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Norris Foundation gives $15 million for clinical care center

The University of Southern California has announced an expansion of cancer care facilities made possible by a $15 million donation from the Kenneth T. and Eileen L. Norris Foundation.

The gift will support construction on the USC Health Sciences campus of a new outpatient clinic building that will be named the Norris Healthcare Consultation Center. The building will feature leading-edge technology and house multidisciplinary clinics focused on cancer care, including areas for radiation therapy, imaging and infusion therapy.

The Kenneth T. and Eileen L. Norris Foundation's long history of support for the USC Norris Comprehensive Cancer Center and USC Norris Cancer Hospital has helped to create one of the premier cancer centers in the nation. With this latest gift, the foundation reaffirms its continuing commitment to making cancer a disease of the past.

"Having had a long and successful relationship with both USC and the Keck School of Medicine, we've seen how cancer patients are treated much more on an outpatient basis than they used to be," said Harlyne Norris, trustee and past chairman of the Kenneth T. and Eileen L. Norris Foundation. "This new facility will transform the way people with cancer are treated today and in the future. We're very privileged to be able to help keep USC on the cutting edge of cancer treatment."

The $15 million donation from the Norris Foundation is the lead gift toward the new building. The gift will be augmented by additional philanthropic support that will be raised as part of the Campaign for the University of Southern California.

"We are very grateful to the Norris family and foundation for their unwavering support of our fight against cancer and for their longstanding commitment to USC," said C. L. Max Nikias, president, University of Southern California.

See **NORRIS**, page 3

Jon Nalick

From left: Peter Jones, Distinguished Professor of Urology and Biochemistry & Molecular Biology; Stephen Gruber, director of the USC Norris Comprehensive Cancer Center; Harlyne Norris, trustee and past chairman of the Kenneth T. and Eileen L. Norris Foundation; William Corey, trustee and medical consultant for the Norris Foundation; and Mitch Creem, CEO of USC hospitals.

'This new facility will transform the way people with cancer are treated today and in the future.'

—Harlyne Norris, trustee and past chairman of the Kenneth T. and Eileen L. Norris Foundation

USC professor elected to Russian Academy of Sciences

By Sara Reeve

Vladimir Zelman, clinical professor and co-chair of anesthesiology at the Keck School of Medicine of USC, was elected to the Russian Academy of Sciences (RAS) in December at the academy's annual meeting. He was nominated by the academy's medical and biological division in recognition of his outstanding contributions to medical science.

Vladimir Zelman

"I consider that to belong to this academy is a great honor for me, and I am very appreciative that they recognized me in my field," Zelman said. "This is the highest level of intellectual community in Russia. It's very prestigious."

Founded by Russian czar Peter the Great in 1724, the Russian Academy of Sciences is the preeminent scientific institution in Russia. According to the academy's website, its main goal is "organizing and conducting basic research aimed at obtaining new knowledge about the laws of nature, society, human rights and contributing to the technological, economic, social and spiritual development of Russia."

Known and honored for his expertise in critical care medicine, Zelman has worked at USC for more than 30 years, during which he has worked to further academic and medical ties between the U.S. and Russia.

"Dr. Zelman's election to the academy is a great honor and wonderful recognition of his accomplishments as a clinician and diplomat," said Carmen A. Puliafito, dean of the Keck School of Medicine. "We are very proud to have him at USC."

See **ZELMAN**, page 2

Bending of cell membranes explored at Zach Hall Lecture

By Amy E. Hamaker

Researchers have known that cell membrane structures are constantly—and often dramatically—being reshaped. Researchers also know that proteins play a role, but have not known the exact mechanisms that fuel these changes. Disruption of these mechanisms, however, can cause a variety of diseases.

Ralf Langen, professor in the Department of Biochemistry and Molecular Biology at the Keck School of Medicine of USC and a member of the Zilkha Neurogenetic Institute (ZNI), shared some findings on these mechanisms with an audience of Keck School students, faculty and researchers during the Second Annual Zach Hall Lecture, held Nov. 29, at the ZNI Herklotz Seminar Room.

