

**BRAIN RESEARCH INSTITUTE**

**UNIVERSITY OF CALIFORNIA, LOS ANGELES**

**51st ANNUAL REPORT**

**July 1, 2011 to June 30, 2012**



## MISSION

The Brain Research Institute's mission is:

- to increase understanding of how the brain works, how it develops, and how it responds to experience, injury and disease;
- to help make UCLA the preeminent center for translating basic knowledge into medical interventions and new technologies; and
- to promote neuroscience education at all levels.

To execute this mission, the BRI functions explicitly as the interdisciplinary and non-departmental voice of the basic neuroscience community. The BRI's strategic goals are:

- to invigorate research programs and to nurture novel collaborations that bring together investigators from complementary fields;
- to stimulate the translation of basic knowledge into therapies and cures for diseases and injuries of the nervous system;
- to recruit outstanding faculty, postdoctoral fellows and graduate students;
- to strengthen existing educational programs by fostering the integration of insights from basic neuroscience, cell and molecular biology, cognitive science, engineering and clinical neuroscience; and
- to extend educational outreach programs about the brain into the community.

## HISTORY

The Brain Research Institute is an Organized Research Unit (O.R.U.) that fosters interdisciplinary research and education within the UCLA neuroscience community. At the present time it includes 347 members; 281 full members who are active faculty members, 57 emeritus members, and 9 corresponding members, representing 27 academic departments throughout the campus.

The generosity of the Gonda family made possible the newest home of the Brain Research Institute, the Gonda (Goldschmied) Neuroscience and Genetics Research Center. A formal dedication of this specially designed research center was held on December 15, 1998. The first three floors of this building are designated specifically for the support of neuroscience research and education.

Organization of the Institute began in the early 1950s. Under the leadership of Dr. H. W. Magoun, members of many departments with prominent interests in nervous system research were encouraged to develop closer relationships so they might broaden the scope of their investigative activities and extend the effectiveness of their educational efforts.

A formal proposal was written and reviewed, and late in 1959, Institute status was assigned by the University of California. Concurrently, plans were completed to erect a building to house the research projects. In 1958, construction of a structure containing 76,000 square feet of space began. Occupancy of the building started in March of 1961, and the official opening of the Brain Research Institute was held on October 14 and 15, 1961. Dr. John D. French served as Director during the period 1961 to 1976. He was followed by Dr. Carmine D. Clemente, who served from 1976 to 1987. Dr. Arnold B. Scheibel served as Acting Director from 1987-1990, and as Director until June 1995. Dr. Allan J. Tobin served as Director from July 1995 through December 2003. For the year 2004, Dr. Christopher Evans, Associate Director for Research, and Dr. Michael Levine, Associate Director for Education, served as Interim Co-Directors. In December 2004, Dr. Christopher Evans was appointed as Director of the BRI.



**Brain Research Institute**  
**Summary of Activities 2011-2012**

Number of Members	347
Number of Member Publications	1495
Collaborative Publications between two or more BRI members	640
Predoctoral Students under Supervision of BRI Members	277
Postdoctoral Students under Supervision of BRI Members	287
Total Funding Administered through the BRI Fiscal Office (BRI Training Grants)	\$ 2.05 million

**Annual Lectures and Prizes:**

H.W. Magoun Lecture presented by Daniel H. Geschwind.

Eva Mary Kavan Prize for Excellence in Research on the Brain recipient: Austin Hilliard.

Charles Sawyer Distinguished Lecture presented by Margaret McCarthy.

Samuel Eiduson Student Lecture presented by Stephanie Groman.

The Arnold Scheibel Distinguished Postdoctoral Fellow in Neuroscience Lecture presented by Kate Wassum.

**Guest Lectures**

The Joint Seminars in Neuroscience sponsored twenty-seven guest lectures this year. The Joint Seminars in Neuroscience are sponsored by the Brain Research Institute, the Semel Institute for Neuroscience & Human Behavior and the David Geffen School of Medicine at UCLA. In addition, the Brain Research Institute sponsored or co-sponsored 89 special guest lectures this year. For a complete list of the speakers and the title of their presentations, please see “Joint Seminars in Neuroscience” and “Special Lectures” within the “Instructional Activity” section of this report.

**Poster Session**

This year, the 23<sup>rd</sup> Annual Neuroscience Poster Session was held on November 29, 2011. The Poster Session was attended by well over 300 neuroscientists comprised of graduate students, postdoctoral fellows, and faculty members that represent a multitude of departments on campus. Nearly 200 posters were presented, many of which had been presented at the 41st Annual Meeting of the Society for Neuroscience. The guest speaker this year was Nicholas C. Spitzer, Ph.D., Distinguished Professor and Vice Chair, Neurobiology Section, Division of Biological Sciences, Kavli Institute for Brain and Mind, University of California, San Diego. He presented, “Activity-Dependent Neurotransmitter Respecification: Novel Plasticity,” to a standing-room-only crowd. This yearly poster session represents continuing efforts to educate investigators about state-of-the-art neuroscience research being conducted at UCLA.

**Special Conferences Sponsored or Co-Sponsored by the Brain Research Institute**

To view program schedules, please see “Special Conferences,” listed in the “Instructional Activity” section of this report.

**Collaborations in Translation-A Tribute to Charles H. Markham, M.D.**

Collaborations in Translation, a symposium held in honor of Dr. Charles Markham, was held on September 22, 2012. Speakers included: David Glanzman, Ph.D., Michael Sofroniew, M.D., Ph.D., Rhonda Voskuhl, M.D., Ph.D., V. Reggie Edgerton, Ph.D., Felix Schweizer, Ph.D., Larry Hoffman, Ph.D., and Marie-Françoise Chesselet, M.D., Ph.D.

### **Recovery of Movement after Paralysis with Epidural Stimulation**

Recovery of Movement after Paralysis with Epidural Stimulation, a joint symposium featuring the University of California, Los Angeles, the California Institute of Technology, University of Louisville, and Case Western Reserve University was held at the California Institute of Technology on January 23, 2012. The symposium was sponsored by the Departments of Integrative Biology & Physiology, Neurobiology, and Neurosurgery, and the Brain Research Institute at UCLA.

### **Basic and Translational Symposium of the UCLA SCOR Specialized Center for Neurovisceral Interactions and Women's Health**

The 10th Year Anniversary Basic and Translational Symposium of the UCLA SCOR Specialized Center for Neurovisceral Interactions and Women's Health was held on February 9, 2012. Speakers included: Frank Hamilton, M.D., MPH, Chief, Digestive Diseases Branch, National Institute of Diabetes and Digestive and Kidney Diseases, NIDDK; Janine Clayton, M.D., Acting Director, NIH Office of Research in Women's Health, ORWH; and Jill Goldstein, Ph.D., Harvard Medical School. The anniversary symposium was sponsored by the Gail and Gerald Oppenheimer Family Center for Neurobiology of Stress, Department of Medicine, UCLA, in collaboration with the UCLA Brain Research Institute, the UCLA Semel Institute for Neuroscience and Human Behavior, and the Oppenheimer Foundation.

