Neuroscientist talks autism at AAAS, publishes papers

Most children with autism don’t have a single gene disorder. It’s all about having different risk genes in combination with the environment.

—Pat Levitt, director of the Zilkha Neurogenetic Institute at the Keck School of Medicine of USC

Prenatal exposure to traffic-related air pollutants, combined with a genetic predisposition to autism, appears to alter brain development and significantly increase the risk for developing the disorder.

Keck School of Medicine of USC neuroscientist Pat Levitt, director of the Zilkha Neurogenetic Institute, led a discussion about the links between genetic and environmental risk for autism spectrum disorder (ASD) on Feb. 18 at the annual meeting of the American Association for the Advancement of Science (AAAS) in Vancouver, Canada. The AAAS is one of the largest nonprofit groups in the world dedicated to promoting science.

“The idea that autism is a threshold disorder resonates with people,” Levitt said. “Most children with autism don’t have a single gene disorder. It’s all about having different risk genes in combination with the environment.”

Levitt’s AAAS presentation focused on recent epidemiological and biological research from the Keck School. In 2010, researchers Heather Volk and Rob McConnell implied a correlation between proximity to freeways as a risk factor for autism, showing that children born to mothers who live close to freeways have twice the risk of developing ASD. In a separate study, Levitt and colleagues confirmed that prenatal exposure to benzopyrene, a common carcinogen found in traffic exhaust, alters the expression of the MET gene—which has been shown to double the risk for developing ASD—increasing one’s risk for autism more than genetics or environmental factors could do individually.

“Understanding the genetic and environment factors that influence ASD can help us understand the different types of autism out there, along with their comorbidities,” Levitt said. “Not every child responds the same way to treatment. That’s why it is so important to understand the various clinical populations to provide more personalized care.”

In addition to his presentation, Levitt recently authored two new studies that look at the clinical and social aspects of autism. The first, “Gastrointestinal Dysfunction in Autism: Parental Report, Clinical Evaluation, and Associated Factors,” was published Jan. 9, in the online edition of Autism Research.

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USC hospital staffers join habitat for humanity to build local home

By Tania Chatilla

When a group of about 30 Keck Medical Center of USC staff members and guests arrived at a Habitat for Humanity job site last weekend, there was only a shell of a home intact. But after a full day on the job, this group of amateur construction workers had come together to install flooring, reinforce walls, frame a door and cut out a window at a Lynwood, Calif., structure that will soon be home to a deserving family.

“Together, as a team, we accomplished so much and moved one family closer to having their own home—a dream that not many families are able to achieve,” said Kevin Kaldjian, administrative operations manager at the two USC-owned hospitals.

The build is part of an ongoing sponsorship between the two USC-owned hospitals and Habitat for Humanity, an international organization that provides safe, affordable housing to low-income families across the United States and the globe.

Hospitals Chief Financial Officer Jon Spees spearheaded the sponsorship after participating in a Habitat project on his own. The organization has committed to staff four home builds in the greater Los Angeles area over the course of a year. Two builds have already been completed—one last year and the most recent on Feb. 25. Additional builds will take place this month and in June.

“This is a unique opportunity for our hospitals and our medical center to give back,” said Spees. “Part of who we are as an organization is our commitment to serving the greater community. Our teamwork last weekend reflects the dedication of our entire medical center—every day—to all of the people we serve.”

Saturday’s build was a rehabilitation of a foreclosed home that, when completed, will go to a single mother of two.

At the job site, staff members shingled a garage, hammered nails into walls and sawed wood to create beams to support the structure. They worked side by side with an on-site construction manager and a couple that expects to receive their own Habitat home later this year.

“These builds are not easy,” said Cortney Montgomery, hospitals clinical nutrition manager. “It’s tiring and a lot of hard work. But to think that your efforts are going toward providing a home for a family makes everything worth it.”

New research may boost treatment of head and neck cancers

Researchers at the Keck School of Medicine of the State University of New York (SUNY) at Buffalo have developed a method that increases the effectiveness of radiation therapy for head and neck cancer treatment in mouse models but has potential for human treatment.

The study, “Gold nanorod-sirnAs to nAsrA complexes as a multifunctional gene-silencing tool for potent radiosensitization of head and neck cancer,” was led by first author Rajwan Masood, assistant professor of research in otolaryngology, and conducted in the laboratory of Uttam Sinha, associate professor of otolaryngology at the Keck School.

The research was published in the journal Integrative Cancer Research.

The team led by Masood and Sinha and SUNY’s Paras Prasad developed a method to defeat a built-in defense mechanism that most head and neck tumors have, helping them fight off radiation therapy. To get past this mechanism, oncologists typically must deliver large doses of radiation to patients, causing surrounding tissue damage and significant side effects.