During his lecture "How proteins bend membranes in cellular functions and disease," Langen explained that the way cell membranes and proteins interact is a key to many different biological functions. Proteins regulate the composition, fluidity, permeability and curvature of the membranes, while the membranes affect the structure and function of proteins.

Using a combination of electron paramagnetic resonance and electron microscopy, Langen and his lab found that the proteins endophilin and amphiphysin use different mechanisms to bend cell membranes into vesicles and tubules, respectively.

Langen was joined by keynote lecturer Huda Y. Zoghbi, professor in the Departments of Pediatrics, Molecular and Human Genetics, and Neurology, and in the division of neuroscience at Baylor College of Medicine, Howard Hughes Medical Institute. Zoghbi gave the presentation "Mechanisms underlying

See **LECTURE**, page 2

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At the second annual Zach Hall Lecture are, from left: Zach Hall, keynote speaker Huda Y. Zoghbi, featured speaker Ralf Langen, Julie Giacobassi and Pat Levitt, director of the Zilkha Neurogenetic Institute.

ZELMAN: Russian Academy hails career achievements of USC professor

Continued from page 1

According to Zelman, the selection process reviews a candidate's contributions to the world of science, as well as to the building of cooperation between Russia and the international scientific community.

When he learned that he was being considered for election, Zelman said he was both "nervous and not nervous. There was no question that I would like to be elected, but I knew that to be considered for membership in the Academy of Sciences, you had to have made a big contribution to science."

According to Zelman, foreign members (any members who are not current Russian citizens) are elected every three years.

Several active members of the international scientific community were elected as foreign members at the December 2011 meeting.

World-renowned physicist Roald Sagdeev, distinguished university professor at the University of Maryland and member of the RAS for more than 40 years, noted that the academy has a long history of maintaining its scientific independence, despite years of Soviet government pressure.

"During Soviet times, the government tried to convert it into a kind of handy instrument, and it eventually created serious political problems," he said. "The members stood for independence and withstood the pressure of the government. … Throughout his life, during Soviet times and when he left and came here, Vladimir Zelman had to withstand lots of political pressures, and he did it gracefully, showing his real civic pride."

Zelman received his medical degree in 1959 from the Novosibirsk Medical Institute (now known as the Novosibirsk State Medical University), located in the largest city in Siberia.

He immigrated to the United States in 1977, settling in Los Angeles, where he completed his residency and fellowship in anesthesiology at UCLA. The primary responsibility of members of the Russian Academy of Sciences is to enrich science with new achievements.

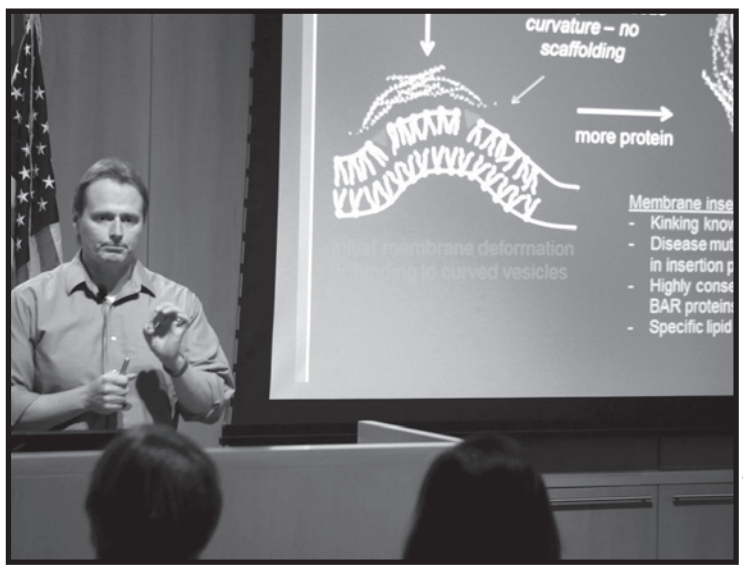
LECTURE: Researchers focus on cell membranes

Continued from Page 1

pathogenesis of an inherited ataxia and relevance to other neurodegenerative diseases." A poster session and reception followed the speakers.