### **The Integrative Center for Learning and Memory (ICLM) Inaugural Symposium**

The Integrative Center for Learning and Memory (ICLM) Inaugural Symposium marked the inauguration of the new UCLA Integrative Center for Learning and Memory. The Center is a new academic unit that leverages UCLA's leadership in this area, and is designed to promote studies of molecular, cellular, systems and cognitive mechanisms of learning & memory. This two-day symposium was held on March 5 & 6, 2012, and was sponsored by the Brain Research Institute at UCLA, the UCLA Departments of Biological Chemistry, Integrative Biology & Physiology, Neurobiology, Neurology, Physiology, and Psychology, and the Semel Institute for Neuroscience and Human Behavior, David Geffen School of Medicine at UCLA.

### **Circadian Clocks and Metabolic Diseases Symposium**

Circadian Clocks and Metabolic Diseases Symposium was held at the UCLA Conference Center in Lake Arrowhead April 20-22, 2012. This meeting represents the first gathering of the Circadian and Sleep Medicine Affinity Group at UCLA. The objective of the meeting was to share and discuss rapid developments and intersections in the fields of circadian biology and metabolic diseases in an informal but stimulating environment at the Lake Arrowhead UCLA Conference Center. The meeting brought together academic and industry experts presenting current research in areas of circadian biology, energy metabolism, diabetes, cardiovascular disease and neurodegeneration. In addition to several keynote speakers, the meeting also included chosen oral presentations from submitted abstracts. The symposium was sponsored by Takeda Pharmaceuticals, the UCLA Clinical and Translational Science Institute, the UCLA Brain Research Institute, the UCLA Larry L. Hillblom Islet Research Center, the UCLA Laboratory for Circadian and Sleep Medicine, and the UCLA Department of Psychiatry and Biobehavioral Sciences.

### **Dynamics of Neural Microcircuits- The 6th Annual Neural Microcircuits Training Program Symposium**

The Dynamics of Neural Microcircuits Symposium was held on May 17, 2012. The symposium was sponsored by the UCLA Department of Neurobiology and the Brain Research Institute at UCLA

### **19th Annual Joint Symposium on Neural Computation**

In 1994, the Institute for Neural Computation at the University of California, San Diego hosted the first Joint Symposium on Neural Computation with the California Institute of Technology in Pasadena. This Symposium brought together students and faculty for a day of short presentations. Since then, this Symposium has rotated between San Diego, Caltech, UCI, UCLA, USC and UCR. This year, the 19<sup>th</sup> Annual Joint Symposium on Neural Computation was held at UCR on June 2, 2012.

## Eleventh Annual Southern California Learning & Memory Symposium

The Eleventh Annual Southern California Learning & Memory Symposium was held on June 6, 2012 at UCSD. This symposium is a yearly meeting primarily for Southern California laboratories interested in plasticity and learning.

### Carol Moss Spivak Cell Imaging Facility

In March 2008, the BRI Cell Imaging Facility moved to the California Nanosystems Institute (CNSI) to join with the CNSI Advanced Light Microscopy Facility. The joined facility has since served over 800 users representing over 250 labs at UCLA, LABioMed, Harbor-UCLA and Cedars Sinai Health Center as well as several industry laboratories. The facility houses five Leica spectral confocal microscopes, three of which have multiphoton laser scanning ability. The facility now has a Spinning Disk Confocal microscope, a Laser Microdissection System and will soon have a TIRF (Total Internal Reflectance) microscope online. Additional techniques now available include: FRET (fluorescence resonance energy transfer) FLIM (fluorescence lifetime imaging), FRAP (fluorescence recovery after photobleaching) and STED (scanning transmission depletion microscopy, which allows imaging below the diffraction limit of normal light resolution) and spectral unmixing both on microscopic and macroscopic (small animal) imaging scales. Dr. Laurent Bentolila is the Scientific Director of the Facility.

Dr. Matt Schibler, former director of the BRI Cell Imaging Facility and now a Microscopy Staff Scientist in the combined CNSI/BRI Advanced Light Microscopy/Spectroscopy Facility, has primary responsibility for training new users in the facility and has taught over 150 individuals (in groups of 3-7) how to use the joined facility's confocal microscopes. Training sessions are held on the average of once every ten days depending on demand. Each training session included three hours of confocal microscope theory and instruction in the use of the microscope software. Dr. Schibler also continues instruction for all of these users beyond the initial class. Dr. Schibler has been a member of UCLA's Laser Safety committee responsible for reviewing and setting laser safety policy at UCLA. Dr. Schibler also coordinates the collection of images for the annual BRI calendar.

The combined Facility hosted one distinguished lecture on light microscopy research during the past year, and numerous tours of the Facility. The Facility also acts as a bridge between UCLA researchers and the vendors of imaging technologies. In this capacity during the 2011-2012 academic year, the Facility hosted demonstrations and workshops along with vendors that were open to all UCLA researchers.

### Affinity Groups

A variety of interdisciplinary affinity groups, developed to provide scientific exchange on specific research topics, meet at regular intervals. A number of these groups have developed program project, center, and training grant proposals. These groups represent one of the greatest strengths of the Institute, that is, the scientific depth and diversity of its membership, and their collaborative interaction. These affinity groups include:

<u>Affinity Group</u>	<u>Leader(s)</u>
Addictions Research Consortium	Edythe London & Igor Spigelman
Astrocyte Biology	Baljit Khakh & Michael Sofroniew
Autism	Daniel Geschwind
Brain-Mind-Body Interactions	Michael Irwin
Circadian and Sleep Medicine	Christopher Colwell
Computational Neuroscience	Ladan Shams
Higher Cognitive Function in Neural Integration	Arnold Scheibel & Joaquin Fuster
Immunology in Neuroscience	James Waschek
Inner Ear	Felix Schweizer
Learning, Memory & Plasticity	Alcino Silva, David Glanzman & Michael Fanselow
Neural Repair	Marie-Françoise Chesselet
Neural Stem Cells	Harley Kornblum
Neurobiology of <i>Drosophila melanogaster</i> and <i>C. Elegans</i>	David Krantz
Neuroendocrinology	Arthur Arnold

### Affinity Group

Neuronuclear Imaging Affinity Group  
Neurophysics & Neuroengineering  
Neurogenetics  
Neuroscience History  
Songbird  
Stress, Pain and Emotion  
Synapse to Circuit Club  
Undergraduate Researchers in  
Parkinson's Disease  
Zebra Fish

### Leader(s)

Daniel Silverman  
Mayank Mehta  
Xiangdong William Yang  
Joel Braslow & Russell Johnson  
Stephanie White  
Emeran Mayer  
Kelsey Martin & Larry Zipursky  
Marie-Françoise Chesselet  
  
Alvaro Sagasti

## **Scientific and Educational Outreach Programs**

### **Brain Awareness Week March 2012**

The UCLA Chapter of the Society for Neuroscience recognized Brain Awareness Week with a number of special events. "Project Brainstorm" and "Interaxon" conducted demonstrations and hands-on activities, laboratory tours in the Brain Research Institute, workshops and campus tours.

### **Project Brainstorm**

The current outreach program of the Brain Research Institute and Neuroscience Interdepartmental Educational Programs, "Project Brainstorm," grew out of the former SPARCS (Special Achievement Rewards for College Scholars) Program that was developed by Dr. Arnold Scheibel and Ms. Norma Bowles of the ARCS Foundation (Achievement Rewards for College Scientists). The goal of Project Brainstorm is to stimulate interest in science for children and young adults by emphasizing the function and importance of the brain. Over 50 students in the Interdepartmental Graduate and Undergraduate Neuroscience Programs participate in the program and visit private and public schools in the Los Angeles area throughout the academic year.

