USC neuroscientists receive $9 million to map gene expression

By Meghan Lewit

Two USC neuroscientists have been awarded nearly $9 million in American Recovery and Reinvestment Act funds to map how genes are expressed in different regions of the human brain throughout development.

The two-year Grand Opportunity grant, funded through the National Institute of Mental Health, will allow researchers to use DNA sequencing and profiling technologies to create an atlas of when and where thousands of genes are expressed during key periods of development. The findings will be freely accessible to scientists worldwide and provide a foundation for discovering the origins of mental disorders.

James A. Knowles, professor of psychiatry at the Keck School of Medicine of USC, and Pat Levitt, director of the Zilkha Neurogenetic Institute at the Keck School of Medicine, will lead the project in collaboration with researchers at Yale University and the Allen Institute for Brain Science in Seattle, Wash.

“This project will allow us to document which individual genes and sets of genes are turned on and off in different brain regions through the whole developmental time period,” said Knowles, the principal investigator on the project. “This information is essential for understanding normal and abnormal brain development.”

Mental disorders such as autism and schizophrenia are increasingly recognized as brain disorders that have their origins during development. However, relatively little is currently known about how specific genes regulate human brain development, Knowles noted.

Co-principal investigator Levitt, who is also Provost’s Professor of Neuroscience, Psychiatry, and Pharmacy, said, “Breaking through the mysteries of the developing human brain and the origins of mental illnesses requires a very large, collaborative effort. We are so pleased to be part of an esteemed group of scientists that will produce more information on the human brain than ever before.”

He added, “This will lead to new breakthroughs in determining disease risk and prevention.”

Researchers at USC and partner institutions will sequence the genomes from hundreds of brain samples in order to create a three-dimensional, Web-based model that can be used by scientists all over the world as a basis for future neuroscience research.

“This will provide investigators with a fantastically rich resource for future research,” Knowles said.

The purpose of the National Institutes of Health Research Infrastructure Grand Opportunities program is to support high impact ideas that lay the foundation for new fields of investigation.

“The initiative is one of several being offered to help fulfill the goals of the American Recovery and Reinvestment Act of 2009 to help stimulate the economy through support of biomedical and behavioral research.

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

Study identifies genes that may predict bladder cancer survival

By Meghan Lewit

Researchers at the Keck School of Medicine have identified four specific genes that appear to predict urinary bladder cancer recurrence and survival.

The study was published in a recent issue of the Journal of Clinical Oncology.

“We have documented a four-gene panel that significantly predicts both bladder cancer recurrence and survival. This concise prognostic gene pool has been discovered using targeted expression profiling, and is superior to current panels that often consist of hundreds of genes,” said Anirban Mitra, research professor of the Zilkha Neurogenetic Institute and Helen Diller Family Comprehensive Cancer Center of the University of California, San Francisco.

The prognostic potential of the gene panel was further verified by an external cohort of bladder cancer patients from the Memorial Sloan-Kettering Cancer Center in New York.

“The results suggest that these genes and their associated pathways may serve as promising outcome predictors and potential therapeutic targets in bladder cancer,” Mitra said. “We believe that we are the only institution currently using such pathway-specific investigations for this cancer type.”

“This is a truly unique prognostic analysis,” he said.

Urinary bladder cancer affects more than 70,000 people each year in the United States. Of all types of cancer, bladder cancer has an unusually high propensity for recurrence. This requires frequent follow up and cystoscopy, making it one of the most expensive cancers to manage, Mitra noted.

The results showed that six genes were significantly associated with time to cancer recurrence, while 10 genes were tied to overall survival. Of all the genes identified in the analysis, four were found to significantly predict both recurrence and survival (JUN, MAP2K6, STAT3, and ICAM1).

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Study explores ways to improve cancer knowledge through narrative

What caused Pinocchio’s nose to grow longer? What was the name of your second grade teacher? If the first question seemed much easier to answer, you’re not alone, which is why USC Annenberg School for Communication and Journalism professor and principal investigator Sheila Murphy and joint principal investigator Lourdes Bazcoconde-Garbinati and their colleagues will research narratives as a way to learn and retain information about such important topics as cancer.