The researchers developed a nanoparticle formulation that sensitizes the tumor and, as a result, increases by half the efficacy of radiation therapy in a mouse model of head and neck cancer.

“If we can deliver the least amount of radiation to the patient, they will suffer fewer side effects and have a much better quality of life,” said Masood.

Side effects of heavy radiation include mucositis, a condition in which the patient experiences a painful burning sensation inside the mouth, difficulty swallowing and speaking, and chronic pain syndrome caused by scarring in the neck and shoulders. A patient who undergoes heavy radiation treatments and experiences a return of the side effects.

See LEVITT, page 4
USC symposium on March 9 to gather distinguished autism experts

By Mike McNulty

USC faculty and community experts will convene on March 9 at the USC Occupational Science Symposium to share research and perspectives on autism and autism spectrum disorders with an audience of university colleagues and students, health professionals and public advocates.

The 2012 Occupational Science Symposium, “Autism in Everyday Life: Interdisciplinary Research Perspectives at USC,” is a day-long event that will showcase USC’s excellence in autism research across the sciences, arts and humanities, and will foster dialogue among disciplines approaching autism from different angles.

The symposium, now in its 23rd year, is hosted by the USC Division of Occupational Science and Occupational Therapy at the Herman Oustrow School of Dentistry. In years past, the Occupational Science Symposium has brought world-renowned guests such as physicist Stephen Hawking, primatologist Jane Goodall, neuroscientist Antonio Damasio, and psychologist Jerome Bruner to USC.

This year’s lineup features five distinguished lecturers and two moderated panel discussions. Scheduled speakers include: Catherine Lord, director of the Institute for Brain Development at New York-Presbyterian Hospital, the largest autism-specific facility in the New York City area, and author of the Autism Diagnostic Observation Schedule, a “gold standard” instrument used by health professionals for assessing and diagnosing autism; Florence Clark, associate dean of the USC Division of Occupational Science and Occupational Therapy, and member of the state of California’s newly formed Autism Advisory Task Force that is overseeing the enactment of California’s recent autism insurance reform legislation; Pat Levitt, director of the Zilkha Neurogenetic Institute at the Keck School of Medicine of USC, where neuroscientists are working to understand and ultimately develop cures for a range of neurological and psychiatric disorders including autism; Rodney Peete, former USC and National Football League quarterback who, as the father of a son with autism, has become a widely regarded autism awareness advocate and author; and Susan Knox, author of the Knox Preschool Play Scale, a standardized instrument that evaluates play in children to provide a measure of their functional development.

Two moderated discussion panels will feature USC scholars from the Division of Occupational Science and Occupational Therapy, the Keck School of Medicine of USC, the Viterbi School of Engineering, and the School of Cinematic Arts, including Academy Award-winning documentarian and Distinguished Professor Mark Jonathan Harris and University Professor Marsha Kinder. Harris and Kinder together are producing a transmedia project titled “Interacting with Autism.”

“The mission of the Division of Occupational Science and Occupational Therapy,” said Associate Dean Florence Clark, “is to improve the health and quality of life for individuals with disabilities, their families and caregivers, and our communities. The Occupational Science Symposium has been facilitating this objective across four decades, and I know the 2012 edition will certainly be one to remember.”

For more information or to RSVP for the event hosted at the Ronald Tutor Campus Center, visit http://ot.usc.edu/research/symposium.

The Weekly Etcetera

Discover magazine has featured research by Paula Cannon, associate professor of molecular microbiology and immunology at the Keck School of Medicine, in its “Top 100 Stories of 2011” issue. The research was highlighted as No. two on the list. Cannon’s team successfully standing-stem cells modified to be resistant to HIV into mice, enabling the animals to control HIV infections. This approach has the potential to allow long-term generation of HIV-resistant T cells in a human patient, allowing that patient’s own cells to suppress HIV.

The research, published in 2010 in Nature Biotechnology, has reverberated throughout the HIV/AIDS research community. Cannon was also selected earlier this year by Utne Reader as one of “25 Visionaries Who Are Changing Your World.”

Cannon’s research appeared in the November 2011 Discover magazine in an article titled “The Cure – The End of AIDS.” The article detailed how her research might be used in the future to help patients live with HIV.

A state task force—which included Freddie Segal-Gidan, co-director of the USC/ Rancho Los Amigos National Rehabilitation Center of California—recently released a new 10-year plan on addressing the challenges of Alzheimer’s disease.

The report estimates that the number of California residents with the disease will double from 888,000 to 1.2 million by 2030, and medical and social support program costs will increase from $31 billion today to $313 billion by 2030. Included in the recommendations are the promotion and expansion of research on the disease and leveraging Medicare and Medi-Cal more effectively to serve this population. The Alzheimer’s Association, the California Health and Human Services Agency and its Alzheimer’s disease and Related Disorders Advisory Committee led the task force.

