



OF MIND, MEDICINE AND MUSIC— Planning for and predicting the future—and then remembering those plans—are “very special” abilities of the human memory, said neuroscientist Antonio Damasio, (pictured at right, with microphone) director of the USC College’s Brain and Creativity Institute. He calls such plans “memories of a possible future,” a phrase repeated in the title of a musical work composed by Bruce Adolph (far right) based on passages from Damasio’s book, *Descartes’ Error: Emotion, Reason and the Human Brain*. Together with musicians from the USC Thornton School of Music (above), they presented the composition in a March 6 symposium and performance at Mayer Auditorium. In cooperation with Visions and Voices, the program was co-sponsored by the Keck School of Medicine’s Program in Medical Humanities, Arts and Ethics and the USC Pacific Center for Health Policy and Ethics. It was organized by Pamela Schaff, pediatrics and Keck educational affairs; Erin Quinn, Keck admissions; Hilary Schor, English and law; and Peter Crookes, surgery.



Jon Nalick

Gene variant linked to autism, gastrointestinal dysfunction

By Meghan Lewit

A study led by researchers at USC and Vanderbilt University have identified a specific gene variant that links increased genetic risk for autism with gastrointestinal (GI) conditions.

The findings suggest that disrupted signaling of the MET gene may contribute to a syndrome that includes autism and co-occurring gastrointestinal dysfunction, said principal investigator Pat Levitt, director of the Zilkha Neurogenetic Institute at the Keck School of

Medicine of USC and chair-designate of the Department of Cell and Neurobiology.

The study will appear in the March Issue of the journal *Pediatrics* and is now available online.

‘Our study...bring[s] together genetic risk for autism and co-occurring GI disorders in a way that provides a biologically plausible explanation for why they are seen together so often.’

— Pat Levitt, director of the Zilkha Neurogenetic Institute

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In the brain, the MET gene is expressed in developing circuits that are involved in social behavior and communication. Disturbances in MET expression result in alterations in how these critical circuits develop and mature, Levitt explained. Research indicates that MET also plays an important role in development and repair of the GI system.

Researchers analyzed medical history

records from 214 families in the Autism Genetic Resource Exchange. They found that a variant in the MET gene was associated with autism specifically in those families where an individual

had co-occurring autism and a GI condition.

The study brings researchers closer to understanding the complex genetic risks for autism. However, further research is needed, as different combinations of genes are likely to result in different types of autism features, Levitt said.

“We believe that there are other genes that will help identify different subgroups of individuals who have autism spectrum disorder,” he said. “We also believe that there needs to be research looking at whether the children with co-occurring GI dysfunction and autism have unique features that will help us predict what treatments will be best for them.”

The study was funded by the Simons Foundation, the Nancy Lurie Marks Foundation, the Dan Marino Foundation’s Marino Autism Research Institute, the National Institute of Mental Health and the National Institute of Child Health and Human Development.

Daniel B. Campbell, Timothy M. Buie, Harland Winter, Margaret Bauman, James S. Sutcliffe, James M. Perrin, Pat Levitt. “Distinct Genetic Risk Based on Association of MET in Families With Co-occurring Autism and Gastrointestinal Conditions.” Pediatrics. Doi: 10.1542/peds.2008-0819.

Faculty Innovator Roundtable examines venture capital pros and cons

By Sara Reeve

Cultural differences between universities and venture capitalists often hamper efforts to maximize the impact of university research, according to Richard Hull, senior director of innovation advancement and business development at the USC Stevens Institute for Innovation.

Hull led a discussion for an audience of faculty, researchers and staff about best practices for dealing with venture capitalists, on March 5 at USC Norris Cancer Center.

“There is a very small subset of technology that makes sense to pull out and build a corporate entity around,” said

Hull. “Something on the order of 10 percent of university projects are appropriate for venture capital funding.”

The HSC Faculty Innovator Roundtable discussion presented the results of a four-month-long study of 94 senior managers of active venture funds. The presentation highlighted the importance of understanding investor motivations and keeping expectations realistic.

Hull gave the audience five best practices that can help create the best possible outcomes between universities and venture capitalists:

1. Know Your Venture Capitalists. Hull advised that

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INNOVATORS: 'Two percent of \$2 billion is better than 60 percent of nothing'

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most venture capitalists are looking for simple, high-growth business models that have multiple potential products or applications—no “one-hit wonders.” Faculty were also advised to be aware of the ‘ticking clock,’ the fact that venture funds have only a few years to identify investment opportunities and guide their portfolio companies to a successful exit event.

