes, comes from the way zebularine is preferentially taken up by the cancer cells.

Finally, zebularine appears to bring about this change by demethylating specific genes in

the cells—in particular, the p21 gene.

"Our results demonstrate that zebularine can be selective toward cancer cells and may hold clinical promise as an anti-cancer therapy," the researchers wrote.

Zebularine's inhibition of DNA methylation was first discovered in experiments on a filamentous fungus by Eric Selker of the University of Oregon, said Cheng, who is one of the first authors on the *Cancer Cell* paper. "It was completely unexpected," Cheng added. "And we have since shown that it can work the same way in mammalian cells."

In a previous study published in the *Journal of the National Cancer Institute* in March 2003, Jones and Cheng showed that zebularine can reduce the size of tumors in mice even when given orally, and that it does this tumor-whittling by turning on tumor suppressor genes that had been turned off through methylation. "This was the first time this type of drug has been able to reactivate silenced genes through oral administration," noted Jones.

This new study published in *Cancer Cell* not only adds to the optimism surrounding zebularine that was generated by the earlier research, but also creates a renewed sense of hope that, because zebularine is not taken up by cancerous and normal cells at the same rate, the drug will cause fewer side effects than other anti-cancer therapies.

Future work will focus on replicating these results with other normal and tumor cell lines, as well as investigating the specifics behind zebularine's preferential uptake by the tumor cells, Jones says.

This work was supported by a grant from the National Institutes of Health.

Jonathan C. Cheng, Christine B. Yoo, Daniel J. Weisenberger, Jody Chuang, Chandra Wozniak, Gangning Liang, Victor E. Marquez, Sheldon Greer, Torben E. Orntoft, Thomas Thykjaer, Peter A. Jones, "Preferential response of cancer cells to zebularine." *Cancer Cell*, Vol. 6, August 2004.

—Lori Oliwenstein

ZILKHA: Neurogenetic Institute home to increasing numbers of recruits

Continued from page 1

brings me back to my roots in neuroscience, and lets me do what I do best, which is fostering the careers of young scientists."

Since the Zilkha Neurogenetic Institute opened its doors in January 2003, it has seen a steady stream of new recruits and established researchers take up residence within its halls,

many of whom were brought on board by Hall.

"We have a wonderful group of young scientists here at the Zilkha," Hall said. "The challenge for the future is to add to this group, and to create a center of excellence in neuroscience within the Keck School of Medicine that will bring national prominence and recognition to the school."

"The Zilkha is a major undertaking and it's heartening to know that Zach is at the core of it," Henderson said. "This institute is one of our first major new initiatives since the USC/Norris Cancer Center, and it's important that it succeed. I know that Zach will do everything he can to make it happen."

—Lori Oliwenstein

HSC Weekly

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COAT: Ceremony honors physicians-in-training

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lege—ranging from water polo to figure skating.

- Arts were also an interest, with 45 participating in theatre, dance, music, sculpting, painting and photography.

- Work and travel experiences varied widely. Freshmen include students who performed missionary work in Scotland, did community health work in Kenya, farmed in Central America, worked as a busi-

ness analyst, played professional football for the Green Bay Packers, translated for physicians in Mexico, worked as an assistant for ABC News Moscow, authored children's books and taught algebra.

The event was held in the HSC Quad and was sponsored by Salerni Collegium and Medical Faculty Wives and Friends, as well as the Arnold P. Gold Foundation and the Robert Wood Johnson Foundation.

In addition to the white coat cer-

emony, Keck School leaders presented faculty teaching awards during the afternoon event (see accompanying graphic below.)

Other schools and professional programs also held white coat ceremonies to coincide with the start of the new school year. The USC School of Pharmacy held its event on Aug. 20, while the Department of Physical Therapy and Biokinesiology staged its ceremony on Aug. 26.

—Alicia Di Rado

2004 Faculty Teaching Award Winners

Year I faculty awards

Todd Forman, Department of Family Medicine
Joseph Miller, Department of Cell & Neurobiology
Darin Signorelli, Department of Psychiatry
Bernard Slavin, Department of Cell & Neurobiology

Year II faculty awards

David Berman, Department of Cell & Neurobiology
Todd Forman, Department of Family Medicine
Rayudu Gopalakrishna, Department of Cell & Neurobiology
Mitra Nadim, Department of Medicine
Mikel Snow, Department of Cell & Neurobiology

Year III faculty awards

Todd Forman, Department of Family Medicine
Akikur Mohammad, Department of Psychiatry
Ali Salim, Department of Surgery
George Velmahos, Department of Surgery
Jeffrey Uy, Department of Psychiatry