Bazcoconde-Garbinati is an associate professor of research at the Keck School of Medicine of USC and the USC Norris Comprehensive Cancer Center. “Transforming Cancer, Knowledge, Attitudes and Behavior Through Narrative” was awarded a five-year $3.1 million grant from the National Institutes of Health. A team of medical researchers, script writers, artists, physicians, psychologists, anthropologists, communication scholars and public health professionals will examine and reinvent how health-related information is conveyed.

The purpose of the research is to challenge the underlying assumption that the traditional straightforward recitation of the facts is the optimal way to convey health-related information. As Murphy pointed out, the power and perseverance of a narrative or story structure has been recognized and utilized for thousands of years, but when it comes time to craft health messages designed to convey crucial, potentially life-saving health information, Western medicine all but ignores the use of narrative. The proposed research empirically tests whether utilizing a narrative format might produce a greater and longer lasting impact on knowledge, attitudes, and prevention behavior.

The research also questions the assumption of a “one-size-fits-all” message strategy by testing whether narratives may be particularly effective for cultures with a strong oral tradition, for recent immigrants, for older generations and for populations with low literacy.

“The research will focus on breast and cervical cancer; the results have clear implications for virtually all health care communication,” Murphy said. “This research could radically change how health messages are conveyed across different ethnic groups, generations and modalities.” Others involved with the grant include Sandra Ball-Rokeach (co-PI), USC Annenberg, Robert Halé (co-PI), USC Norris Comprehensive Cancer Center; Sandra de Castro Bufington (co-PI), Hollywood, Health & Society at USC Annenberg’s Norman Lear Center; Chih-Ping Chou (co-investigator), Keck School of Medicine and USC Norris Comprehensive Cancer Center; Vickie Cortessi (co-investigator), USC Norris Comprehensive Cancer Center; Doc Mayer (co-PI), USC Annenberg/USC School of Cinematic Arts; Meghan Bridger Moran (postdoctoral associate/research associate), Keck School of Medicine; Laila Muderusprach (co-investigator), Keck School and LAG/USC Hospital; Gary D’Cunha (consultant), BBC World Service Trust; Thomas Valente (co-PI), Keck School of Medicine and USC Norris Comprehensive Cancer Center, and Mariana Amatulli, Art Center College of Design.

The grant is classified under the National Institutes of Health director’s new T-R01 program that strives to accelerate the current pace of discovery through the support of highly innovative research. T-R01s provide a new opportunity for scientists that is unmatched by any other NIH program. Since no budget cap is imposed and preliminary results are not required, scientists are free to propose new ideas that may require significant resources to pursue. They are also given the flexibility to work in small, complex teams if the complexity of the research problem demands it.

NIH director Francis S. Collins said the appeal of this and other recent NIH grants is that investigators are encouraged to challenge the status quo with innovative ideas, while being given the necessary resources to test them.

“The fact that we continue to receive such strong proposals for funding through the programs reflects the wealth of creative ideas in science today,” Collins said.

JCO: Genes may aid prognostic prediction

Continued from page 1 invasive form of the cancer, which comprises about 20 to 30 percent of cases, has a low survival rate, and treatment usually involves removing the bladder.

“This study identifies gene alterations that have the strongest prognostic impact across all disease stages. Our approach defined a panel that can predict an individual patient’s prognosis, independent of standard clinical and pathologic criteria,” explained Richard Cote, former professor of pathology at the Keck School of Medicine and current chair of the Department of Pathology at the University of Miami Miller School of Medicine and principal investigator of the study. The results of the USC study have a direct clinical and devices that help people manage their health. The panel also examined how these applications and devices relate to health care reform in terms of cost control and improving patient outcomes.

“This conference has established USC on the forefront of a real game changer in medicine,” said Saxon.
**Keck School of Medicine opens new computer testing center**

By Sara Reeve

The Keck School of Medicine officially opened its new computerized testing center at a reception on Sept. 30. The center, which began testing services for students recently, is located in the Bishop Medical Teaching building and consists of two testing rooms that can accommodate 47 students each.

“This is a really exciting day for us,” said Henry Ford, vice dean of medical education, who spoke at the reception. “It celebrates the culmination of a dream that we didn’t think was possible.”