Hossein Jadvar, associate professor of radiology and biomedical engineering, has been elected vice president of the Society of Nuclear Medicine PET Center of Excellence for the 2011-13 term and will subsequently serve as president for the 2013-15 term. He was also recently elected president of the American College of Nuclear Medicine for the 2013-14 term. He is currently vice president of the college.

Kate Lawrenson, a postdoctoral research associate with the Department of Preventive Medicine, has received a $500,000 grant from the Ovarian Cancer Research Fund (OCRF) to study the stem cell origins of ovarian cancer. The study aims to identify molecular markers that may potentially improve screening for early-stage epithelial ovarian cancers. The OCRF awarded $6.4 million in grants to 14 scientists in 2012. Lawrenson received the Ann Schreiber Ovarian Cancer Research Training Program of Excellence Grant, which is given to postdoctoral and clinical fellows at the beginning of their research careers.

Brian Wu, a Keck School of Medicine M.D./Ph.D. student, recently appeared with his wife, Julie, in a national commercial that aired on Feb. 10 during “Who Do You Think You Are” on NBC. The Valentine’s Day-themed ad for Kay Jewellers features Wu surprising his wife with a dream date at Nobu restaurant in Hollywood.

The ad can be seen online at http://tinyurl.com/7ry7bq.
William Corey, USC alumnus and Norris Foundation trustee, 81

William Corey, trustee of and medical advisor to the Eisenhower and Kenneth Norris Foundation, died Feb. 18 after a brief battle with lung disease. He was 81.

Keck School of Medicine of USC Dean Carmen Am.J. Puleo lauded Corey’s service, noting that he was “a member of the USC Norris Advisory Board since his inception and was instrumental in making the USC Norris Comprehensive Cancer Center a leader in innovative cancer research.” He added, “Bill’s expertise, dedication and generosity to USC Norris will be sorely missed.”

A graduate of the Keck School of Medicine, Corey was born in La Jolla, Calif., and grew up with his four sisters in Altadena, Calif. He attended Polytechnic School in Pasadena and later attended the New Mexico Military Institute in Roswell, N.M., for high school, where he learned to fly.

He attended the University of California, Berkeley, as an undergraduate and entered the medical school at USC in 1955. He served as junior class president, graduating in 1959, and was a member of the Nu Sigma Nu medical fraternity.

He received postgraduate training in internal medicine and urology before beginning private practice in Pasadena caring for his patients for over three decades. He also served as president of the medical staff of Huntington Memorial Hospital in 1982.

More than 80 prostate cancer patients and their doctors were in attendance at the non-profits educational “Life after Prostate Cancer” forum on Feb. 16 at USC Norris Cancer Hospital. The program, hosted by the USC Institute of Urology, aimed to inform current and potential patients about what to expect before and after prostate cancer surgery.

The seminar included testimonial from six patients who underwent radical robotic prostatectomy at USC. They said they received exceptional, compassionate care from the team of urologists at USC.

Mark Howard received robotic prostatectomy as an outpatient. “I had my surgery six weeks ago and am now cancer-free. I am very grateful to have come to USC for my surgery. Thanks to my surgeon’s skills and expertise, I have my normal life back,” Howard said.

Following patient testimonials, Daniel Park, director of clinical operations and lead physician assistant, took the podium to talk about the importance of screening and the benefits of robotic surgery, which include excellent precision and visibility, short catheter time and a quick recovery time.

Innderbir S. Gill, professor and chairman of the Catherine and Joseph H. Backman Department of Urology and executive director of the USC Institute of Urology, presented updates about the institute’s progress in research and innovations such as catheter-free prostatectomy at the Keck School of Engineering.

“The pump, an inch in diameter for use in mice, will be slightly larger for humans,” Sinha said. “This eliminates the need for patients to return for the clinic for injections,” she added. “It’s more efficient and can be programmed to deliver the gold nanorods to the tumor once or twice a day.”

NANORODS: Treatment effectiveness boosted 50 percent

Continued from Page 1

The results of the clinical trial indicate that targets should be able to undergo radiation treatment again, Sinha said. The delivery of microscopic gold nanorods to the tumor is accomplished by direct injection or via a pump developed by Ellis Meng, at the USC Viterbi School of Engineering.

“The pump, an inch in diameter for use in mice, will be slightly larger for humans,” Sinha said. “This eliminates the need for patients to return for the clinic for injections,” she added. “It’s more efficient and can be programmed to deliver the gold nanorods to the tumor once or twice a day.”