Year IV faculty awards

Jonathan Lopresti, Department of Medicine
Frank Sinatra, Department of Pediatrics
Shirin Towfigh, Department of Surgery

Outstanding teaching in Introduction to Clinical Medicine

Year I: Karen Tsoulas
Year II: Todd Forman

Outstanding teaching in Professionalism and the Practice of Medicine

Mikel Snow, Department of Cell & Neurobiology
Arnold Mulder

Outstanding teaching as a house officer

Kanyar Afshar, Department of Medicine
Jimmy Firouz, Department of Surgery
Kristen Forman, Department of Medicine
Breck Nichols, Department of Medicine
Michael Polisky, Department of Medicine

Outstanding teaching as a non-faculty instructor

Todd Chang

Outstanding Year I course

Hematology: Alexandra Levine and Clive Taylor, co-directors

Outstanding Year II course

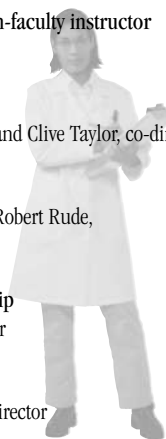
Endocrine: Harvey Kaslow and Robert Rude, co-directors

Outstanding required clerkship

Surgery: Shirin Towfigh, director

Outstanding selective/elective

Cardiology: Enrique Ostrzega, director



Sarah Huoh

HEAVY METAL—Workmen hoist an MRI scanner to the Department of Radiology's new Imaging Center in the HCC II building on Aug. 8. The Imaging Center, which features state-of-the-art equipment and technology, is fully digital and no longer uses traditional film X-rays. With its new Picture Archiving and Communication System, referring physicians can now see images anywhere, anytime, using standard Web-browser technology within minutes after a scan is complete. The Imaging Center is now open to patients on the Lower Level of HCCII.

Newsmakers

An August 24 KCAL-TV Channel 9 story looked at an anti-cancer drug study by USC/Norris researchers **Peter Jones** and **Jonathan Cheng**. The study also received coverage from KFWB-AM, KFI-AM, *Sing Tao Daily*, *Korean Times*, *Korean Daily*, Xinhua (China) News Service, City News Service, *Medical News Today*, *Chinese Daily News*, the China Press and Germany's *Aerzte Zeitung*.

An Aug. 18 *Los Angeles Times* editorial highlighted the hazards of cosmetics and cited a hair dye and cancer study led by **Mimi Yu**.

An Aug. 18 KNBC-TV Channel 4 story profiled Olympic swimmer Gary Hall Jr. and his fight against diabetes. Also included in the story was his physician, diabetologist **Anne Peters**.

An Aug. 17 *USA Today* Web site story focused on acid reflux disease and quoted surgeon **Cedric Bremner**.

An Aug. 16 *Wall Street Journal* story on Taiwan's ability to deal with SARS quoted microbiologist **Michael Lai**. The story also appeared in the Associated Press and *New York Newsday*.

The August issue of Southwest Airlines' *Spirit Magazine*

included a story on sleep disorders and quoted psychopharmacologist **Michael Wincor**.

A study on Latino eye disorders by Doheny Eye Institute's **Rohit Varma** appeared on the front page of the Aug. 10 *Pasadena Star-News*, in the Aug. 16 *Los Angeles Times* and on KNX-AM, *San Jose Mercury News*, *Whittier Daily News*, KMEX-TV Channel 34, CBS Radio and nearly a dozen more newspaper and Web sites.

On Aug. 5, KCAL-TV Channel 9 and KCBS-TV Channel 2 aired segments on an Alhambra high school senior working in the lab of USC/Norris cancer researcher **Robert Haile**. An Aug. 4 article in the *Pasadena Star-News* also profiled the student and included quotes from lab director **Anh Diep**.

An Aug. 4 *Kansas City Star* article covered a visit by a 15-year-old aspiring surgeon with USC/Norris breast cancer surgeon **Melvin Silverstein**. The Kansas high-school student contacted Silverstein after seeing his appearance on the Discovery Health series, "Lifeline: USC Medical."

On Aug. 4, *Sing Tao Daily News* interviewed molecular pharmacologist **Jean Shih** for a story in the Society of Chinese Bioscientists in America meeting in Beijing. Shih also did inter-

views with the *Chinese L.A. Daily News*, *People's Daily* and CCTV-4 TV, one of China's largest television networks.

A July 19 *New York Times* article about the psychology of terrorism quoted neurologist **Jeff Victoroff** on the possibility of a "terrorist personality."