### **Interaxon**

Interaxon is an Undergraduate Neuroscience Educational Outreach Group founded in 2006 at UCLA (<http://interaxon.scienceontheweb.net>) by the first group of students to take the NS195 Project Brainstorm outreach course. Interaxon now consists of over 30 students, freshmen to senior, from a variety of majors (neuroscience, biology, physiological science, molecular and cell biology, and also economics, philosophy, foreign language, and international development). Interaxon reaches 1st-12th grade students, with as many as 6 presentations per quarter, and as many 150 students in a single school visit.

### **New Initiatives**

The BRI Outreach Program also sponsors science fairs off campus at local high schools and awards prizes at the Annual California State Science Fair, co-sponsors the LA BRAIN BEE, and during the summer places as many as 20 local high school students in research labs in the UCLA neuroscience community.

### **Publications**

**Neuroscience News** provides a quarterly update on Institute news and events.

**UCLA Neuroscience Research Seminars and Lectures** calendar is published bi-monthly.

The **BRI Annual Neuroscience Calendar** includes major national, international and UCLA neuroscience events throughout the year.



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## BRAIN RESEARCH INSTITUTE MEMBERS

All members of the Institute must be members of academic departments and devote their main research effort to programs advancing the knowledge of the function and structure of the brain and nervous system. The following list of BRI members attests to the broad depth and interdisciplinary nature of the Institute, its members, and their research endeavors.

At the end of the fiscal year 2011-2012, there were 347 members in the Brain Research Institute; 281 full members, 57 emeritus members, and 9 corresponding members. These faculty members represent 27 academic departments, 19 of which are in the School of Medicine, 5 in the College of Letters and Science, 1 in the Henry Samueli School of Engineering and Applied Science, 1 in the School of Dentistry, and 1 in the School of Nursing. In addition, investigators from many other departments of the University join in active collaborative research with BRI members.

<u>Name</u>	<u>Title</u>	<u>Research Interest</u>
Jeffrey R. Alger, Ph.D.	Professor of Neurology, and Radiological Sciences	Magnetic resonance imaging, magnetic resonance spectroscopy and diffusion tensor imaging of the brain
Lori Altshuler, M.D.	Professor of Psychiatry and Biobehavioral Sciences; Director, UCLA Mood Disorders Research Program	The UCLA Mood Disorders Research Program focuses on exploring the etiology of mood disorders through neuroimaging, evaluating factors associated with vulnerability to mood episodes, and finding new treatment options for individuals suffering from mood disorders
Anne M. Andrews, Ph.D.	Professor of Psychiatry and Biobehavioral Sciences, and Chemistry and Biochemistry	Understanding how the serotonin neurotransmitter system modulates complex behaviors including anxiety, mood, stress responsiveness, and learning and memory
Liana G. Apostolova, M.D.	Associate Professor of Neurology	Memory disorders and dementia
Arthur P. Arnold, Ph.D.	Distinguished Professor of Integrative Biology & Physiology; Director, Laboratory of Neuroendocrinology, Brain Research Institute	Hormonal and sex chromosomal factors that cause sex differences in physiology and disease, as a strategy for finding factors that protect from disease
Utpal Banerjee, Ph.D.	Professor and Chair of Molecular, Cell & Developmental Biology; Professor of Biological Chemistry	Signaling and metabolic control of development

<b>Mark Barad, M.D., Ph.D.</b>	Associate Professor of Psychiatry and Biobehavioral Sciences	Biological bases of fear extinction
<b>Jorge R. Barrio, Ph.D.</b>	Distinguished Professor of Molecular and Medical Pharmacology; Elizabeth and Thomas Plott Chair in Gerontology	Developing molecular imaging probes and investigating the intricate mechanisms of human disease
<b>George Bartzokis, M.D.</b>	Professor of Psychiatry and Biobehavioral Sciences	Brain imaging of neuropsychiatric disorders
<b>Michele A. Basso, Ph.D.</b>	Professor of Psychiatry and Biobehavioral Sciences	Cognitive neuroscience and movement disorders
<b>Ulrich Batzdorf, M.D.</b>	Professor of Neurosurgery; Director of Spine Surgery	Chiari malformations and spinal cord disorders
<b>Carrie E. Bearden, Ph.D.</b>	Associate Professor of Psychiatry and Biobehavioral Sciences, and Psychology	Neurodevelopmental disorders; cognition, neuroimaging and genetics of mood disorders and psychosis
<b>Donald P. Becker, M.D.</b>	Professor and Chief, Department of Neurosurgery	Neurometabolic pathobiology of traumatic brain injury
<b>Marvin Bergsneider, M.D.</b>	Associate Professor of Neurosurgery	Study of cerebral metabolism following traumatic brain injury using PET and intracranial pressure modeling
<b>Steven M. Berman, Ph.D.</b>	Researcher, Department of Psychiatry and Biobehavioral Sciences	Functional disorders; substance abuse
<b>Suraj P. Bhat, Ph.D.</b>	Associate Professor of Ophthalmology	Molecular genetics of the development of the vertebrate eye, relating gene activity to the realization of the phenotype of vision
<b>Robert M. Bilder, Ph.D.</b>	Michael E. Tennenbaum Family Professor of Psychiatry and Biobehavioral Sciences; Professor of Psychology; Chief of Medical Psychology-Neuropsychology	Translational phenotyping of cognition and neural systems, understanding neuropsychiatric syndromes as dimensional quantitative traits, and applying knowledge about neuroplasticity to enhance well-being in health
<b>James W. Bisley, Ph.D.</b>	Assistant Professor of Neurobiology, and Psychology	Neural mechanisms underlying visual perception, visual attention and visual memory
<b>Gal Bitan, Ph.D.</b>	Associate Professor of Neurology	Structure-based drug development for amyloid-related diseases

Douglas L. Black, Ph.D.	Professor of Microbiology, Immunology & Molecular Genetics; Investigator, Howard Hughes Medical Institute	Regulation of pre-mRNA splicing and the biochemical mechanisms that control changes in splice sites
Hugh T. Blair, Ph.D.	Associate Professor of Psychology (Behavioral Neuroscience)	Neurobiology of learning, memory and motivation with an emphasis on the role of neural oscillations in the storage and processing of information
Aaron Blaisdell, Ph.D.	Associate Professor of Psychology	Comparative psychology and animal cognition
Gene D. Block, Ph.D.	Professor of Psychiatry & Biobehavioral Sciences, and Integrative Biology & Physiology; Chancellor, UCLA	Circadian rhythms and aging
Ruben J. Boado, Ph.D.	Professor of Medicine/Endocrinology	Blood-brain barrier genomics, genetic engineering of fusion proteins and plasmid DNA for non-viral gene therapy to the brain
Dean Bok, Ph.D.	Distinguished Professor of Neurobiology, and Dolly Green Professor of Ophthalmology	Cell and molecular biology of the retina in health and disease
Susan Y. Bookheimer, Ph.D.	Joaquin Fuster Professor of Cognitive Neuroscience, Department of Psychiatry and Biobehavioral Sciences; Professor of Psychology	Functional magnetic resonance imaging to understand disruptions in brain systems in patients with a range of neurological developmental and neuropsychiatric disorders
Yvette M. Bordelon, M.D., Ph.D.	Assistant Professor of Neurology	Identification of biomarkers, including the use of PET imaging ligands, and clinical trials in Huntington disease, Parkinson disease and other movement disorders
James R. Boulter, Ph.D.	Professor of Psychiatry and Biobehavioral Sciences	Molecular neurobiology of neuronal nicotinic acetylcholine receptors
Anatol Bragin, Ph.D.	Professional Research Neurologist	<b>Basics</b> mechanisms of epilepsy
Joel T. Braslow, M.D., Ph.D.	Professor of Psychiatry and Biobehavioral Sciences, and History; Director, Neuroscience History Archives	History of the neurosciences and psychiatry

