



Herman Ostrow

## USC benefactor and alumnus Herman Ostrow, 88

By Beth Dunham

Herman Ostrow '45, the benefactor whose name is shared with the Herman Ostrow School of Dentistry of USC, died on April 23. He was 88.

A lifelong resident of Los Angeles, Ostrow was born in East Los Angeles and grew up in the Belvedere neighborhood, graduating from James A. Garfield High School. After receiving his Doctor of Dental Surgery degree from USC, he served in the U.S. Army Dental Corps before returning to Los Angeles to treat patients in private practice.

He practiced dentistry full- and part-time for 17 years before entering the Los Angeles construction and real estate market. In his spare time, he enjoyed collecting and cultivating rare fruit trees in the hillside orchard behind his Beverly Hills home.

It was a 2009 visit to the Griffith Observatory, where he saw how private gifts helped a beloved educational institution grow and develop, which served as the inspiration for his historic gift to the School of Dentistry.

In a ceremony on January 20, 2010, the university announced his unprecedented gift of \$35 million to name the school—the largest gift ever made by an individual to a dental school.

"I'm proud to give my support and my name to the USC School of Dentistry, an institution with a well-earned reputation for excellence," he said of his gift. "I am thrilled that my legacy will provide tomorrow's talented professionals with opportunities to achieve great successes. This is the best thing I've ever done; it's the right thing to do."

## Leadership lessons from the top of the world

By Pauline Vu

Conrad Anker and Geoff Tabin are two of the world's foremost adventure seekers. Each has made several death-defying climbs of the world's highest peaks.

And yet when they came to the Keck School of Medicine on April 26 to speak at Aresty Auditorium, their most emotional stories were about the people they've helped through the Himalayan Cataract Project, which conducts surgeries in Nepal.

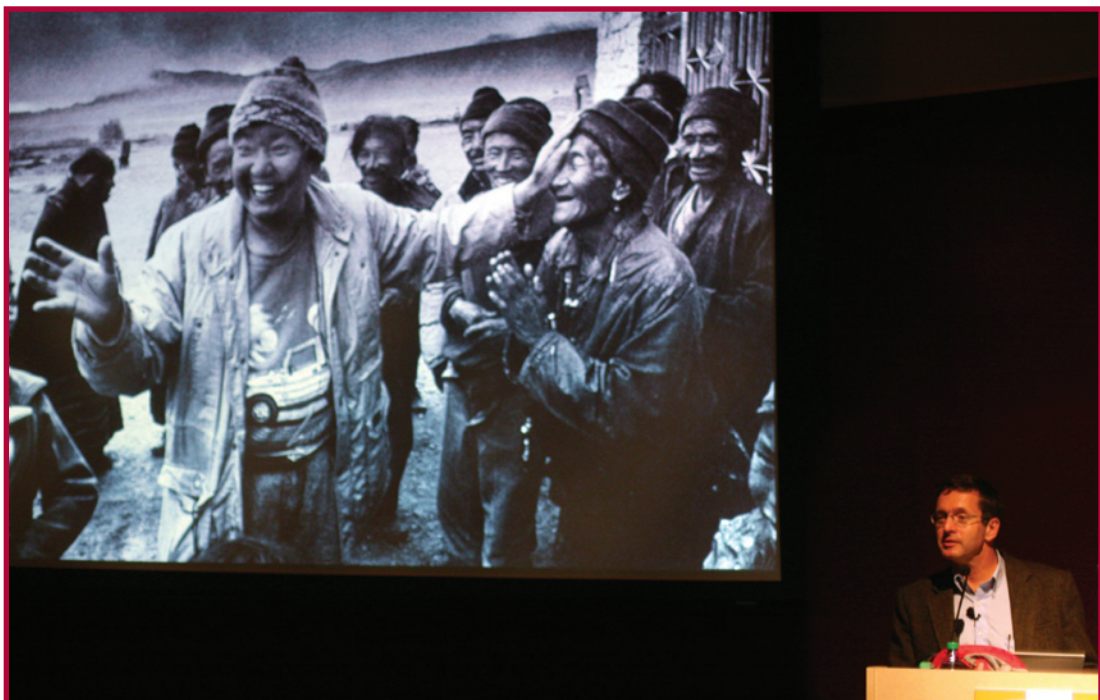
"The next day after surgery, it's like a revival meeting. It's way better than any church on the south side of Chicago," said Tabin, a professor of ophthalmology and visual sciences at the University of Utah and the director of its Division of International Ophthalmology at the John A. Moran Eye Center.