The annual Zach Hall Lecture honors ZNI founding director Zach Hall, who was present at this year's event.

Pat Levitt, current ZNI director, provost professor of neuroscience, psychiatry, psychology & pharmacy, and chair of the Department of Cell and Neurobiology at the Keck School, introduced Hall, Langen and Zoghbi, and gave an introductory background of Hall's contributions to science at USC.



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Ralf Langen, professor in the Department of Biochemistry and Molecular Biology at the Keck School of Medicine, shares his findings at the Second Annual Zach Hall Lecture, held Nov. 29.

Take *The Weekly* readership survey

To make *The Weekly* more responsive, useful and informative, we are conducting an online readership survey through late-January.

We will compile the survey results and report back in the new year with a story on your feedback, as well as on any changes to this publication that we feel are appropriate based on survey responses.

Please take five minutes to complete the survey at: https://www.surveymonkey.com/s/theweekly.

Respondents will be entered into a drawing for a $25 USC Bookstore gift card.

TheWeekly **Next Issue: Jan. 27**

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The Weekly In Memoriam

Manbir Singh, professor of radiology and biomedical engineering, died recently while visiting family in India. He was 66.

After receiving his Ph.D. in physics from UCLA, Singh conducted postdoctoral studies in biomedical physics at the university's Laboratory of Nuclear Medicine and Radiation Biology.

Later, he spent one year at the Mayo Clinic, Rochester, Minn., as a visiting scholar of the American Heart Association, where he did the first studies in single photon emission computed tomography (SPECT). He joined the Department of Radiology at USC in 1977 and received a joint appointment in Biomedical Engineering in 1988.

He pioneered the use of SPECT to detect and quantify acute myocardial infarctions in three dimensions, and he was one of the first investigators to demonstrate the synergism of X-ray CT and nuclear medicine SPECT imaging in detecting and visualizing both the anatomy and function of the heart.

Singh was the nationally elected AdCom representative for nuclear medical sciences in the Institute of Electrical and Electronics Engineers (IEEE) Nuclear and Plasma Society (NPSS) from 1986-1989, co-founder of the IEEE Medical Imaging Conference in 1990, and the technical chair for Nuclear Medical Sciences within IEEE NPSS from 1991-1993.

During the mid 1980s he also proposed the concept of using magnetoencephalography (MEG) to image the electrical activity of neuronal sources inside the human brain and operated a superconducting quantum interference device MEG lab at USC.

His latest interests were in functional MRI and diffusion tensor imaging (DTI) tractography with applications of DTI to Alzheimer disease and traumatic brain injury. He was founder and director of the neuroimaging core at USC, which develops new methodology in fMRI and DTI.

Singh was also the founding director of the graduate program in biomedical imaging within the Department of Biomedical Engineering at USC.

Keck School of Medicine alumnus and longtime supporter **D. Gordon Johnston** died in late November 2011, at the age of 89. Johnston was an author, physician, marine biologist, inventor and entrepreneur who provided scholarships for Keck students, and he was the benefactor behind the Hoyt Gallery in the Keith Administration Building.

After graduating from the Keck School, Johnston completed a residency in pathology at Case Western Reserve University and a fellowship in physiological research at the Institute for Medical Research in California. He went on to be a clinical professor of medicine in oncology and hematology at UCLA School of Medicine.

Johnston served in the U.S. Navy during World War II and as a medical officer in the Air Force during the Korean War. He later served as a consultant to the U.S. Naval Underwater Warfare Laboratory. He held several technical patents and founded several high-tech companies.

Johnston's published works included dozens of scientific articles, as well as three novels including *Lethal Mutation*, a science-fiction thriller, and *Desert Winds*, a fictionalized memoir of his childhood days in a small ranching town in Utah.