<b>Nicholas C. Brecha, Ph.D.</b>	Professor and Vice Chair of Neurobiology; Professor of Medicine	Retinal circuitry and transmitter systems mediating visual information processing
<b>Kevin C. Brennan, M.D.</b>	Assistant Professor of Neurology	Cortical spreading depression; neurobiology of migraine
<b>Arthur L. Brody, M.D.</b>	Professor of Psychiatry & Biobehavioral Sciences	Molecular brain imaging of cigarette smokers
<b>Jeff Bronstein, M.D., Ph.D.</b>	Professor of Neurology, and Molecular Toxicology; Director, UCLA Movement Disorders Program	Genetic and environmental causes of Parkinson's disease to develop new therapies
<b>Warren S. Brown, Ph.D.</b>	Adjunct Professor of Psychiatry and Biobehavioral Sciences	The contribution of interhemispheric interactions via the corpus callosum to human higher cognitive capacities
<b>Dean V. Buonomano, Ph.D.</b>	Professor of Neurobiology, and Psychology	Neural computation and neural basis of learning and memory
<b>Anthony T. Campagnoni, Ph.D.</b>	Vincent and Stella Coates Professor of Neuroscience, Department of Psychiatry and Biobehavioral Sciences	The role of myelin protein genes in glial cells, neurons and in the immune system during development
<b>Tyrone D. Cannon, Ph.D.</b>	Staglin Family Professor of Psychology; Professor of Psychiatry and Biobehavioral Sciences; Associate Director, Semel Institute for Neuroscience and Human Behavior	Genetics and neurobiology of schizophrenia
<b>Rochelle Caplan, M.D.</b>	Professor of Psychiatry and Biobehavioral Sciences; Director Pediatric Neuropsychology	Thought disorder, social communication, psychopathology and neuroimaging in pediatric neurobehavioral disorders
<b>Joseph Caprioli, M.D.</b>	Professor of Ophthalmology; Chief, Glaucoma Division, Jules Stein Eye Institute	Detection of early glaucoma damage, neuroprotection as treatment for glaucoma, visual function in glaucoma, surgical outcomes
<b>S. Thomas Carmichael, M.D., Ph.D.</b>	Professor of Neurology	Mechanisms of brain repair after stroke
<b>Ellen M. Carpenter, Ph.D.</b>	Professor of Psychiatry and Biobehavioral Sciences	Role of reelin signaling pathway in regulating cell migration in the brain and mammary gland

<b>Scott H. Chandler, Ph.D.</b>	Professor of Neuroscience, Department of Integrative Biology & Physiology; Chair, Interdepartmental Undergraduate Program for Neuroscience	Neuronal mechanisms underlying ALS
<b>Andrew C. Charles, M.D.</b>	Professor of Neurology; Director, Residency Training Program	Investigation of basic cellular neurophysiology and neuropharmacology with a particular focus on mechanisms of migraine
<b>Marie-Françoise Chesselet, M.D., Ph.D.</b>	Charles H. Markham Professor of Neurology; Chair, Department of Neurobiology	Molecular mechanisms of neurodegenerative diseases and neural repair in the basal ganglia
<b>Francesco Chiappelli, Ph.D.</b>	Professor of Oral Biology, School of Dentistry	Comparative effectiveness and efficacy research and analysis for practice, with emphasis on the bridge between translational research and translational effectiveness, as it applies in particular to psychoneuroendocrine-osteimmunology
<b>Jacobo W. Chodakiewitz, M.D.</b>	Assistant Professor of Neurosurgery	Neurostimulation of brain and spinal cord and/or ablation for pain control; involuntary movements
<b>Steven G. Clarke, Ph.D.</b>	Professor of Chemistry and Biochemistry; Director, Molecular Biology Institute	Role of protein methylation reactions in the repair of age-damage and in the regulation of biological function
<b>Timothy F. Cloughesy, M.D.</b>	Professor of Neurology; Director, Neuro-Oncology Program; Co-Director, Henry Singleton Brain Cancer Research Program	Human brain tumors
<b>Mark S. Cohen, Ph.D.</b>	Professor of Psychiatry and Biobehavioral Sciences, Neurology, Radiological Sciences, Psychology, Biomedical Engineering and Biomedical Physics	Applications and technology of neuroimaging
<b>John Colicelli, Ph.D.</b>	Professor of Biological Chemistry	Signal transduction in cancer and neurobiology
<b>Christopher S. Colwell, Ph.D.</b>	Professor of Psychiatry and Biobehavioral Sciences	Circadian and sleep medicine

<b>Peggy A. Compton, R.N., Ph.D.</b>	Professor, Acute Care Nursing, Associate Dean of Academic Affairs, School of Nursing	Opioids, pain, addiction
<b>Ian A. Cook, M.D.</b>	Professor of Psychiatry and Biobehavioral Sciences	Improving the management of depression with research using existing treatments more effectively through biomarker guidance, developing new treatment approaches (neuromodulation) and expanding understanding of the pathophysiology of depression
<b>Edwin L. Cooper, Ph.D., Sc.D.</b>	Distinguished Professor of Neurobiology	Evolutionary development of the neuroimmune system; Evidence-based complementary and alternative medicine
<b>Giovanni Coppola, M.D.</b>	Assistant Professor of Psychiatry and Biobehavioral Sciences, and Neurology	Understanding the genetic contribution to neurodegenerative and psychiatric disorders by using genetic, genomic, and integrative approaches
<b>Eain M. Cornford, Ph.D.</b>	Professor of Neurology; Chief, Neuropharmacology Laboratory, VAMC, West Los Angeles	Blood-brain barrier function
<b>Mirella Dapretto, Ph.D.</b>	Professor of Psychiatry and Biobehavioral Sciences	Neuroimaging of language, social cognition, and developmental disorders such as autism
<b>Antonio A.F. De Salles, M.D., Ph.D.</b>	Professor of Neurosurgery, and Radiation Oncology	Functional Neurosurgery: Clinical aspects of Parkinson's disease after pallidotomy and basic research in Parkinsonism MPTP primate model including cell transplantation and growth factor injections in the non-human primate basal ganglia; Radiosurgery: Clinical research on application of radiosurgery for brain tumors, epilepsy, and chronic pain, and basic research on effects of ionizing radiation to cerebral vasculature and neuronal firing
<b>Jean S. de Vellis, Ph.D.</b>	Professor of Neurobiology, and Psychiatry and Biobehavioral Sciences; Director, Intellectual and Developmental Disabilities Research Center	Role of stem cells, glia and growth factors in neurodevelopment, developmental diseases and regeneration