Anker played a clip from a documentary in which one elderly, almost blind woman says sadly, "Life is very bitter."

But in a post-surgery scene, she laughs and announces how well she can see. Looking at Anker, she notes, "He has a furry white beard."

Tabin is the fourth person in the world who has climbed the highest peaks on all seven continents and was part of the first team to ascend Mt. Everest's difficult East Face path. He co-founded the Himalayan Cataract Project in 1994.

The inspiration came during one of his Everest expeditions, when he encountered a Dutch medical team performing cataract surgery on a Nepalese woman who had been blind for three years. Nepal has one of the world's highest rates of cataract



Pauline Vu

Above, Geoff Tabin discusses the work of the Himalayan Cataract Project, which he co-founded, at an April 26 lecture at the Aresty Conference Center. Left, he appears at a reception with Conrad Anker (left) who also spoke at the event.



Ryan Ball

blindness.

"In Nepal, it was just accepted that you get old, your hair turns white, your eyes turn white, and then you die," Tabin said. "The expression for a blind person in Nepal is, 'a mouth with no hands.'"

Anker, who was once called "the world's greatest adventurer" by *Outside* magazine, found the body of legendary British climber George Mallory 75 years after he died in 1924, during his attempt to be the first person to summit Mt. Everest. Anker partnered with the Himalayan Cataract Project to produce a documentary, "Light of the Himalaya," which highlighted the

project's work.

Keck School of Medicine Dean Carmen A. Puliafito noted that it was "quite unusual" for a medical school to ask two mountaineers to speak but said that Anker and Tabin "epitomize the best traditions of the great past explorers, while engaging in new and inspirational activities that reflect the highest values of human endeavor."

The Himalayan Cataract Project, which Tabin founded with Nepali ophthalmologist Sanduk Ruit, aims to end preventable and curable blindness in the Himalayan region by providing high-quality ophthalmic care at a low cost, training local doctors on performing surgeries, and setting up a strong eye care infrastructure.

Since its founding, the project has trained more than 100 doctors in modern cataract surgery, which has

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**'In our world, 85 percent of the blindness is preventable and treatable. It's one of the areas where we can make the most difference.'**

**—Geoff Tabin, co-founder of The Himalayan Cataract Project**



Valerie Zapanta

### HOSPITALS, CLINICAL PROGRAMS

**BOLSTER PATIENT SERVICE**—Left, Jacques Van Dam, director of the USC Digestive Health Center and professor of medicine at the Keck School of Medicine, presented the USC Medical Call Center staff with an overview of the planned expansion of gastroenterological services at USC. Van Dam said, "the Medical Call Center plays an essential role in connecting patients and their physicians with the newest and most advanced technologies USC offers." Physician-led training is a key part of USC's team approach to quality health care.



# School of Pharmacy student joins global forum in Netherlands

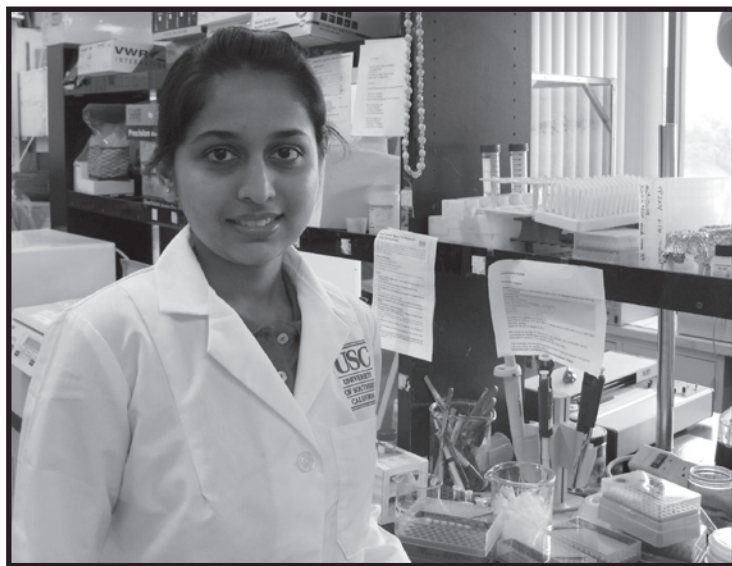
By Gabrielle Olya

For Dimple Modi, being part of an international pharmacy community has been a truly enriching experience.