Johnston lived with his wife, Suzanne, an artist, in a small Southern California beach town. He is survived by four children, all of whom graduated from USC, 13 grandchildren and two great grandchildren.

NORRIS: Proposed new building will facilitate cancer patient services

Continued from Page 1

"Harlyne Norris has been an exemplary trustee and key advisor to me. This generous gift will bolster our ability to set new standards in cancer care, not only in Los Angeles but in our region and beyond."

The proposed site of the new clinical building is an area currently used as a surface parking lot, bounded by USC's Healthcare Consultation Center I to the south and Healthcare Consultation Center II to the west. Planning for the new building is currently under way.

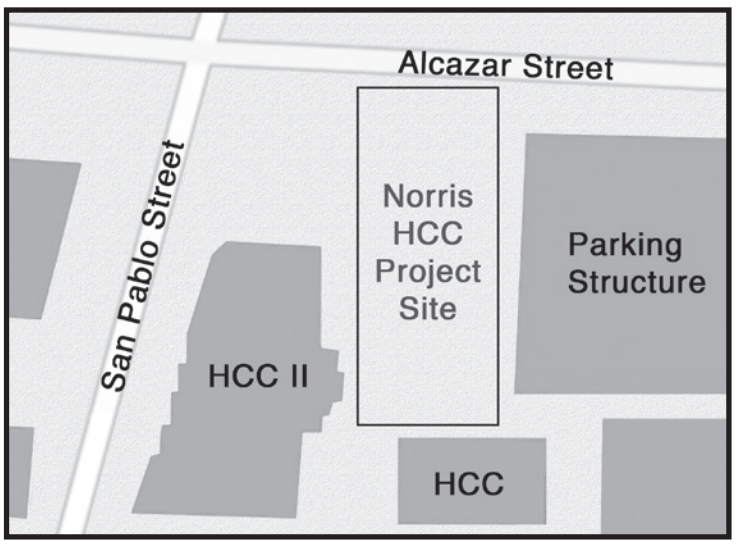
The overall strategy for the expansion and development of clinical, research and educational space on the USC Health Sciences Campus was set out in a master plan approved by the USC Board of Trustees on Jan. 26, 2011. This long-range development strategy looks forward to 2035, and over that time span, space devoted to patient care is planned to nearly double—from just over one million square feet to more than two million. This dramatic expansion represents a measure of the university's investment in the future health of the people of Los Angeles and the surrounding community.

USC officials noted that this latest gift from the Norris Foundation is evidence of the growth and impact of the newly named Keck Medical Center of USC and its commitment to improve and expand services for patients.

"We are deeply grateful for this gift that will allow us to grow and continue to provide the most advanced, personalized, intimate care for our patients," said Stephen Gruber, director, USC Norris Comprehensive Cancer Center. "The Norris gift will provide a world-class outpatient facility that matches the world-class talent of our physicians, nurses, and staff and the care they provide to our patients."

Currently, outpatient care for cancer patients is provided at USC Norris Cancer Hospital in a building designed in the late 1970s and dedicated in 1983. Moving ambulatory cancer care, along with other special services, to the new Norris Healthcare Consultation Center will facilitate the delivery of the highest level of patient service in a dedicated, state-of-the-art clinical building.

"Over 30 years ago Kenneth Norris Jr. provided the visionary gift and inspiration to assist USC in securing the National Cancer Institute grant to establish one of the nation's original NCI-designated comprehensive cancer centers and hospital—in his words, 'to make cancer a disease of the past,'" said William Corey, trustee and medical consultant for the Norris Foundation. "The trustees continue to honor that commitment."



The $15 million Norris Foundation gift will support construction on the USC Health Sciences campus of a new outpatient clinic building that will be named the Norris Healthcare Consultation Center.

The Kenneth T. and Eileen L. Norris Foundation is a not-for-profit foundation established in 1963 and based in Long Beach, Calif. The Norris Foundation has a long and extensive history of giving to USC, beginning with the philanthropic work of Eileen and Kenneth True Norris, who funded the Norris Medical Library, the Eileen L. Norris Cinema Theatre and the Norris Dental Center at USC. This latest gift of $15 million brings the foundation's total giving to nearly $200 million.