<b>Andrew C. Dean, Ph.D.</b>	Assistant Professor of Psychiatry and Biobehavioral Sciences	Neuropsychology of substance abuse
<b>Antonio V. Delgado-Escueta, M.D.</b>	Professor of Neurology; Director, Epilepsy Center of Excellence, GLAVA Healthcare System	Molecular genetics of epilepsy
<b>Joseph L. Demer, M.D., Ph.D.</b>	Leonard Apt Professor of Ophthalmology; Professor of Neurology	Translational studies of neural and mechanical control of ocular motility in animal models, and in normal and clinical human populations using neuroanatomical, biomechanical, physiological, and functional imaging methods
<b>Patricia I. Dickson, M.D.</b>	Assistant Professor of Pediatrics	Therapy for pediatric neurodegenerative diseases
<b>Joseph J. DiStefano, III, Ph.D.</b>	Distinguished Professor of Computer Science, Medicine, and Biomedical Engineering	Computational systems biology
<b>Bruce H. Dobkin, M.D.</b>	Professor of Neurology; Medical Director, Neurologic Rehabilitation and Research Unit	Rehabilitation interventions and monitoring and outcome measurements to improve motor skills after brain and spinal cord lesions
<b>Hong-Wei Dong, M.D., Ph.D.</b>	Assistant Professor of Neurology	Construction of a three dimensional connectivity atlas to characterize neuronal networks in the mouse brain
<b>Lars Dreier, Ph.D.</b>	Assistant Professor of Neurobiology	The function of ubiquitin ligases in the formation of synapses and neurodegenerative disease in the genetic model organism <i>C. Elegans</i> and mammalian systems
<b>V. Reggie Edgerton, Ph.D.</b>	Distinguished Professor of Integrative Biology & Physiology, and Neurobiology	Investigations focus on how the spinal cord controls posture and locomotion and the potential and mechanisms of the plasticity of the spinal cord and muscles following spinal cord injury
<b>Jerome Engel, Jr., M.D., Ph.D.</b>	Jonathan Sinay Professor of Neurology, Professor of Neurobiology, and Psychiatry and Biobehavioral Sciences; Chief, UCLA Seizure Disorder Center	Epilepsy

<b>Christopher J. Evans, Ph.D.</b>	Stefan Hatos Professor of Psychiatry and Biobehavioral Sciences; Director, Brain Research Institute	Neurobiology of drugs of abuse and neuroimmune interactions
<b>Gordon L. Fain, Ph.D.</b>	Distinguished Professor of Integrative Biology & Physiology, and Ophthalmology	Physiology of vertebrate photoreceptors
<b>Guoping Fan, Ph.D.</b>	Professor of Human Genetics	Epigenetic mechanisms in neural development and stem cell regulation
<b>Michael S. Fanselow, Ph.D.</b>	Distinguished Professor of Psychology, and Psychiatry and Biobehavioral Sciences	Neural mechanisms of learning, memory and emotion
<b>Debora B. Farber, Ph.D., D.Ph.h.c.</b>	Karl Kirchgessner Foundation Professor of Ophthalmology; Director, Retinal Biochemistry Laboratory, Jules Stein Eye Institute	Animal models of retinal degeneration; biochemistry, molecular biology, and genetics of retinal degenerations; gene regulation and gene therapy, retinitis pigmentosa and allied human diseases, and ocular albinism
<b>Kym F. Faull, Ph.D.</b>	Professor of Psychiatry and Biobehavioral Sciences; Director, Pasarow Mass Spectrometry Laboratory	Monitoring compounds that are important in cellular communication, and relating their concentrations and turnover to cellular homeostasis
<b>Jack L. Feldman, Ph.D.</b>	Distinguished Professor of Neurobiology	Neural control of movement
<b>Jamie D. Feusner, M.D.</b>	Associate Professor of Psychiatry and Biobehavioral Sciences	Phenotypes of perception, emotion, and obsession across body image and anxiety disorders
<b>Robin S. Fisher, Ph.D.</b>	Professor of Psychiatry and Biobehavioral Sciences, and Neurobiology	Forebrain neurogenesis and establishment of axonal connectivity
<b>L. Jaime Fitten, M.D.</b>	Professor of Psychiatry and Biobehavioral Sciences	Attentional dysfunction in Alzheimer's disease and its implications for motor vehicle operation
<b>Brent L. Fogel, M.D., Ph.D.</b>	Assistant Professor of Neurology	Molecular pathogenesis of neurodevelopmental and neurodegenerative disease

<b>Nelson B. Freimer, M.D.</b>	Professor of Psychiatry and Biobehavioral Sciences	The genetic basis of complex traits, particularly neurobehavioral phenotypes such as bipolar disorder, Tourette Syndrome, and temperament
<b>Itzhak Fried, M.D., Ph.D.</b>	Professor of Psychiatry and Biobehavioral Sciences, and Neurosurgery; Director, Epilepsy Surgery; Co-Director, Seizure Disorder Center	Neuronal basis of cognitive processing in the human brain
<b>Mark A. Frye, Ph.D.</b>	Associate Professor of Integrative Biology & Physiology, and Neurobiology	Sensory neurobiology, motor control, and behavior
<b>Denson G. Fujikawa, M.D.</b>	Clinical Professor of Neurology	<i>In vivo</i> programmed mechanisms of seizure and methamphetamine-induced neuronal necrosis
<b>Joaquin M. Fuster, M.D., Ph.D.</b>	Professor of Psychiatry and Biobehavioral Sciences	Cortical physiology of perception and memory in the primate
<b>Adriana Galván, Ph.D.</b>	Assistant Professor of Psychology (Developmental Area)	Adolescent brain development
<b>Richard A. Gatti, M.D.</b>	Distinguished Professor of Pathology and Laboratory Medicine, and Human Genetics	Pathogenesis and molecular genetics of ataxia-telangiectasia and related DNA repair disorders
<b>Daniel H. Geschwind, M.D., Ph.D.</b>	The Gordon & Virginia MacDonald Distinguished Professor of Human Genetics; Professor of Neurology, and Psychiatry and Biobehavioral Sciences; Director, Neurogenetics Program; Director, UCLA Center for Autism Research and Treatment	Uncovering the molecular and genetic bases of neurodevelopmental and neurodegenerative diseases using an array of cell biologic, molecular biologic, network biologic, and bioinformatic strategies
<b>Christopher C. Giza, M.D.</b>	Associate Professor of Neurosurgery, and Pediatrics (Pediatric Neurology)	Developmental traumatic brain injury and neuroplasticity; functional and structural neuroimaging
<b>David L. Glanzman, Ph.D.</b>	Professor of Integrative Biology and Physiology, and Neurobiology	Neurobiology of learning and memory in simple systems
<b>Vay Liang W. Go, M.D.</b>	Distinguished Professor of Medicine (Digestive Diseases)	Neuro-hormonal integration of metabolism