As chair of pharmacy education for the International Pharmaceutical Students' Federation—the leading advocacy organization for pharmacy students from around the world—Modi has recently attended two major international meetings in Den Haag, Netherlands, where she learned and discussed ways to improve pharmacy education, curriculum development and professional conduct.

“In an increasingly global world, this exchange helps students contribute to strengthening health care in their countries and enhancing the role of pharmacists,” said Modi. “Solutions for the problems of one country may be found in another country. My personal aim is to bring back the learning from these meetings and share it with my peers at USC.”

Modi's position at the Federation gives her the opportunity to talk to representatives from other international pharmacy organizations and collaborate with them to find ways to adopt and improve pharmacy school curricula in countries around the world.



USC School of Pharmacy student Dimple Modi sees international participation as a way for students to make their mark.

“I'm responsible for coordinating and developing the educational practice and professional development opportunities for the Federation,” she explained. “I am also liaison to the International Pharmaceutical Federation Board of Pharmaceutical Practice.”

At the recent meetings in the Netherlands, which took place in March, Modi met with other executive members of the ISPF—representing nine different countries—to discuss projects and future plans. Among the projects discussed were the Moving On project, which studies student and faculty migration, and what countries' curricula

lack/offer that cause people to migrate, and the P-Squared project, which encourages a collaboration between the international pharmacy organization and similar medical student organizations.

Modi also was invited to attend the International Pharmaceutical Federation (FIP)-Board of Pharmaceutical Practice meeting, which is attended by pharmacy professionals in the fields of community, hospital, industrial and clinical sections from different parts of the world, who come together to conduct programs that improve each section via increased collaborative projects.

As part of her commitment

to the organization, Modi is involved with the planning of annual forums and symposia.

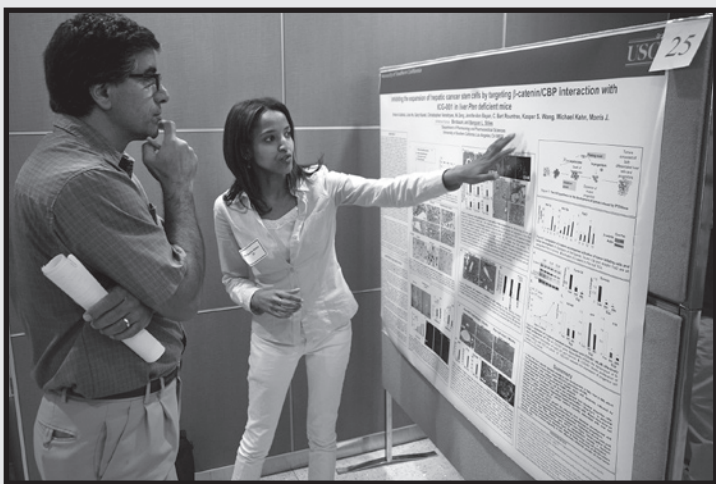
“I organize the Education Symposium and related workshops and events at the IPSF World Congress, which will be held in Thailand this summer, and aid and supervise the organization of the scientific symposia and poster exhibitions that take place at the Congress and other regional events,” she says. “I am also responsible for organizing sessions and representing IPSF at the annual International Pharmaceutical Federation (FIP) Congress, which will be held in India later this year.”

The International Pharmaceutical Federation is a global federation of national associations that includes the IPSF and the new Academic Pharmacy Section, which promotes pharmacy education worldwide and contributes to the development of teaching methodology, student and faculty exchange programs, and policy development on education and training of pharmacists and pharmacy support staff.