According to Ford, the new center is reflective of an early trend among medical schools of offering or borrowing from paper to the screen. “Having this center puts us among the list of elite medical schools,” said Ford. “It demonstrates to the Liaison Committee on Medical Education how serious we are about medical education, to become one of the dozen or so institutions in the country to have such a center.”

By taking exams online, students can view detailed medical imagery and receive exam results rapidly. Getting acclimated to computerized testing will also help students prepare for exams offered by the National Board of Medical Examiners. The establishment of the computerized testing center is part of a wider effort on behalf of the Keck School to incorporate computers into the classroom. The Year II lecture hall was recently upgraded with seats that are laptop-sized, for laptop computers and are fitted with laptop-sized tablet arms.

“During a lecture at the Keck School of Medicine, students with laptop computers have the opportunity to download the power point presentation of the lecturer and better follow by annotating the lecture slides,” said Allan Abbott, associate dean for curriculum. “Lecture handouts are also available for download to use as reference during the presentation.” According to Abbott, many students are now installing software on their computers so that they can directly interact with audience response questions during classes.

“These new capabilities mark another milestone that reflects our desire to provide innovative medical education for our students,” said Ford.

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**The Weekly NEWSMAKERS**

On Oct. 12, NBBC-TV interviewed associate professor of preventive medicine Michael Cousineau about a study led on homelessness in Los Angeles. The Los Angeles Daily News, the Whittier Daily News and the Web site LAist also reported on the study.

An Oct. 6 Jewish Journal article reported that Charles Goldenstein of the USC School of Dentistry was honored by the nonprofit organization Homeless Not Toothless, which brings together area dental offices to provide free care to the homeless and underserved.

An Oct. 6 San Francisco Chronicle blog featured chief of cardiovascular medicine Leslie Saxon and the Body Computing conference held at USC. The Huffington Post also featured an editorial by Saxon on health information technology, and Fast Company Magazine reported on topics covered at the conference.

An Oct. 4 Chicago Tribune article quoted professor of medicine and co-leader of the Women’s Cancer Program at USC Norris Debu Tripathy in a story about advances in breast cancer research.

An Oct. 3 Press-Enterprise article quoted associate professor of preventive medicine W. James Gauderman about the Obama administration reconsidering the federal health standard for ozone to determine if the standard set by the Bush administration goes far enough to protect health.

An Oct. 2 Associated Press article featured the announcement of a $10 million gift from Patrick Soon-Shing of Abaraxis BioScience Inc. to turn St. John’s Health Center in Santa Monica into a cutting-edge hub by linking it with doctors and patients at other hospitals, as well as researchers at USC and UCLA.

A Sept. 20 Ventura County Star article reported that proceeds from the recent Cure in the Canyons III charity event will fund research at the USC Norris Comprehensive Cancer Center and its Lee Breast Center.
Calendar of Events

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

Saturday, Oct. 17
9 a.m. “Product Safety through Risk Communication,” Various speakers. CPR 106. Info: (323) 442-3102

Monday, Oct. 19
Noon Liver Grand Rounds “Case Presentations,” Joan Kim, USC. IPT CJ3101. Info: (323) 409-7995


3 p.m. 12th Student, Faculty and Staff Art Gallery Show Opening Reception. RMA Museum Lobby. Info: (323) 442-2553

Tuesday, Oct. 20
9 a.m. Neurology Grand Rounds “Mapping Susceptibility and Modeling Pathogenesis in Multiple Scleran.” Jorge Oksenberg, UCI. San Francisco: ENI 112. Info: (323) 442-7086

11 a.m. Endocrinology Grand Rounds “Testosterone Therapy for Hypogonadism,” Glenn Braunstein, Cedars-Sinai Medical Center. IHH 100. Info: (323) 442-2806


Wednesday, Oct. 21
5 p.m. USC Global Health Visions for Change Lecture Series: “Fighting the H1N1 Outbreak in Mexico,” Marcois Hernandez, Avila, Deputy Minister, Ministry of Health, Mexico. UPC Daniel Boone Conference Ctr. Info: (323) 865-0419

Thursday, Oct. 22
Noon Research Center for Liver Disease Seminar “Progressor Syndromes and the Molecular Basis of Aging,” Lucio Comai, UCSD, HBB 100. Info: (323) 442-2283


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 HSC Weekly, KAM 400 or fax to (323) 442-2812, or e-mail to eblauzer@usc.edu. Entries must include day, date, time, title of talk, and name of speaker, affiliation of speaker, location, and a phone number for information.