2. Support and Educate Your Entrepreneurs. According to Hull, the university has a responsibility to help faculty set a realistic outlook, not only about the technology outcomes, but also regarding expectations of the venture capitalists.

“In the typical deal for a first round of VC funding, on Day 1, you will retain only 30 percent of your company,” said Hull. “After several rounds, you could hold on to as little as two percent. But if you’re working with the right VC, two percent of \$2 billion is a lot more than 60 percent of nothing.”

3. Make It Easy. According to the Stevens study, venture capitalists want universities to take a business approach, rather than a legal one, when it comes to technology transfer. “We need to speak in the language of business, not ‘academese,’” he said.

4. Get Out There. Venture capitalists interviewed said that universities need to be more proactive in seeking relationships in the venture capital community, rather than expecting VC funding to come to them.

5. Foster a Culture of Innovation. Hull stressed that venture capitalists are looking for an “ecosystem of entrepreneurship”—a top-to-bottom culture that breeds and fosters innovation.

With the depressed state of the economy, Hull noted that competition for available venture capital



Richard Hull, senior director of innovation advancement and business development at the USC Stevens Institute for Innovation, discusses the costs and benefits of working with venture capitalists.

has intensified. “Now venture funds are having trouble raising money,” he said. “How the economy will affect research funding in 12 to 18 months will be interesting.”

After the presentation of the study findings, Hull opened the discussion up to questions from the audience. Much of the audience focused on the question of how to know if the decision to seek out venture capital funding is appropriate for a specific project.

“If you want to run your own company, and you have the experience to do it, I would not recommend turning to VC funding,” advised Hull. “But if you lack the experience or the network to get your product off the ground, VCs can be a good resource.”

A full copy of the USC Stevens Institute report, “Venture Capital-University Interface: Best Practices to Make Maximum Impact,” can be downloaded at <http://stevens.usc.edu/docs/vcstudy.pdf>.

As Latinos assimilate into U.S. culture, sun safety declines, according to study

By Veronica Jauriqui

As Latinos acculturate into the U.S. population and lifestyle, the extent to which they protect themselves from sun exposure declines, according to a recent study published in the *American Journal of Public Health* and led by Valentina Andreeva, a research assistant at the Keck School's Institute for Health Promotion and Disease Prevention Research.

Andreeva and researchers from both USC and the National Cancer Institute (NCI) analyzed the sun-protection

habits of nearly 500 Latinos, as reported in the 2005 Health Information National Trends Survey (HINTS) administered by the NCI. This included their propensity to use sunscreen, wear protective clothing or seek shade when outside on warm, sunny days.

Depending on the extent of their acculturation—i.e., their length of time in the country and familiarity with the English language—those ranked high in acculturation were less likely to take steps to protect themselves from sun exposure. This, Andreeva said, could be

a contributing factor in the growing incidences of melanoma among Latinos in this country.

“Sun-safe behaviors appear similar to other health behaviors which decrease with increasing acculturation,” she said. Latinos who are more acculturated, for example, are at greater risk for substance abuse, certain types of cancer and poor eating habits.

This was the first study to document how acculturation influences Latinos' sun-safe behaviors and skin cancer risks. Among the other findings from the study were observations that Latinas were more inclined to use sunscreen and seek shade than Latinos, who were more likely to use protective clothing.

Age and education also play roles, as those who were younger or had higher education levels were also more likely to use sunscreen.

Though Andreeva acknowledges the small sample size as a limitation, she said that the findings could help in developing more effective messages to U.S. Latino populations when it comes to protecting themselves from sun exposure.

“Sun safety messages for less acculturated Latinos could use informal, inexpensive, Spanish-language strategies reinforcing existing sun-safe behaviors,” she said. “Initiatives for highly acculturated Latinos could be similar to those targeted at the general U.S. population and the goal would be behavior modification.”

The study was part of Andreeva's dissertation research and was done in collaboration with Jennifer Unger, Amy Yarocho, Myles Cockburn and Lourdes Baezconde-Garbanati with the Keck Institute as well as with NCI researchers from the NIH.

DID WE SAY THAT?

A photo caption in the Feb. 27 issue misspelled the name of Keck School of Medicine student Maria Victoria Peralta. The caption also incorrectly stated the school affiliations of USC students Dane McLeod and Steven Kapp. McLeod is a business major. Kapp is a public policy management and planning major.

McDonald House Charities salute Siegel

By Ina Fried

Ronald McDonald House Charities of Southern California has honored Stuart E. Siegel for more than 30 years of leadership as president of the organization's board of directors.