Modi, who is completing her MS in pharmaceutical sciences this spring, works in the labs of School of Pharmacy professor Ronald Alkana and Daryl Davies.

**‘Solutions for the problems of one country may be found in another country.’**

**—Dimple Modi, chair of pharmacy education for the International Pharmaceutical Students' Federation**



The USC Norris Comprehensive Cancer Center recently hosted its annual poster session featuring research by graduate students and postdoctoral fellows. The May 3 event, “Searching for Creativity,” attracted entrants covering a wide range of research topics. Pictured, doctoral student Anketse Kassa (right) discusses her poster on the inhibition of hepatic cancer stem cells with Ebrahim Zandi, associate professor of molecular microbiology & immunology at the Keck School of Medicine.

## USC fellow wins outstanding paper award

Alex Quaas, a first-year fellow in the Reproductive Endocrinology Division of the Keck School of Medicine Department of Obstetrics and Gynecology, received the Outstanding Paper Award at the annual meeting of the Pacific Coast Reproductive Society in April.

Quaas presented a study titled “Early Markers of Reprogramming in Induced Pluripotent Stem Cells (iPSC'S): A Timeline of Key Steps in the Reprogramming Process.” The work aims to identify early

critical steps in the process of reprogramming, whereby cells from adult tissues are converted into pluripotent stem cells.

The research was conducted in the laboratory of Martin Pera at the Eli and Edythe Broad CIRM Center for Regenerative Medicine and Stem Cell Research. Co-authors on the paper include Pera, Jordan Pomeroy, and Rick Paulson. Jordan Rees, a USC undergraduate in the Health Promotion and Disease Prevention program, assisted the team in their research.

The Weekly

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## LESSONS: Having passion for work is key

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made a notable difference: in 1994, there were only 15,000 cataract surgeries performed in Nepal, and in 2010, there were 200,000. Tabin and Ruit are now looking to bring this successful model to Africa.

“In our world, 85 percent of the blindness is preventable and treatable. It's one of the areas where we can make the most difference,” Tabin said.

Anker called his collaboration with the Himalayan Cataract Project “one of the most transformative experiences I've had in my life.”

Noting that the United States makes up about 4 percent of the world's population but uses a quarter of its resources, Anker said, “the whole world cannot live at the level that we do, so it's up to us to give something back.”

Tabin had some advice for medical students who want to work internationally: have a skill they can export, listen to the people in the communities they want to work with, and be passionate about their goals.

# USC researchers’ gene therapy may restore sight to the blind

**By Leslie Ridgeway**  
Researchers at the Keck School of Medicine have developed a potential therapy for blindness that involves delivering a gene encoding a light-sensitive protein to inner retinal cells, enabling photosensitivity in these cells and restoring visual function in mouse models.

The research, led by senior author Alan Horsager, a neuroscientist at the Keck School of Medicine, focuses on blindness caused by retinitis pigmentosa and age-related macular degeneration, conditions that lead to gradual loss of photoreceptors in the retina and eventual blindness.

## HTE@USC leaders speak at FDA workshop

Terry Sanger and George Tolomiczenko, co-directors of HTE@USC, represented the university at a March 15 FDA Workshop gathering input on the CDRH Innovation Initiative.

The Center for Devices and Radiological Health hosted a meeting attended by over 200 representatives drawn from medical device companies, venture capital firms, academic centers, foundations and other stakeholders.

Tolomiczenko served on panels titled “The Innovation Pathway” and “Strengthening the Clinical Trial Infrastructure.”

Sanger served on a panel discussing the idea of the CDRH creating a publicly-available core curriculum for medical device development and assessment.

Visit <http://www.fda.gov/MedicalDevices/NewsEvents/WorkshopsConferences/ucm241095.htm> for more information.

Horsager’s research targets other cells in the retina called bipolar cells, which are part of the retina’s intricate signal processing system. The proof of concept paper was published on April 19 in the journal *Molecular Therapy*.

“It’s a very targeted approach that maintains the natural processing of the retina,” said Horsager. “There is a lot more to understand, but initial indications suggest we have developed something that can have enormous benefit to people. Preclinical studies are the next step to determine the potential therapeutic benefit for humans.”

