



Gail and Gerald Oppenheimer Family Center for Neurobiology of Stress

David Geffen School of Medicine at UCLA

From the Desk of Emeran A. Mayer, MD Center Director



Despite the challenge of shrinking federal support for research, the Center has been successful in competing for several large grants from the National Institutes of Health and has accomplished several of its long-term goals during the first 6 months of this year, including the development of a unique brain imaging repository for common persistent pain syndromes, the initiation of two research training programs in mind brain body interactions for students and the organization of two highly successful UCLA symposia.

In addition, Center physicians have started to see patients with stress-sensitive digestive problems in the newly renovated UCLA Digestive Health and Nutrition Clinic. The Center has also received considerable attention in the lay press for its ground-breaking study on how the microorganisms in our gut can influence human brain activity.

Center Physicians Are Now Seeing Patients with Stress-related Chronic Pain Conditions in New Clinic

The UCLA Digestive Health and Nutrition Clinic, under the direction of Dr. Lin Chang, co-director of the Center, opened in August 2012. The new clinic treats patients with digestive disorders including irritable bowel syndrome, celiac disease, chronic constipation and diarrhea, and cyclical vomiting syndrome. The program offers state-of-the-art diagnostic evaluation, including detailed assessment of mind body imbalances, stress history and integrative medicine treatment. If indicated, comprehensive dietary evaluations and management plans will be provided and Clinic Physicians will work closely with integrative medicine providers in the community. This clinic will be at the forefront of new, innovative developments in this field of medicine and will give patients a much needed single place where they can receive care.



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## Center Organizing Student Course for Fall Quarter At UCLA

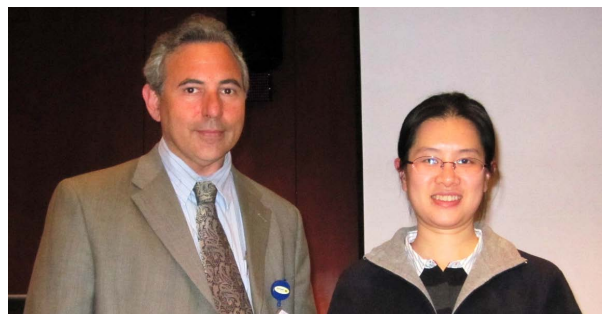
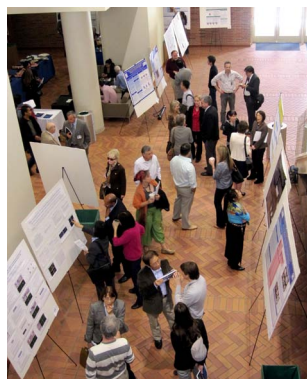
The Center is organizing an interdisciplinary teaching course through the "Fiat Lux Freshman Seminar Program" entitled "The Mind Brain Body Connection" for the 2012 Fall Quarter.

More than 20 UCLA students have signed up for this lecture series which will offer interactive discussions on a wide range of topics related to the science and practice of mind body medicine.



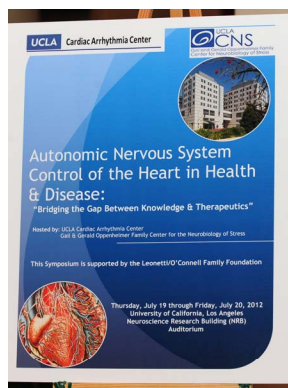
## Center Organizes Two Important UCLA Conferences

The Center celebrated the 10th anniversary of uninterrupted NIH funding to study sex-related differences in chronic abdominal and pelvic pain mechanisms. The symposium was commenced by Dr. John Mazziotta, Executive Vice Dean at UCLA, and attended by Dr. Janine Clayton, Director of NIH Office of Women's Health Research and Dr. Jill Goldstein, a prominent researcher on women's mental health from Harvard Medical School. The day-long program highlighted research led by senior UCLA investigators, as well as the accomplishments of junior investigators affiliated with the Center. Emphasizing the Center's interdisciplinary philosophy, the symposium featured a number of UCLA investigators from different departments and schools with a shared interest in women's health and in gender-related differences of disease. One of the major accomplishments of the Center's research has been the identification of differences in brain mechanisms which make women more vulnerable to develop several stress-related diseases, including chronic pelvic and abdominal pain conditions. These findings are the first step in developing more effective therapies for these often disabling pain conditions.



*Joseph Pisegna, MD (Left) presents the Best Basic Science Abstract Award to Post-doctoral Fellow Ivy Law, PhD.*

In collaboration with the UCLA Arrhythmia Center (Director: Dr. Kalyanam Shivkumar), the Center organized an interdisciplinary symposium on the interactions between the brain and the heart ("Neurocardiology"). This unique conference brought together leading national and international scientists who study the role of the nervous system in triggering fatal arrhythmias resulting in sudden cardiac death, an enormous health problem affecting 500,000 individuals annually in the US alone. It was the kick off event for a joint Neurocardiology research program between the Center for Neurobiology of Stress and the Arrhythmia Center.