Siegel is professor and head of the division of hematology-oncology in the Department of Pediatrics at the Keck School of Medicine and associate director for pediatric oncology in the USC Norris Comprehensive Cancer Center, and director of the Childrens Center for Cancer and Blood Diseases at Childrens Hospital Los Angeles. He was guest of honor at a toast and roast Feb. 27 at the Beverly Hilton Hotel.

Siegel's "life's work has been to put an end to the death and suffering caused by childhood cancer," said Nicole Rubin, CEO of Ronald McDonald House Charities of Southern California, in the event program. In addition to publishing more than 200 scientific articles and presenting more than 400 papers at medical and scientific meetings, "Dr. Siegel understood the critical need for housing and support services for families, particularly those driving long distances to ensure the best medical care for their children. He appreciated the devastating effects of childhood cancer such as developmental delays and diminished self-esteem and wanted to ensure programs were developed to address these broadly defined needs."

He helped found the predecessor of today's Southern California Chapter of Ronald McDonald House Charities. His leadership was instrumental in founding Camp



Stuart E. Siegel (right), accepts the President Emeritus Award from Ron Piazza, president of Ronald McDonald House Charities of Southern California.

Ronald McDonald for Good Times and houses in Los Angeles, Orange County, Loma Linda and Pasadena. Additional houses are under development.

Siegel is a member of the Global Ronald McDonald House Charities board of trustees and a life member of the Southern California board of directors.

"Stuart Siegel's work with Ronald McDonald House Charities exemplifies his compassion for the children and the families who benefit from his medical expertise," said Peter Jones, director of the USC Norris Comprehensive Cancer Center, which was a sponsor of the event. "We are honored to join in the salute to our colleague."

Among those attending to honor Siegel were Roberta Williams, professor and chair of pediatrics at the Keck School and vice president of pediatrics and academic affairs at Childrens Hospital Los Angeles; Richard Cordova, president and CEO of Childrens Hospital; Bill Loadvine, senior executive director of development for the Keck School; and Tina Pakfar, executive director of development for USC Norris.

ETCETERA

Richard Bergman, professor of medicine and chair of the Department of Physiology and Biophysics, recently delivered a distinguished lecture at Harvard on diabetes and genetics. The lecture, delivered on Feb. 12, was part of a new Harvard seminar series "Questions in Quantitative Medicine," which is intended to bring together clinicians and the systems biology community and illustrate how quantitative approaches can yield important biomedical insights. Bergman's lecture, "Systems Biology and Glucose Homeostasis: Prediction, Prevention and Genetics of Type 2 Diabetes," explored how well systems biology analysis can explain principles underlying diabetes and predict the disease in at-risk individuals.

Bergman also delivered lectures at the Joslin Diabetes Institute and the Eli and Edythe Broad Institute at MIT on the same trip to Boston.

USC faculty members **Jeff Goad**, USC School of Pharmacy, and **Bill Mason**, with the Keck School of Medicine and Childrens Hospital Los Angeles, participated in an informational hearing titled "Protecting Public Health: Preventing Disease through Immunization." The hearing was held by the Assembly Health Committee in Sacramento. Mason discussed the infrastructure in place to ensure the safety of vaccines, while Goad explored the issue of access to immunization and the availability of alternative sites for delivery, such as pharmacies and school sites.

Parents magazine has named Childrens Hospital Los Angeles among the top 20 children's hospitals in America—the only children's hospital in

California to make the list. The magazine, which considered 75 children's hospitals nationally in its February 2009 issue, ranked Childrens Hospital Los Angeles as #19.

Keck School of Medicine Dean **Carmen A. Puliafito** hailed the ranking, which he said reflects "the dedication and commitment to excellence of the hospital's physicians and scientists—all of whom are faculty of the Keck School."

The Association of American Medical Colleges (AAMC) has named USC junior **Chanel Fischetti** as one of 10 winners of its AspiringDocs.org Video Contest, whose prize includes \$1,000 toward medical school application costs.

The contest, part of an outreach effort by the AAMC to increase diversity in medicine, required participants to submit a two-minute video explaining why they wanted to become a doctor.

In her video (online at <http://tinyurl.com/dmayv1>) Fischetti explained in both words and American Sign Language her desire to become a physician who works with the deaf, adding, "I want my passion to translate into my work."

USC Civic and Community Relations is updating the "USC and the Community Directory." The directory lists community-outreach programs sponsored by or affiliated with USC that took place in 2008-2009. If you know of a program that was active during the 2008-2009 academic year and that should be listed, e-mail the USC CCR office at kdiaz@usc.edu or call (213) 743-4514 to request a new program form before March 15.