"State-of-the-art cancer research and treatment is incredibly important to the Keck School of Medicine's mission of medical education, research discovery and patient care," said Carmen A. Puliafito, dean of the Keck School of Medicine of USC. "We are confident this new facility will fortify USC's position as a trusted leader in health care and medical research."

The Keck Medical Center of USC includes Keck Hospital of USC and USC Norris Cancer Hospital, as well as USC's 500-physician faculty practice.

USC Norris Cancer Hospital is one of only a few facilities in Southern California built exclusively for cancer research and patient care. Physicians and staff offer patients advanced multidisciplinary cancer care. The close affiliation between the hospital and the USC Norris Comprehensive Cancer Center offers immediate benefits to patients seeking the latest breakthroughs in cancer prevention and treatment, including access to innovative technology and clinical trials.

The USC Norris Comprehensive Cancer Center was established in 1971 and has benefited from continuous recognition and funding from the National Cancer Institute since 1973, when it was named one of the original eight comprehensive cancer centers. It is one of only 40 NCI-designated comprehensive cancer centers in the country.

USC-led team finds functional gene mutation that increases risk for lupus

By Alison Trinidad

An international team of researchers led by Chaim O. Jacob, associate professor of medicine and molecular microbiology & immunology at the Keck School of Medicine, has identified a gene mutation involved in causing lupus, a chronic inflammatory disease that affects the skin, joints and organs.

The discovery disproves a widely accepted theory that reactive oxygen species (ROS) molecules fight infection, but perpetuate inflammation.

"Our research suggests that ROS can be good for you even in inflammatory diseases like lupus," said Jacob, director of the USC Lupus Genetic Group and principal investigator of the study. "This was not something we could have foreseen due to the scientific dogma."

The study's results are detailed in the Dec. 26, 2011, online edition of the *Proceedings of the National Academy of Sciences*.

Systemic lupus erythematosus (SLE, or lupus) is a long-term autoimmune disease that triggers inflammatory damage throughout the body, including the skin, joints, lungs, cardiovascular structures, nervous system and kidneys. There is no cure, and the underlying cause is not fully understood.

Jacob's team used a proprietary methodology they developed, called Function2Gene, to search for genes associated with lupus. Their method, which is available free of charge to scientists studying other complex diseases, targets fewer genes, resulting in a quicker and more cost-effective search.

The researchers then used computer modeling to hypothesize the functional consequences of the mutations identified in the gene. Finally, they tested their hypotheses in a live biological system, showing that the mutation decreases certain protein-to-protein interactions and ROS production. This discovery suggests that ROS may have a more nuanced regulatory function in the immune system than previously thought and play a role in the predisposition to lupus.

The presence of the gene mutation could be used as diagnostic, Jacob said. The discovery could also lead to drug therapies that manipulate ROS levels, but more research into ROS biology is necessary, Jacob added.

Funding for the study came from the National Institutes of Health and the Alliance for Lupus Research.

The Weekly NEWSMAKERS

A Jan. 3 article in ***Wine Spectator*** featured research by **Frank Stanczyk**, professor of research in the Department of Obstetrics and Gynecology and Preventive Medicine at the Keck School, and Cedars-Sinai colleagues finding that certain compounds in red wine may make it a better choice than other alcohols in terms of associated breast cancer risk. ABC News Los Angeles affiliate KABC-TV, CBS News Greensboro, ***Daily Mail*** (U.K.) and Medical News Today also featured the study.

The December 2011 issue of ***Discover*** magazine featured research by **Paula Cannon**, associate professor of molecular microbiology & immunology, pediatrics, and biochemistry & molecular biology at the Keck School, as one of its "Top 100 Stories of 2011." Cannon's team successfully transplanted human blood stem cells modified to be resistant to HIV into mice, enabling the animals to control HIV infections. The research was highlighted as No. 2 on the annual list. Cannon also was selected earlier this year by ***Utne Reader*** as one of "25 visionaries who are changing your world in 2011."