*(Left-Right) Marmar Vaseghi, MD ; Kalyanam Shivkumar, MD, PhD; Olujimi Ajijola, MD*



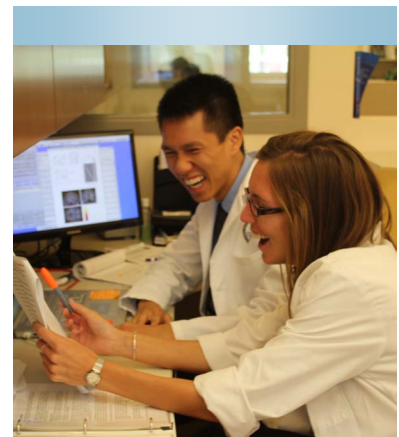
## New Student Training Programs in Mind Brain Body Interactions

Training students in the science of mind brain body interactions and providing them with a thorough understanding of why and how some integrative medicine approaches work in the clinic is one of the missions of the Center.

Ten students (including high school, college and medical students) participated in the first summer research program in mind brain body interactions. The research topics ranged from the neurobiology of resilience to obesity and effects of stress hormones on the brain. The program was very popular with the participants and presented an opportunity to teach students the interdependence of mind, brain and body in health and disease with first-hand research experiences .

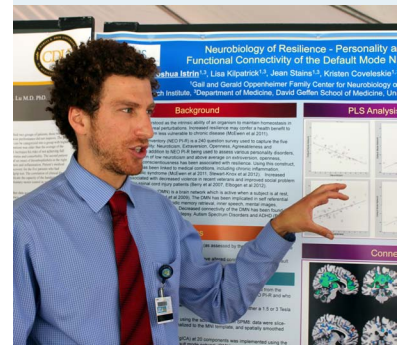


(Left-Right) Summer 2012 Medical students Katy Henry, JJ Istrin, Tony Cun and Andrew Su



Above: Medical students Tony Cun and Katy Henry

Below: Medical student JJ Istrin



*"I had a great experience working in such a collaborative lab. A student-based journal club was an excellent idea, which I am glad I was able to be a part of."*

## Center Investigators at the Forefront of New Research Areas of Gut Microbiota Brain Signaling

One of the most exciting and paradigm-transcending research area in brain body interactions is the discovery that trillions of benign bacteria ("gut microbiota") reside peacefully in our intestines and that they are able to communicate not only with our immune system (playing a major role in autoimmune diseases) and our liver (playing a major role in obesity and its complications) but also with our brain. Research in rodents during the past few years has demonstrated that these gut microbiota can influence chemical signaling mechanisms in the brain related to emotional behavior.

Center investigator Kirsten Tillisch, MD has performed the first ever study in healthy human subjects, demonstrating that such gut microbiota to brain communication can also occur in healthy human subjects, thus, opening up a totally novel field of research: Is there a link between our gut bacteria and our mood, pain sensitivity and sleep? Do alterations in our gut bacteria play a role in depression, anxiety and chronic pain? A major research effort of the Center in the next decade will be aimed at these questions.



## Center Successfully Competes for Several Large Grants from the National Institutes of Health

Despite the challenging funding climate, Center investigators have been highly successful in competing for research grants from the National Institutes of Health. New funding was obtained for a study, led by Kirsten Tillisch, MD and Bruce Naliboff, PhD, aimed at identifying patterns of brain activity and structure (also referred to as “brain signatures” or “biomarkers”) which can be used in future clinical trials evaluating mind-based therapies for stress-sensitive diseases including chronic pain.

Another study led, by Emeran Mayer, MD and Jeffrey Lackner, PsyD from the University at Buffalo, evaluates for the first time the effect of stress reduction and cognitive skill training (“cognitive behavioral therapy”) on brain function and structure in patients with chronic abdominal pain. It is hoped that the results will demonstrate that a simple 10-minute brain scan will be able to predict who will respond to this type of therapy.

Finally, under the leadership of Emeran Mayer, MD and Lin Chang, MD, the Center was able to renew a Center grant supporting research activities into women’s health and gender related differences. Total funding of these 3 grants amounts to more than \$1 million annually.

*“Being able to identify biological fingerprints in brain scans from patients with chronic pain conditions may greatly enhance our understanding of the factors underlying symptoms in such common disorders as fibromyalgia, interstitial cystitis and irritable bowel syndrome.”*

### First Donor Luncheon for Center To Be Held in September

The Center will be holding its first private luncheon for a group of prominent individuals from the community with interest in the Center’s activities.

The event will be hosted by Connie Gavin and Gail Oppenheimer, and will feature a talk by Emeran Mayer, MD on “Feeling Well: The Science Behind It and Ways to Achieve it.”

## Successful Development of the First Large-scale Brain Imaging Repository for Chronic Pain

With support of the NIH, Center investigators developed the first multi-site brain imaging repository for chronic pain. Using cutting edge technology developed originally by the UCLA Laboratory of Neuro Imaging (“LONI”), the brain imaging repository aims to grow to a total of 1,000 brain scans from patients with different chronic pain conditions including fibromyalgia, interstitial cystitis, chronic pelvic pain and irritable bowel syndrome. Once complete, this unique repository will enable investigators to probe the influence of genes, early adverse life experiences, stress and many other factors on brain networks and ultimately enable the “fingerprinting” of different pain conditions. It is hoped that this fingerprinting will enable the identification of high risk individuals and the individualization of cost-effective therapies.