<b>Peyman Golshani, M.D., Ph.D.</b>	Assistant Professor of Neurology	GABAergic network function in awake behaving mice; GABAergic network dysfunction in models of autism and developmental epilepsy
<b>Fernando Gómez-Pinilla, Ph.D.</b>	Professor of Neurosurgery, and Integrative Biology & Physiology	Plasticity of brain and spinal cord
<b>Michael B. Gorin, M.D., Ph.D.</b>	Harold and Pauline Price Professor of Ophthalmology; Professor of Human Genetics	Clinical and molecular aspects of hereditary ocular disorders, especially retinal and macular dystrophies, complex genetic disorders and the neural pathways and molecules related to light-related sensitivity and pain (photophobia) associated with both central and eye-related disorders
<b>Robert J. Greenberg, Ph.D.</b>	Adjunct Assistant Professor of Electrical Engineering	Retinal degeneration and retinal prostheses
<b>Carlos V. Grijalva, Ph.D.</b>	Professor of Psychology; Associate Dean, Graduate Division	Activity-based anorexia and neuroendocrine mechanisms
<b>Alan D. Grinnell, Ph.D.</b>	Distinguished Professor of Physiology, and Integrated Biology and Physiology; Director, Ahmanson Laboratory of Neurobiology	Synaptic mechanisms
<b>William Grisham, Ph.D.</b>	Adjunct Professor of Psychology	Birdsong and sex differences in the brain
<b>Warren S. Grundfest, M.D., FACS</b>	Professor of Bioengineering, Electrical Engineering, and Surgery	Biophotonics, brain mapping, minimally invasive surgery, biologic spectroscopy, and haptic feedback
<b>Cameron B. Gundersen, Ph.D.</b>	Professor of Molecular and Medical Pharmacology	Presynaptic structure and function
<b>Ming Guo, M.D., Ph.D.</b>	Associate Professor of Neurology, and Molecular & Medical Pharmacology	Molecular mechanisms of neurodegenerative disorders in <i>Drosophila</i>
<b>Zhefeng Guo, Ph.D.</b>	Assistant Professor of Neurology	Structural biology of amyloid-related neurodegenerative diseases
<b>Karen H. Gyls, Ph.D., R.N.</b>	Associate Professor, School of Nursing	Alzheimer's disease; apoE and synaptic pathology; biomarkers
<b>Elissa A. Hallem, Ph.D.</b>	Assistant Professor of Microbiology, Immunology, and Molecular Genetics	Odor-driven behaviors of free-living parasitic nematodes

Ronald M. Harper, Ph.D.	Distinguished Professor of Neurobiology	Neural mechanisms underlying cardiovascular and respiratory control during sleep and waking states
Neil G. Harris, Ph.D.	Associate Professor of Neurosurgery	Traumatic brain injury and mechanisms of neural plasticity/recovery of function including neurogenesis
Volker Hartenstein, M.D., Ph.D.	Professor of Molecular, Cell & Developmental Biology	<i>Drosophila</i> brain development and digital reconstruction; stem cells and their niches in invertebrate model systems
Chih-Ming Ho, Ph.D.	Ben Rich-Lockheed Martin Professor of Mechanical & Aerospace Engineering; Director, Institute for Cell Mimetic Space Exploration; Associate Vice Chancellor for Research	Rapid identification of optimal combinatorial drugs
Larry F. Hoffman, Ph.D.	Adjunct Professor of Surgery (Head & Neck)	Sensory neuroscience, particularly in the inner ear vestibular system; systems and computational neuroscience; neural repair; sensory learning
Joshua A. Hoffs, M.D.	Associate Clinical Professor of Psychiatry and Biobehavioral Sciences	Mind-brain-integration
Keith J. Holyoak, Ph.D.	Distinguished Professor of Psychology	Thinking and reasoning
Carolyn R. Houser, Ph.D.	Professor of Neurobiology	Morphological and neurochemical plasticity of GABA neurons and GABA <sub>A</sub> receptors in temporal lobe epilepsy and Fragile X syndrome
David A. Hovda, Ph.D.	Professor of Neurosurgery, and Molecular and Medical Pharmacology	Brain injury and recovery of function
Sherrel Howard, Ph.D.	Associate Professor of Molecular and Medical Pharmacology, and Psychiatry and Biobehavioral Sciences	Dopamine receptors, oligodendrocyte development, drugs of abuse

<b>Yih-Ing Hser, Ph.D.</b>	Professor of Psychiatry and Biobehavioral Sciences	Life course addiction, health services research, longitudinal research and statistical methodologies for studying addictive disorders
<b>Wayne L. Hubbell, Ph.D.</b>	Jules Stein Professor of Ophthalmology; Distinguished Professor of Chemistry and Biochemistry	Molecular basis of membrane excitation
<b>Marco Iacoboni, M.D., Ph.D.</b>	Professor of Psychiatry and Biobehavioral Sciences	Human systems neuroscience using brain imaging and neuromodulation
<b>Louis J. Ignarro, Ph.D.</b>	Professor of Molecular and Medical Pharmacology; Jerome J. Belzer Chair—Medical Research	Nitric oxide, vascular physiology, cellular proliferation
<b>Michael R. Irwin, M.D.</b>	Cousins Professor of Psychiatry and Biobehavioral Sciences; Director, Cousins Center for Psychoneuroimmunology; Professor of Psychology	Interactions between behavior and immunity, consequences of major depression on immune processes relevant to infectious disease and inflammatory disorders
<b>Joanna C. Jen, M.D., Ph.D.</b>	Professor of Neurology	Disease mechanisms, diagnosis, and treatment for neurological disorders affecting balance, coordination, and eye movement control
<b>J. David Jentsch, Ph.D.</b>	Professor of Psychology, and Psychiatry and Biobehavioral Sciences; Associate Director for Research, Brain Research Institute	Genetic and neurochemical influences on cognitive and executive functions in laboratory animals
<b>Shafali Spurling Jeste, M.D.</b>	Assistant Professor of Psychiatry and Biobehavioral Sciences, and Neurology	High-density electrophysiology to characterize infants at high risk and young children with autism and related neurodevelopmental disorders, to define neural predictors of outcome in this population
<b>H. Ronald Kaback, M.D.</b>	Professor of Physiology	Structure and function of membrane transport proteins
<b>Bruce L. Kagan, M.D., Ph.D.</b>	Professor of Psychiatry and Biobehavioral Sciences	Amyloid peptide channels: role in pathophysiology of disease
<b>Patricia A. Kapur, M.D.</b>	Professor and Chair, Department of Anesthesiology; Ronald L. Katz Chair	Anesthesiology

<b>Daniel L. Kaufman, Ph.D.</b>	Professor of Molecular and Medical Pharmacology	Neuroimmunology, neurodevelopment, immunotherapeutics for neurodegenerative disease
<b>Baljit S. Khakh, Ph.D.</b>	Associate Professor of Physiology, and Neurobiology	ATP signaling and glial biology in neuronal circuits
<b>Barbara J. Knowlton, Ph.D.</b>	Professor and Vice Chair for Undergraduate Programs, Department of Psychology	Cognitive neuroscience of memory and executive function
<b>Carla M. Koehler, Ph.D.</b>	Professor of Chemistry and Biochemistry	Protein import into mitochondria; understanding how mitochondrial dysfunction contributes to disease
<b>Brian J. Koos, M.D., Ph.D.</b>	Professor and Vice Chair (Academic Affairs) of Obstetrics and Gynecology	Fetal behavior and cardiovascular responses to hypoxia
<b>Harley I. Kornblum, M.D., Ph.D.</b>	Professor of Psychiatry & Biobehavioral Sciences, Molecular & Medical Pharmacology, and Pediatrics	Neural stem cells and brain tumors
<b>David E. Krantz, M.D., Ph.D.</b>	Associate Professor of Psychiatry and Biobehavioral Sciences	Molecular mechanisms that regulate neurotransmitter release with a focus on the function of neurotransmitter transporters using the model organism <i>Drosophila melanogaster</i>
<b>Carol A. Kruse, Ph.D.</b>	Adjunct Professor of Neurosurgery	Immune and gene therapy for brain tumors
<b>Ira Kurtz, M.D.</b>	Professor of Medicine (Nephrology); Chief, Division of Nephrology; Factor Chair in Molecular Nephrology	Physiological and biophysical studies of acid-base transport proteins in sensory and extrasensory organs
<b>Jennifer S. Labus, Ph.D.</b>	Adjunct Assistant Professor of Psychiatry and Biobehavioral Sciences	Delineating the neural networks underlying the neurobiology of stress with a specific emphasis on models of functional and persistent pain and brain-body interactions
<b>Albert Lai, M.D., Ph.D.</b>	Assistant Professor of Neurology	Correlation of genomics/epigenomics with phenotype to identify prognostic and predictive biomarkers for malignant gliomas