Working together, the two groups created a gold nanorod-siRNA construct that targets SphK1. When injected directly into head and neck tumors in mice prior to radiation therapy, this formulation boosted the efficacy of radiation therapy by over 50 percent.

Moreover, this boost in efficacy was seen using greatly reduced doses of radiation. Another tandem that were treated with the nanoparticle formulation showed no ill effects from the drug. The investigators are now developing a new formulation that could be used to sensitize tumors for which direct injection of drug is not feasible.

The next step is clinical trials to test the efficacy of injections and the pump in humans, Sinha said.

The research was supported by the National Cancer Institute and the Whittier Foundation.
**Calendar of Events**

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

**Saturday, Mar. 3**

6 p.m. KSLM Medical Faculty Family and Friends and the Salerni Collegium Alumni Assoc. Annual Scholarship Benefit Dinner. “Miracles are Happening Every Day,” honoring Jim and Mandy Hall, Vaughn and Julie Barnus and the 2012 Scholarship Recipients. The Jonathan Club. Cost and information: http://keck.usc.edu/scholarshipdinner

**Tuesday, Mar. 6**

Noon. USC Trojan Trekkers: Walking Program. Walk a little at lunchtime and meet the USC Rec Sports staff. Info: (323) 442-7221


**Wednesday, Mar. 7**


**Thursday, Mar. 8**

Noon. Cellular Homeostasis Lecture Series. “Exploring a New Twist on Tumor Metastasis,” Jing Yang, UC San Diego. MCH 156. Info: (323) 442-1861

**Friday, Mar. 9**


8:30 a.m. Surgical Grand Rounds, Chief Resident Presentation. “Management of Aortic Aneurysm and Concurrent Intra-abdominal Pathology,” Sahuja Ban, USC. DOB 1st Floor Auditorium. Info: (323) 442-2506


Noon. USC Center for Excellence in Teaching. “Game-Based Learning in Higher Education,” Henry Jenkins, USC and Holly Willis, USC. UPC: GSS 106. Lunch will be provided. RSVP Required. Info: (213) 740-3959

**Tuesday, Mar. 13**


**Wednesday, Mar. 14**


**Thursday, Mar. 15**

5 p.m. Department of Anesthesiology Journal Club. Ronald Pearl, Stanford University. LAG+USC Medical Center—IPT, Conference Room B. Info: (323) 409-6856

**Friday, Mar. 16**

6:30 a.m. Anesthesiology Grand Rounds. “Perioperative Management of the Patient with Pulmonary Hypertension,” Ronald Pearl, Stanford University. MCH 256. Info: (323) 409-6856


**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 (213) 442-3812, or email to ebla@usc.edu. Entries must include day, date, time of talk, first and last name of speaker, affiliation of speaker, location and a phone number for information.

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**LEVITT: Study examines development of social behaviors**

Continued from Page 1

Levitt was joined in the study by Philip Gorlin, first author, an M.D./Ph.D. student in neuroscience at Vanderbilt University Medical Center. The researchers found that parents and physician specialists are equally accurate in identifying gastrointestinal dysfunction (GID) in children with autism spectrum disorder (ASD); the behavior and communication problems in these children are more severe than in children with ASD only; and diet and medication do not appear to play a role in the gastrointestinal condition of ASD-GID children.

The second study, “The Predictive Nature of Individual Differences in Early Associative Learning and Emerging Social Behavior,” published in the January issue of the Public Library of Science’s online publication PLoS ONE, is the first study to directly assess predictive relations between early associative learning and how social behaviors emerge at five months, nine months and one year old. Findings showed that infants who were faster at associative learning at one month old also expressed social behaviors more fully during their first year of development.

According to Levitt, this could help serve as a marker for early detection in atypical social development, including ASD. The study’s other authors are Bethany C. Reeb-Sutherland and Nathan A. Fox, both of the Department of Human Development, University of Maryland, College Park, Md.

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**OCCUPATIONAL THERAPY HIGHLIGHTS LIFESTYLE REDESIGN—** The USC Occupational Therapy Faculty Practice welcomed visitors to its third annual Open House Jan. 12. The faculty discussed the Lifestyle Redesign Program, which helps people make healthy lifestyle changes such as losing weight, quitting smoking and managing chronic conditions like frequent headaches or diabetes. At the event, attendees chatted with the occupational therapists, viewed research and outcome measurements, snacked on healthy appetizers and received free massages. Attendees also learned about the various Lifestyle Redesign programs offered at the OT Faculty Practice—which also include helping college and graduate students thrive in school, and life coaching, through addressing stress management, time management and balance.

Left, USC occupational therapist Susan McNulty talks with an open house attendee about the Headache Management program.

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**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.