A Dec. 22 article in the ***Los Angeles Times*** quoted **James Stein**, assistant professor of surgery at the Keck School, about how conjoined twins form and whether to surgically separate them.

A Dec. 21 story in ***Modern Medicine*** featured research co-authored by **Narsing Rao**, professor of ophthalmology at the Keck School, in conjunction with colleagues from Johns Hopkins University and the University of Miami, Florida, that describes an animal model that could be used as a diagnostic for tuberculosis-related blindness.

A Dec. 19 article in the ***Los Angeles Times*** quoted **Sebastien Bouret**, assistant professor of pediatrics at the Keck School, about his research linking diabetes during pregnancy and obesity in offspring. "The epidemic is partially reversible if we intervene at the right time," Bouret said. "If we can convince women to have a better diet during pregnancy for the health of their babies, most women will do that."

Half-day Women's Health Symposium slated for Jan. 21

The Women's Health Symposium will offer seminars and workshops for future health care providers showcasing a multidisciplinary approach to women's health and highlighting key issues in this area.

Sponsored by the OB/Gyn Student Interest Group, the seminar will feature workshops and panel discussions covering a wide variety of topics including women's mental health, HIV and pregnancy, heart disease, and more.

The event will be from 11 a.m. to 4:15 p.m. at the Keith Administration Building (KAM), 1975 Zonal Avenue, Los Angeles. Reservations are required. RSVP online at http://www.usc.edu/esvp (Code: womenshealth).

Nobel Laureate speaks on virology, immunology at USC symposium

By Amy E. Hamaker

Outdoing nature through the use of its own immune response tools is next to impossible.

But speaking at a recent symposium, Nobel Laureate Rolf M. Zinkernagel of the University Hospital Zurich told a crowd of Keck School of Medicine students, faculty and researchers that new tools such as antibiotics, antivirals and autoantibodies can make for significant breakthroughs.

His lecture, "Immunology Taught by Viruses 2011" was part of the larger symposium "Frontiers in Immunity and Cancer Vaccines," held on Nov. 22, at the Catherine and Joseph Aresty Conference Center.

Zinkernagel has spent decades in the field of immunology, having been co-awarded the Nobel Prize in Physiology or Medicine in 1996 for discoveries concerning the specificity of the cell-mediated immune defense. "Dr. Zinkernagel has joined the fields of virology and immunology in a very potent way," said Keck School Dean Carmen A. Puliafito, in his introduction of Zinkernagel.

During his lecture, Zinkernagel covered some of the basic tenets of immunology and immunity, and how the body has evolved to deal with cytopathic (those that kill cells as part of the infection process) and noncytopathic viral infections. "Immune response to cytopathic infection must be quick and efficient; otherwise, the virus will kill the host. With noncytopathic disease, it's the immune response (inflammation) that often causes the death of the host cell," he said.

However, said Zinkernagel, there is no vaccine that works as well as antibody activation. "All vaccines that protect function via neutralizing antibodies," he said. "If your neutralizing antibodies are below a certain level, you aren't protected from a particular disease; if they're above a certain level, you are protected. If you lack an antibody response, you become 10 to 100 times more susceptible to a disease."

Active immunization in the young develops from maternal antibodies plus a mild exposure. "Many viruses jump at birth or before birth, and babies have no immunity," explained Zinkernagel. "A mother transfuses her immune experience to her offspring, which will help them to survive until their own immune systems mature."

Jon Nalick

Nobel Laureate Rolf M. Zinkernagel of the University Hospital Zurich, delivers a lecture on "Immunology Taught by Viruses 2011" at a Nov. 22, symposium at the Aresty Conference Center.

However, offspring also need some kind of exposure to then generate T cells for full protection, as maternal protection drops off after about two to four years. "This is what happened when smallpox in Europe killed 80 to 90 percent of the population in some places," Zinkernagel noted. "If you came from an unprotected mother, you died. Protection depends on pre-infection, and this is antigen driven."