<b>Joseph L. Lasky, III, M.D.</b>	Assistant Clinical Professor of Pediatrics (Hematology/Oncology), and Neurosurgery	Novel therapies for pediatric cancers, especially brain tumors; methods to stimulate the immune system to attack brain tumors, and how to target the immune system against putative brain tumor stem cells
<b>Jin-Jyung Lee, Ph.D.</b>	Assistant Professor of Electrical Engineering, and Psychiatry and Biobehavioral Sciences	Optogenetics; functional and molecular brain imaging
<b>Andrew F. Leuchter, M.D.</b>	Professor of Psychiatry and Biobehavioral Sciences; Director, Laboratory of Brain, Behavior and Pharmacology; Director, Office of Professional and Community Education	The enhancement of treatment outcomes in depression using brain-imaging techniques (QEEG, MRI, PET) to examine brain function and predict which treatments are most likely to benefit individual patients
<b>Michel F. Lévesque, M.D.</b>	Associate Clinical Professor of Neurosurgery; Director, Functional Neurosurgery, Cedars-Sinai Medical Center	Endogenous and autologous neural stem cell repair of neurodegenerative disorders
<b>Barbara A. Levey, M.D.</b>	Professor of Medicine, and Molecular & Medical Pharmacology; Assistant Vice Chancellor of Biomedical Affairs	Graduate education; clinical pharmacology and clinical research
<b>Michael S. Levine, Ph.D.</b>	Professor of Psychiatry and Biobehavioral Sciences; Associate Director, Intellectual and Developmental Disabilities Research Center; Associate Director for Education, Brain Research Institute; Chair, Graduate Interdepartmental Program for Neuroscience	The mechanisms underlying neuronal dysfunction in the basal ganglia and cortex in neurodegenerative disorders
<b>Linda M. Liau, M.D., Ph.D.</b>	Professor of Neurosurgery	Brain tumor molecular biology, and immunology
<b>Shuo Lin, Ph.D.</b>	Professor of Molecular, Cell and Developmental Biology	Developmental biology of the nervous system and regulation of neural gene expression
<b>Walter Ling, M.D.</b>	Professor of Psychiatry and Biobehavioral Sciences	Development and evaluation of pharmacotherapy-based and behavioral therapies for treatment of drug dependence; pain



<b>Xin Liu, M.D., Ph.D.</b>	Assistant Professor of Pathology and Laboratory Medicine, and Molecular and Medical Pharmacology	Molecular genetics and neurobiology
<b>Zili Liu, Ph.D.</b>	Associate Professor of Psychology	Visual perception, computation, and learning
<b>Edythe D. London, Ph.D.</b>	Thomas and Katherine Pike Professor of Addiction Studies, Department of Psychiatry and Biobehavioral Sciences, and Professor of Molecular and Medical Pharmacology	Multimodal neuroimaging approaches to study the neuronal circuits and molecular mediators of self-control in healthy and pathological states
<b>Sandra K. Loo, Ph.D.</b>	Associate Professor of Psychiatry and Biobehavioral Sciences	Gene-brain-behavior pathways evident in childhood psychiatric disorders and translation of this work to improve treatments for these disorders
<b>Aldons J. Lusis, Ph.D.</b>	Professor and Vice-Chair, Department of Human Genetics; Professor of Microbiology, Immunology & Molecular Genetics, and Professor of Medicine	Systems genetics to understand higher order interactions in complex disease
<b>Karen M. Lyons, Ph.D.</b>	Professor of Orthopedic Surgery, and Molecular, Cell & Developmental Biology	Bone morphogenetic proteins (BMP); skeletal development
<b>Paul M. Macey, Ph.D.</b>	Assistant Professor, School of Nursing	Sleep disorders and central regulation of autonomic function, including cardiovascular and affective functions
<b>Nigel T. Maidment, Ph.D.</b>	Professor of Psychiatry and Biobehavioral Sciences	Neurobiology of motivated behavior and neurodegenerative disease
<b>Kelsey C. Martin, M.D., Ph.D.</b>	Professor and Chair of Biological Chemistry; Professor of Psychiatry and Biobehavioral Sciences	Cell biology of long-term memory
<b>Juan Carlos Marvizón, Ph.D.</b>	Adjunct Associate Professor of Medicine (Digestive Diseases)	Neurophysiology of pain and analgesia; cellular and molecular mechanisms that mediate central sensitization in the spinal cord
<b>Sotiris C. Masmanidis, Ph.D.</b>	Assistant Professor of Neurobiology	Network-level neuronal mechanisms of reward-mediated learning

<b>Gary W. Mathern, M.D.</b>	Professor of Neurosurgery, and Psychiatry and Biobehavioral Sciences	Analysis of human brain tissue removed from pediatric and adult epilepsy surgery patients to identify basic mechanisms of epileptogenesis with the goal of developing new translational methods to diagnose and treat patients
<b>Emeran A. Mayer, M.D.</b>	Professor of Medicine, Physiology, and Psychiatry and Biobehavioral Sciences; Director, Oppenheimer Family Center for Neurobiology of Stress; Associate Director, CURE: Digestive Diseases Research Center	Interception at the interface between stress, pain and emotions in health and disease
<b>John C. Mazziotta, M.D., Ph.D.</b>	Associate Vice Chancellor, Health Sciences; Executive Vice Dean, David Geffen School of Medicine at UCLA; Chair, Department of Neurology; Frances Stark Chair of Neurology; Pierson-Lovelace Investigator; Director, UCLA Brain Mapping Center; Associate Director, Semel Institute; Professor of Neurology, Radiological Sciences and Molecular & Medical Pharmacology	Imaging the structure and function of the human brain in health and disease
<b>James T. McCracken, M.D.</b>	Joseph Campbell Professor of Child Psychiatry and Biobehavioral Sciences; Director, Child and Adolescent Psychiatry	Treatment of early-onset psychiatric disorders, studies of risk factors, including genes, for neuropsychiatric disorders such as ADHD and OCD
<b>Dennis J. McGinty, Ph.D.</b>	Adjunct Professor of Psychology; Chief, Neurophysiology Research, Sepulveda VAMC	Sleep neurobiology
<b>Mayank R. Mehta, Ph.D.</b>	Professor of Physics & Astronomy, Neurology, and Neurobiology	Electrophysiological and computational study of cortico-hippocampal interaction during spatial navigation and sleep, and its influence on learning and memory
<b>William P. Melega, Ph.D.</b>	Professor of Molecular and Medical Pharmacology, and Molecular Toxicology	Molecular mechanisms of neurodegenerative diseases and drug addiction
<b>Walter Metzner, Ph.D.</b>	Professor and Vice Chair of Integrative Biology & Physiology	Behavioral neurobiology (neuroethology) of auditory-vocal interaction in mammals (echo-locating bats)