USC researchers well represented at American Assn. for Advancement of Science meeting

By Carl Marziali

Peter Jones, director of the USC Norris Comprehensive Cancer Center, was among seven USC researchers to join colleagues from around the world for presentations at the 2009 meeting of the American Association for the Advancement of Science.

Held Feb. 12-16 in Chicago, the meeting—considered the largest and most prestigious general science conference of the year—featured symposia

and news briefings on the most current research in all major scientific disciplines, with a broad focus on evolution in recognition of the 200th anniversary of Charles Darwin's birth.

At a session on epigenetics—the study of changes in gene activity that do not alter the underlying DNA—Jones reviewed the role of epigenetics in cancer.

"Epigenetics play a major role in the genesis of human cancers," he said,

adding that almost every known cancer has multiple defects in gene expression.

The silencing or activation of selected genes is a normal part of animal biology, Jones said. Humans, like other mammals, depend on methylation—the attachment of methyl groups to specific genes—to survive.

But because epigenetic changes are so stable and long-lasting, they also can serve as powerful allies to cancer and other diseases.

Jones displayed data showing a reversal of normal epigenetic patterns in patients, where methylation silenced protective genes and de-methylation promoted the activity of otherwise silent genes.

Surprisingly, drugs that prevent or reverse such changes have been around for a long time.

The azanucleosides are the best and

were invented in Communist Prague 45 years ago, Jones told the audience.

In a 2007 clinical trial of one such drug, 5-azacytidine, against myelodysplastic syndrome, a deadly precursor to leukemia, the two-year survival rate rose from 26 percent to 50 percent, Jones said.

"We're at a very exciting time now as we begin to target these kinds of changes. The time of epigenetic therapy is now here," he added.

The annual meeting of the American Association for the Advancement of Science brings together scientists, policymakers, journalists and members of the public to promote effective science communication. The 2009 meeting was the 175th.

The AAAS is the world's largest scientific society and is the publisher of the journal *Science*.

In Case of An Emergency...

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The emergency telephone system can handle 1,400 simultaneous calls. It also has a back up system on the East Coast.

Calendar of Events

The HSC Calendar is online at www.usc.edu/hscalendar

Monday, Mar. 16

NOON. "Edema & Diuretics V," Mirosław Smogorzewski, USC. GNH 4420. Info: (323) 226-7307

NOON. Basic Science Seminar. "Functional Genomics, Experimental Models and Cancer," William Hahn, Harvard. NOR 7409. Info: (323) 442-1144

4 P.M. "Research in Progress," Jacob Ahdoor, USC. GNH 4420. Info: (323) 226-7307

Tuesday, Mar. 17

NOON. Cancer Ctr. Grand Rounds. "Secretion of Heat Shock Protein-90 (Hsp90) by Normal Cells Under Stress and by Tumor Cells During Invasion: Why?" Wei Li, USC. NOR 7409. Info: (323) 865-0801

Wednesday, Mar. 18

NOON. "Plasmapheresis," David Viavarella, Hemocare Corp. GNH 4420. Info: (323) 226-7307

NOON. "Structural Basis of Protein Phosphatase 1 Regulation," Wolfgang Peti, Brown Univ. ZNI 112. Info: (323) 442-3219

Thursday, Mar. 19

11 A.M. "Molecular Imaging Seminar. "Molecular Imaging of Angiogenesis and Anti-angiogenic

Treatment," Shawn Chen, Stanford. NOR 7409. Info: (323) 442-3858

4 P.M. ZNI Seminar. "Serotonin, Fetal Brain Wiring and Materno-fetal Interactions," Alexandre Bonnin, Vanderbilt Univ. ZNI 112. Info: (323) 442-2144

Friday, Mar. 20

8:30 A.M. "Exploiting Lung Mesenchymal Signaling to Prevent Bronchopulmonary Dysplasia," V. Rehan, UCLA. GNH 11-321. Info: (323) 226-7923

11 A.M. Hematology Grand Rounds. "ASH Updates – Anticoagulation," Ilene Weitz, USC. IPT C2J103. Info: (323) 865-3950

NOON. Pharmacology and Pharmaceutical Sciences Seminar. "Endosomal Protein Trafficking Hermansky-Pudlak Syndrome and Schizophrenia," Esteban C. Dell'Angelica, UCLA. PSC 104. Info: (323) 442-1445

4 P.M. USC Norris Cancer Hospital National Colorectal Cancer Awareness Month Reception. Aresty Conference Ctr. Info: (323) 865-3873