Only a very small portion of the virus is accessible to antibodies, which helps explain why vaccines designed to broadly protect may not be possible. "There's only one type of determinant that counts in a virus, and only one type of antibody that will protect you," said Zinkernagel. "The surface area on the virus is such that antibodies can't get through—it's a structural constraint. This makes shared determinants for vaccines wishful thinking."

Symposium speakers from USC included Si-Yi Chen, professor of molecular microbiology and immunology; Lin Chen, professor of molecular biology at the USC Dana and David Dornsife College of Letters, Arts and Sciences; and W. Martin Kast, professor of molecular microbiology and immunology.

The symposium was sponsored by the Department of Molecular Microbiology and Immunology and the Institute for Emerging Pathogens and Immune Diseases.

ONLINE EXTRAS

Read more HSC news online:

- **Scientists at Children's Hospital Los Angeles awarded prestigious V Foundation Grant providing $600,000 funding for translational cancer research**
  http://tinyurl.com/6okmjkl

- **Medical students volunteer their musical skills for Norris Hospital patients and families**
  http://tinyurl.com/6tj9ugn

- **Keck associate professor and students visit L.A. County Supervisor**
  http://tinyurl.com/7rw452n

- **USC scientists find mechanism that allows for reprogramming stem cells**
  http://tinyurl.com/73lv8ff

- **USC faculty member is coauthor of international consensus on teaching evidence-based practice in health care**
  http://tinyurl.com/7g6ayo4

Calendar of Events

This Calendar of Events is also online at www.usc.edu/hsccalendar for the Health Sciences Campus community

Friday, Jan. 13

3-5 p.m. Research Funding Information Seminar. "$1 Million/Year Available in Pilot Awards." Aresty Conference Room. Info: http://www.sc-ctsi.org/index.php/pilot-awards

Tuesday, Jan. 17

Noon. Immigrant Health Initiative Seminar. "Bringing the Immigrant Health Experience Alive Through Journalism," Michelle Levander, USC. UPC: TCC 227. Info: (323) 442-1636

Wednesday, Jan. 18

Noon. ZNI Seminar. "Membrane Fission Can Be Driven by Hydrophobic Insertions and Controlled by Protein Scaffolds: A Model," Michael Kozlov, Tel Aviv Univ. ZNI 112. Info: (323) 442-2144

Noon. Dean's Translational Medicine Seminar. "Optogenetics, Robotic Electrophysiology and Other Neural Circuit Tools," Ed Boyden, MIT. NRT Aresty Auditorium. Info: (323) 442-7874

Saturday, Jan. 21

11 a.m. – 4:15 p.m. Women's Health Symposium. "Closing the Gap in Women's Healthcare: An Interdisciplinary Approach," various speakers. KAM Mayer Auditorium. Info: (562) 412-7288

Tuesday, Jan. 24

Noon. Cancer Center Grand Rounds. "State of the Cancer Center," Stephen Gruber, USC. NRT Aresty Auditorium. Info: (323) 865-0801

Wednesday, Jan. 25

8:30 a.m. Women in Management Workshop. "Creating Your Best Possible Emails," Sandra Chrystal, USC. CHP 102. Attendees are welcome to bring their own breakfast. Info: (323) 442-1865

Noon. ZNI Seminar. "Lipid (LPA) Signaling in Prenatal Brain Development and Related Disorders," Jerold Chun, Scripps Research Institute. ZNI 112. Info: (323) 442-2144

Thursday, Jan. 26

Noon. Cellular Homeostasis Lecture. "Starving Cancer Cells to Death," Aimee Edinger, UC Irvine. MCH 149. Info: (323) 442-7874

Friday, Jan. 27

8:30 a.m. Surgical Grand Rounds. "Liver Transplantation: A Concise Review for Residents," Kiran Dhanireddy, USC. DOH 100. Info: (323) 442-2506

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.

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