Saturday, Oct. 17
9 a.m. “Product Safety through Risk Communication,” Various speakers. CPR 106. Info: (323) 442-3102

Friday, Oct. 23
8 a.m. CILLA Grand Rounds “The Surgical Challenge of Neuroblastoma,” Edward St. Gerard Kiley, Great Ormond Street Hospital, London, Saban Research Building Aud. Info: (323) 361-2935

8:30 a.m. “Advances in Mass Causally Granule Prionning Treatment Research,” Matthew Bremmer, UC Irvine (GMR 111). Info: (323) 226-7923

9 a.m. USC Childhood Obesity Research Ctr. “Proteomics in the Study of Insulin Resistance and Type 2 Diabetes Mellitus,” Lawrence Mandarino, Arizona State Univ. USC BGC 250. Info: (323) 442-2637

10:30 a.m. Parent’s Day Health Fair and American Pharmacist Month Celebration. Free Screenings. UPC Quad area by Tommy Trojan. Info: (323) 442-3497

11 a.m. Immunology Grand Rounds “Acute Myeloblastic Leukemia – Novel Strategies,” Gary Schiller, UCLA. IPT CJ 22103. Info: (323) 865-3950

Noon Gastrointestinal Grand Rounds “Gene Expression Patterns in the Cöllagenous Stratum,” Michael Meiselman, professor of physiology and biophysics; and Tahara, associate professor of microbiology, are all members of the USC Amateur Radio Emergency Communication Team. The group, started just a few months ago, includes 10 additional members at the University Park Campus. Meiselman and Tahara started their amateur radio hobbies about 10 years ago, after discovering their shared interest during casual conversation. Bauer took it up after the 1998 Whitewater earthquake rattled her nerves. Today, she’s one of a small number of women who participate.

“It’s not something you mention in your resume, but some women say, ‘If a real disaster happens, I have the types who like to sit around,’ said Tahara. “Public service is a part of amateur radio. This is an opportunity for us to be of service.”

Above (from left), Madeline Bauer, Herb Meiselman and Stanley Tahara are prepared to assist in emergency communication using small but powerful radios (right) in the event of a large-scale disaster or earthquake.

Massry Prize Laureate wins the 2009 Nobel Prize in Chemistry

Professor Ada Yonath of the Weizmann Institute in Israel, who won the 2004 Massry Prize, received the 2009 Nobel Prize in Chemistry. She won both prizes for her work in mapping the structure of ribosomes, the protein-producing factories within cells at the atomic level.

To date, nine of the Massry Prize Laureates went on to win the Nobel Prize. Professor Yonath was the fourth woman scientist to win the Nobel Prize in Chemistry and the first since 1964 when Dorothy Crawford Hodgkin of Britain received the prize.

Shaul Massry, professor emeritus of medicine at the Keck School, founded the nonprofit organization that awards the Massry Prize.

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.

USC Health Sciences Public Relations and Marketing 1975 Zonal Ave. KAM 400 California Non-Profit Organization U.S. POSTAGE PAID University of Southern California Los Angeles, CA 90033

Amateur radio club members tune in, turn on, ShakeOut By Leslie Ridgeway

If cell phone and telephone systems are knocked out during a disaster, at least three people at the Health Sciences Campus stand a chance of making contact with the outside world.

Madeline Bauer, Herb Meiselman and Stanley Tahara tested their amateur radio skills during the Great California ShakeOut at 10:15 a.m. on Oct. 15. While rescue crews worked with mock victims during the earthquake drill, Bauer, Meiselman and Tahara staffed their amateur radios, testing communication capacities that will be critical if a real disaster happens.

Bauer, a statistician with the Department of Medicine; Meiselman, professor of physiology and biophysics; and Tahara, associate professor of microbiology, are all members of the USC Amateur Radio Emergency Communication Team. The group, started just a few months ago, includes 10 additional members at the University Park Campus. Meiselman and Tahara started their amateur radio hobbies about 10 years ago, after discovering their shared interest during casual conversation. Bauer took it up after the 1998 Whitewater earthquake rattled her nerves. Today, she’s one of a small number of women who participate.

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