After the gene encoding

the light-sensitive protein is delivered via an adeno-associated virus, the bipolar cells become light sensitive and take over the light-capturing function of the lost photoreceptors.

This effort builds on the research of Ed Boyden, assistant professor at the Massachusetts Institute of Technology (MIT). Horsager and Boyden, together with Ben Matteo, have co-founded Eos Neuroscience, Inc. to help translate this technology into the clinic. Horsager serves as the chief science officer for Eos Neuroscience, Inc., and has an equity interest in the company.

“This is a massive collaborative effort between USC, MIT, the University of Florida, and Eos Neuroscience, building on a lot of great science,” said Horsager. “We are simply aggregating this science and establishing proof-of-concept for a blindness therapy.”

The research establishes that this therapy works independent of the underlying cause of photoreceptor degeneration, suggesting that people suffering from retinitis pigmentosa or age-related

macular degeneration would benefit.

“We conducted multiple studies to establish that this technology is safe and does not appear to generate any immune response or inflammation in the eye,” said Mehdi Doroudchi, the first author and head of cell biology at Eos.

The delivery system, an adeno-associated virus, is currently being used in multiple clinical trials of gene therapy throughout the U.S. and abroad.

The technology used to make the bipolar cells light-sensitive, known as optogenetics, had its origins in a collaboration spearheaded by Boyden in 2004, which revealed that a light activated protein from algae known as channelrhodopsin-2, when expressed in neurons, made them activatable by light. Boyden’s group has since revealed an entire family of light-sensitive proteins that enable neurons to be switched on and off by different colors of light, which are now in widespread use throughout the field of neuroscience for analyzing how neurons work in brain circuits.

‘Initial indications suggest we have developed something that can have enormous benefit to people.’

—Alan Horsager, Keck School of Medicine neuroscientist

# M.D./Ph.D. symposium examines the future of health care in the U.S.

**By Ryan Ball**  
The precarious future of federal research funding was on the minds of many students assembled at the Eli and Edythe Broad CIRM Center for Regenerative Medicine and Stem Cell Research at USC on March 29 for this year’s M.D./Ph.D. Symposium.

Keck School Dean Carmen A. Puliafito acknowledged the uphill climb ahead, but had encouraging words for those who will be graduating from the joint program of the Keck School and the California Institute of Technology.

“You need to have a positive

perspective because over your 40-year career things are going to go up and down,” Puliafito said in his opening remarks.

He lamented the fact that the health care discussion has been dominated by delivery and finance issues rather than the support of basic research that will lead to cures, and encouraged students to seek out residencies where they would still be able to do a laboratory project.

He added: “Try to keep that alive.”

Robert H. Chow, associate professor of physiology and biophysics at the Keck School, is co-director of the M.D./

Ph.D. program, along with Paul H. Patterson of the California Institute of Technology. Chow also urged attendees to remain optimistic and focused on their important role in furthering science.

“You are going to be involved in a very special mission and that is to make the discoveries that will make possible either the advances in medicine or the advances in technology that really are a direct benefit to patients and also to the economy,” Chow remarked. He reminded the students that they have to be prepared to emphasize the value of their work in the lab,



Keck School of Medicine Dean Carmen A. Puliafito discusses the current and future challenges of health care and research with students in the M.D./Ph.D. program at a March 29 symposium.

even if it isn’t focused on finding cures for specific diseases. “You must communicate to nonscientists the importance of continuously watering and fertilizing the trunk of the basic research tree, or soon there will be no fruit—none of the benefits of new medical or technical advances.” Following a full day of student presentations, attendees were treated to a keynote address by Martin Pera, director of the Eli and Edythe Broad Center for Regenerative Medicine and Stem Cell Research at USC. Pera shared details of his research in human pluripotent stem cells after a few inspirational words of his own.

“You people are just so important to the future of biomedical research,” said Pera. “People who understand the

clinical side of the coin face and also the research behind the developments are very rare indeed.”