4 P.M. USC Norris Cancer Hospital Annual Patient Reception. NOR Aresty Conference Ctr. Info: (323) 865-3873

Monday, Mar. 23

NOON. "Hemophagocytic Lymphohistiocytosis," Stratos Christianakis, USC. GNH 6441. Info: (323) 442-1946

NOON. NEPHSAP: Ca/Phas/Vita D/PTH in CKD," Mirosław Smogorzewski, USC. GNH 4420. Info: (323) 226-7307

NOON. Basic Science Seminar. "COUP-TFII, a Nuclear Receptor, in Angiogenesis and Tumorigenesis," Sophia Tsai, Baylor College of Medicine. NOR 7409. Info: (323) 442-1144

Tuesday, Mar. 24

11:30 A.M. CTSI Regulatory Affairs Grand Rounds. "FDA Recent Trends and Initiatives in Medical Product Development," Frances Richmond, USC. CHP 106. Info: (323) 442-3321

Wednesday, Mar. 25

8:30 A.M. "Contrast Induced Nephropathy-risks and Prevention," M. Nadim, USC. GNH 11-321. Info: (323) 226-7923

NOON. "Renal Biopsy," Michael Koss and Vito Campese, USC. GNH 4420. Info: (323) 226-7307



Don Milici

Clive and Susan Taylor, appearing above at a March 7 Salerni Collegium dinner, began their association with the Keck School in 1975, when Clive Taylor began a fellowship in cancer research.

Salerni Collegium honors key supporters

By Ina Fried

Two couples who have been devoted to the Keck School of Medicine of USC for many years were honored March 7 at a dinner recognizing Keck School student scholars.

At the Annual Scholarship Dinner at the Jonathan Club, Salerni Collegium and Medical Faculty Wives and Friends (MFWF) honored Cynthia and Thomas Berne and Susan and Clive Taylor, and announced this year's scholarship recipients.

"We attract unbelievable students," said Keck School Dean Carmen A. Puliafito. He said that the scholarship funds donated by the two organizations are especially important in competing for students against other top medical schools.

Henri Ford, vice dean for medical education, introduced 18 medical scholarship recipients. The surprise award, the \$10,000 Salerni Past President Scholarship, went to Neil Parikh. Each of the other recipients received \$5,000.

Cynthia and Tom Berne have been affiliated with the Keck School of Medicine through Tom Berne's student

and residency years and almost 40 years of faculty service. A professor in the division of trauma surgery and critical care, he has served as president of several surgical associations. A long-time member of MFWF, Cynthia Berne is currently co-president and has worked with CARES, the LAC+USC Medical Center Auxiliary, which runs child care centers for patients. One of the Bernes' three children is also a Keck alumnus.

Susan and Clive Taylor began their association with the Keck School in 1975, when Clive Taylor began a fellowship in cancer research. He has served as chair of the Department of Pathology for 25 years and has been senior associate dean for educational affairs for 10 years. He is editor-in-chief of the pathology journal *Applied Immunohistochemistry and Molecular Morphology*, for which Sue Taylor is managing editor.

A former co-president of MFWF, she is on the board of the USC Norris Cancer Center Auxiliary, and she volunteers in the Norris pre-surgery department. All four of the Taylor children are alumni of the Keck School.

HSC NEWSMAKERS

Complete listing at: www.usc.edu/uscnews/usc_in_the_news/

On March 9, KCRW-FM quoted stem cell expert **Martin Pera** about President Barack Obama lifting restrictions on embryonic stem cell research. Pera was also quoted in the *Los Angeles Daily News* and his comment on the announcement was featured on the Google News homepage.

On March 4, the BBC aired a documentary on the Argus II retinal implant that featured footage and graphics from USC.

On March 3, ABC News affiliate WLS-TV quoted fertility expert **Richard Paulson** about a woman with two wombs who gave birth to twins.

A March 2 *USA Today* article featured research led by neuroscientists **Daniel Campbell** and **Pat Levitt**, which identified a gene variant that is

associated with both autism and gastrointestinal problems in individuals with autism. The study and the researchers were also featured in *U.S. News & World Report*, *Forbes*, *Science News*, United Press International and Medical News Today online.

A March 2 *Press-Enterprise Newspaper* article cited a USC study on air pollution.

A March 1 *The Times* (U.K.) article cited a USC study on air pollution and children's lung development. In 2007, USC scientists found that children who live within 500 yards of a main road have stunted lung development.

The February issue of *Southern California Physician Magazine* featured an op-ed by Keck School students **Walavan Sivakumar** and **Rebecca Van Horn**.

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