The July 18 issue of *Parade* magazine looked at the retinal implant project conducted by ophthalmologists **Mark Humayun** and **Eugene de Juan Jr.** *Parade* has a weekly circulation of 35 million.

On July 17, the *Economist* included a quote from health-care economist **Bill Schwartz** in an article about health-care spending in America.

A July 16 front-page *Los Angeles Times* article about Medicare's revised policy to treat obesity as a disease included a quote from internal medicine's **Peter Pressman**.

A June 4 story in the *Medical Newspaper*, a twice-weekly physicians' publication in the former Soviet Union, profiled Keck School neurosurgeon **Michael L. J. Apuzzo**. It chronicled Apuzzo's career, highlighted his vision for neurosurgery and described advances in minimally invasive neurosurgery.

Olympic Games' aquatic events are served with splash of HSC

The American Olympics contingent at Athens this year boasts two women from the Health Sciences Campus—one competing as a water polo player and one responsible for managing a star swimmer's diabetes.

Robin Beaugard, a first-year student in the Department of Physical Therapy and Biokinesiology, and her teammates on the U.S. Women's Water Polo Team, won a bronze medal on Aug. 26 after a 6-5 win over the Australian team. Beaugard made one of the six U.S. goals.

"This is the hardest game you play in because there's no consolation prize for the losers," Beaugard was quoted as saying to the *San Jose Mercury News*. "You could tell both teams were really fighting out there."

Meanwhile, Anne Peters, professor



Kirby Lee



Mark Harmel

Left, USC physical therapy student Robin Beaugard, seen at an international water polo tournament held in Long Beach, plays for the U.S. Olympics Women's Water Polo Team. Right, USC physician Anne Peters consults with U.S. Men's Swim Team member Gary Hall.

of medicine at the Keck School of Medicine and director of the USC Clinical Diabetes Program, served as physician for swimmer Gary Hall Jr., who raced to a first-place finish and a

gold medal on Aug. 20 and also received a bronze medal for his team's finish in the 400-meter freestyle relay on Aug. 21.

This trip to compete in the

Olympic Games is Hall's third, and his second under the medical guidance of Peters, who has helped Hall monitor and control his diabetes throughout his training.

Peters is documenting her experiences online at www.medscape.com (type in "olympics dispatch" in the search field to view her articles).

—Jon Nalick

Calendar

Wednesday, Sept. 1

Noon. "Lymphoid Tyrosine Phosphatase and Autoimmunity," Nunzio Bottini, The Burnham Inst. CSC, IGM Aud. Info: 442-2766

Tuesday, Sept. 7

8 a.m. Pathology Grand Rounds. "Epstein-Barr Virus," Lawrence Weiss, City of Hope. KAM, Mayer Aud. Info: 226-7148

Wednesday, Sept. 8

Noon. "Transcription Factor Oct-1 in and out of the Immune System: A New Role as a Stress Sensor," Dean Tantin, MIT. CSC, IGM Aud. Info: 442-2766

Thursday, Sept. 16

Noon. GI Liver Research Seminar. "The Role of MAT and SAME in Liver Health and Disease," Shelly Lu, USC. AHC Aud., 102. Info: 442-1283

Wednesday, Sept. 22

8 a.m. Medicine Grand Rounds. "Nephrotic Syndrome," Saeid Nosrati, USC. GNH 1645. Info: 226-7591

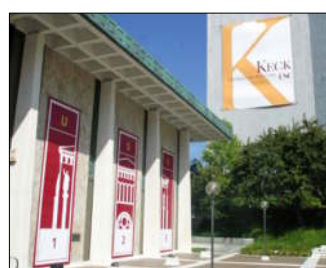
Thursday, Sept. 23

Noon. GI Liver Research Seminar. "Lessons from the Micropig Model of Alcoholic Liver Disease,"

Charles Halsted, UCD. AHC Aud., 102. Info: 442-1283

Thursday, Sept. 30

Noon. GI Liver Research Seminar. "Transcription and Signaling by Cholesterol and Bile Acids," Peter Edwards, UCLA. AHC Aud., 102. Info: 442-1283



A BANNER DAY AT HSC—

Colorful new banners adorn the buildings surrounding the Quad as part of USC's kick-off to its 125th anniversary project, "1880-2005: Inventing the Future, Honoring the Past."



Jon Nalick

Notice: **Deadline for calendar submission is 4 p.m. Tuesday** 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 HSC Weekly, DEI 2510 or fax to (323) 442-2832, or e-mail to lpratt@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.

The HSC Calendar is online at <http://www.usc.edu/hscalendar>

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HSC Weekly is in its summer publication schedule and will appear approximately every other week until mid-September.