Combining physician training with experience in advanced, independent research, the M.D./Ph.D. program is designed for those pursuing careers in academic or industrial biomedical research. Pre-clinical and clinical work is completed at the Keck School, and Ph.D. training may be obtained from any participating academic program at USC under the administration of the USC Graduate School or the California Institute of Technology.

More information is available at [http://keck.usc.edu/en/Education/Degrees\\_and\\_Programs/MD\\_Program/MD\\_PHD\\_Program.aspx](http://keck.usc.edu/en/Education/Degrees_and_Programs/MD_Program/MD_PHD_Program.aspx).

## The Weekly NEWSMAKERS

An Apr. 24 story on Asian News International (India) featured a study by **Pat Levitt**, director of the Zilkha Neurogenetic Institute at USC, and colleagues, that found that the human placenta plays an active role in fetal brain development during the early stages of pregnancy. This finding, the story states, may provide hope for new treatment options for cardiovascular disease and mental illness.

An Apr. 25 article on *The Chronicle of Higher Education* noted that the Eli and Edythe Broad CIRM Center for Regenerative Medicine and Stem Cell Research at USC was among the winners in *R&D Magazine’s* 2011 “Laboratory of the Year” contest. The

building’s sustainable design received High Honors, the story stated.

On Apr. 26 WebMD quoted **Roger Clemens** of the USC School of Pharmacy about unhealthy food trends. Roger Clemens is president-elect of the Institute of Food Technologists, the story stated.

An Apr. 28 story on the *Los Angeles Times* cited an op-ed by **Emily Ventura** and **Michael Goran** of the USC Childhood Obesity Research Center about high sugar content in L.A. Unified School District school lunches. *The Sydney Morning Herald* (Australia) also cited the op-ed.





**WELCOME TO USC**—Above and right, prospective students accepted into the Keck School of Medicine relax at an informal luncheon on April 22 that was held in their honor. The traditional luncheon began in 1998 as part of a successful effort to improve the percentage of accepted students who choose to attend the school.



Photos/Jon Nalick

## Calendar of Events

This Calendar of events is also online at [www.usc.edu/hscalendar](http://www.usc.edu/hscalendar) for the Health Sciences Campus community

### Monday, May 9

**Noon.** Dean's Translational Medicine Seminar. "New Era of Regenerative Medicine for Cardiovascular Diseases," Hung-Fat Tse, Univ. of Hong Kong. NRT Aresty Aud. Info: (323) 442-7732

### Tuesday, May 10

**10:30 a.m.** USC Hospital Guild Speaker Series. "Autism—Challenges and Research Advances," Pat Levitt, USC. Valley Hunt Club, Pasadena. \$45 per person. RSVP to (626) 440-0679

**Noon.** Psychiatry Grand Rounds. "Optimization of Psychiatric Care: A Look into Behavioral Causes of Medical Co-Morbidities," Robert Cobb, USC. ZNI 112. Info: (323) 442-4065

### Wednesday, May 11

**Noon.** ZNI Seminar. "Maturation and Rejuvenation of GABAergic Transmission in Visual Cortex," Alfredo Kirkwood, Johns Hopkins University. ZNI 112. Info: (323) 442-2144

### Friday, May 20

**8 a.m.** Pathology and Laboratory Medicine Grand Rounds. "Medico-Legal Death Investigation in LA County – Unusual Case Scenarios," Lakshmanan Sathyavagiswaran, USC & UCLA. NOR 7409. Info: (323) 442-1180

**11:45 a.m.** USC PSOC Seminar. "Histone Variants, Nucleosome Dynamics, and Epigenetics," Steven Henikoff, Fred Hutchinson Cancer Research Center. NRT Aresty Aud. Info: (323) 442-3849

### Monday, May 23

**4 p.m.** "fMRI in Disease: Applications, Challenges, and Solutions," Scott Small, Columbia Univ. UPC: Tutor Campus Center, 352. Info: (323) 442-7686

### Tuesday, May 24

**9 a.m.** "Zooming in on Hippocampal Dysfunction: MRI Maps to Molecular Mechanisms," Scott Small, Columbia Univ. ZNI 112. Info: (323) 442-7686

**Noon.** Women In Management Seminar. "Heart Disease in Women," Helga Van Herle, USC. NRT LG 503/504. Cost: \$15 members, \$18 non-members. Info: (323) 442-1865

**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 e-mail to [ebalauw@usc.edu](mailto:ebalauw@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.

# Keck School study shows placenta's role in synthesizing serotonin

By Leslie Ridgeway

Research at the Keck School of Medicine of the University of Southern California's Zilkha Neurogenetic Institute shows for the first time that the human placenta plays an active role in synthesizing serotonin, paving the way to new treatment strategies that could mitigate health impacts such as cardiovascular disease and mental illness.

The groundbreaking findings, conducted with researchers from Vanderbilt University as part of a Silvio Conte Center of Excellence grant from the National Institute of Mental Health, offer conclusive evidence that the placenta provides serotonin to the fetal forebrain, not through the mother's blood supply, as theorized for the past 60 years. The research, "A transient placental source of serotonin for the fetal forebrain," was published in the journal *Nature* in April.

"Our research indicates the placenta actually synthesizes serotonin, and the serotonin is released from the placenta into the fetal bloodstream where it can reach the fetal brain," said lead author Alexandre Bonnin. "The placenta was seen as a passive organ, but we now know it has significant synthetic capabilities and has a much more critical role in developmental programming of the fetus than previously thought."

Bonnin's work with Pat Levitt, director of the Zilkha Neurogenetic Institute and corresponding author on the paper, included the invention of a unique technology known as a "placentometer" that monitors substances that pass through the mouse placenta from mother to fetus. This technology can incorporate genetic models of human disease, and could lead to targeted therapies that treat the mother without affecting the fetus, or vice versa.

"The findings by Dr. Bonnin and his collabora-

tors open the door for future studies examining the potential role for targeted interventions in high-risk pregnancies where a perturbed intra-uterine environment might negatively impact fetal brain development," said Istvan Seri, professor of pediatrics, Keck School, and director, Center for Fetal and Neonatal Medicine at Children's Hospital Los Angeles. "It will take many more basic, translational and clinical trials and many years until we can provide evidence that approaches like this one work."

Serotonin, a neurotransmitter known to affect wellbeing in humans, also has been implicated in brain, cardiac and pancreas development.

In the early stages of development, neurons that synthesize serotonin develop in the fetal hindbrain, where heart, respiration and other critical functions reside, eventually building their way up to the forebrain, the home of higher cognition and emotional regulation. The study shows that during this gap between hindbrain and forebrain serotonin development, the placenta is an important source of serotonin to the forebrain—a process that could be affected by the mother's nutrition, since her diet is the only source for the essential amino acid tryptophan.

"An altered capacity of the placenta to make and release serotonin could affect the levels of serotonin in the human forebrain as it does in the mouse," said Levitt. "Developmental programming of the fetal brain can set the stage for adult-onset health impacts including heart disease, diabetes and mental illness."

*Alexandre Bonnin, Nick Goeden, Kevin Chen, Melissa L. Wilson, Jennifer King, Jean C. Shih, Randy D. Blakely, Ewan S. Deneris, Pat Levitt. "A transient placental source of serotonin for the fetal forebrain." Nature, April 2011.*

## USC researchers discover enzyme essential for lung development

Keck School of Medicine researchers have provided the first evidence that Eya1 protein phosphatase is a crucial regulator of the development of embryonic lung epithelial stem cells. The correct functioning of lung epithelium is essential to life. Cellular polarity of lung epithelial cells, meaning that they have an asymmetrical orientation or a front and back, is crucial. Dysregulation of cell polarity has been associated with developmental disorders as well as cancer.

Until now, little has been known about the mechanism that controls cell polarity, cell fate and self-renewal of embryonic lung epithelial stem cells.

Working at The Saban Research Institute at Children's Hospital Los Angeles, David Warburton, director of developmental biology and regenerative medicine at the institute, and Ahmed El-Hashash, senior research scientist carrying out this study, will release their findings in the

upcoming issue of *Development*.

"We know that loss of polarity in pulmonary epithelial cells is associated with lung cancer and chronic obstructive pulmonary

disease. Knowing that Eya1 regulates polarity, we now have another target for intervening in those disease processes," said Warburton.

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**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.