<b>Paul E. Micevych, Ph.D.</b>	Professor of Neurobiology, and Surgery (Head & Neck Surgery)	Reproductive neuroendocrinology
<b>Thomas R. Minor, Ph.D.</b>	Professor of Psychology	Animal models of anxiety and depression; stress resilience; hormetic stress
<b>Paul S. Mischel, M.D.</b>	Professor of Pathology and Laboratory Medicine	Molecular profiling of glioblastoma
<b>Istvan Mody, Ph.D.</b>	Tony Coelho Professor of Neurology, and Professor of Physiology	GABAergic neurotransmission in health and disease
<b>Bartly J. Mondino, M.D.</b>	Bradley R. Straatsma Professor of Ophthalmology; Chair, Department of Ophthalmology; Director, Jules Stein Eye Institute; Chief, Cornea-External Disease Division	Cornea-external disease
<b>Martin M. Monti, Ph.D.</b>	Assistant Professor of Psychology, and Neurosurgery	The relationship between language and thought; consciousness after severe brain injury
<b>Norman S. Namerow, M.D.</b>	Clinical Professor of Neurology, and Psychiatry	Chronic pain
<b>Peter M. Narins, Ph.D.</b>	Distinguished Professor of Integrative Biology & Physiology, and Ecology and Evolutionary Biology	Auditory neurophysiology and behavior
<b>Katherine L. Narr, Ph.D.</b>	Assistant Professor of Neurology	Applied neurobiological imaging in psychiatric disorders
<b>Valeriy Nenov, Ph.D.</b>	Adjunct Associate Professor of Neurosurgery, and Biomedical Engineering	Development of Java-based telemedical applications for remote monitoring of patients in intensive care; computational modeling of memory functions of the hippocampus
<b>Bennett G. Novitch, Ph.D.</b>	Assistant Professor of Neurobiology	Molecular mechanisms controlling neural stem cell maintenance and differentiation
<b>Marc R. Nuwer, M.D., Ph.D.</b>	Professor of Neurology; Department Head, Clinical Neurophysiology	New clinical applications for EEG and evoked potentials, demonstrations of usefulness, creation of new public policy, and outcome studies

<b>Thomas J. O'Dell, Ph.D.</b>	Professor and Executive Vice Chair of Physiology	Cellular and molecular mechanisms underlying activity-dependent forms of synaptic plasticity
<b>Paul H. O'Lague, Ph.D.</b>	Associate Professor of Molecular, Cell & Developmental Biology	Mathematical modeling of osmoregulation using phase transition physics to model osmoregulation in cells
<b>Riccardo Olcese, Ph.D.</b>	Associate Professor of Anesthesiology, Division of Molecular Medicine	Physiology and biophysics of ion channels and their role in cell function and cardiac arrhythmias
<b>Richard W. Olsen, Ph.D.</b>	Distinguished Professor of Molecular and Medical Pharmacology	GABA-A receptor structure and function: GABA-A receptor plasticity induced by acute and chronic ethanol in rats; Sites for allosteric modulatory ligands like general anesthetics and ethanol on mammalian brain GABA-A receptors
<b>Roel A. Ophoff, Ph.D.</b>	Professor of Psychiatry and Biobehavioral Sciences, and Human Genetics	Identification of genetic susceptibility of complex traits, in particular neuropsychiatric illnesses such as schizophrenia and bipolar disorder
<b>Thomas Otis, Ph.D.</b>	Professor and Vice Chair of Neurobiology	Cerebellar physiology, spinocerebellar ataxias
<b>Diane M. Papazian, Ph.D.</b>	Professor of Physiology	Research focuses on the role of electrical excitability in neurodevelopmental and neurodegenerative diseases
<b>William M. Pardridge, M.D.</b>	Distinguished Professor of Medicine (Endocrinology)	Blood-brain barrier; brain drug and gene targeting
<b>Robert N. Pechnick, Ph.D.</b>	Professor of Psychiatry and Biobehavioral Sciences; Department of Neurology, and Biomedical Sciences, Cedars-Sinai Medical Center	Neuropharmacology

<b>Michael E. Phelps, Ph.D.</b>	Norton Simon Professor of Molecular and Medical Pharmacology; Chair, Department of Molecular and Medical Pharmacology; Director, Crump Institute for Biological Imaging; Associate Director, Laboratory of Structural Biology and Molecular Medicine; Professor of Biomath	The merger of biology and imaging to provide the means to examine molecular and cellular function in tissue cultures as well as integrated organ function in animals and humans
<b>Patricia E. Phelps, Ph.D.</b>	Professor and Vice Chair of Integrative Biology & Physiology	Axon regeneration following complete spinal cord transection and olfactory ensheathing cell transplantation ; the effects of the Reelin signaling pathway on pain processing in the dorsal horn of the spinal cord
<b>Natik Piri, Ph.D.</b>	Associate Professor of Ophthalmology	Retinal ganglion cells and optic neuropathies
<b>Whitney B. Pope, M.D., Ph.D.</b>	Assistant Professor of Radiological Sciences (Neuroradiology)	Advanced imaging of brain tumor
<b>Carlos Portera-Cailliau, M.D., Ph.D.</b>	Associate Professor of Neurology, and Neurobiology	The assembly and plasticity of cortical circuits in health and disease
<b>Nader Pouratian, M.D., Ph.D.</b>	Assistant Professor of Neurosurgery	Brain mapping, neuromodulation, and neural prostheses
<b>Mayumi L. Prins, Ph.D.</b>	Associate Professor of Neurosurgery	Traumatic brain injury
<b>Robert M. Prins, Ph.D.</b>	Associate Professor of Neurosurgery, and Molecular and Medical Pharmacology	Immune-based therapies for brain tumors
<b>Javier Quintana, M.D., Ph.D.</b>	Associate Professor of Psychiatry and Biobehavioral Sciences	Neural bases of social cognition deficits in schizophrenia
<b>Richard Rawson, Ph.D.</b>	Professor of Psychiatry and Biobehavioral Sciences; Associate Director, Integrated Substance Abuse Programs (ISAP)	Research on addiction medications, psychosocial trails and dissemination of research findings nationally and internationally
<b>Lara A. Ray, Ph.D.</b>	Assistant Professor of Psychology (Clinical Area), and Psychiatry & Biobehavioral Sciences	The etiology and treatment of substance use disorders, integrating experimental psychopathology, behavioral genetics, and pharmacology

<b>Dario L. Ringach, Ph.D.</b>	Professor of Neurobiology, and Psychology	Visual electrophysiology and psychophysics, mathematical modeling of receptive field function, cortical dynamics
<b>Jesse A. Rissman, Ph.D.</b>	Assistant Professor of Psychology, and Psychiatry and Biobehavioral Sciences	Functional neuroimaging studies of human memory and cognitive control
<b>Leonard H. Rome, Ph.D.</b>	Professor of Biological Chemistry; Senior Associate Dean for Research; Associate Vice Chancellor for Research for Life Health Sciences	The study of biogenesis and function of novel subcellular organelles called vaults
<b>Roland R. Roy, Ph.D.</b>	Researcher, Brain Research Institute, and Integrative Biology & Physiology	Plasticity of the neuromuscular system under chronic conditions of increased or decreased neuromuscular activity
<b>Eduardo H. Rubinstein, M.D., Ph.D.</b>	Professor of Physiology, and Anesthesiology	Techniques for brain protection during ischemia
<b>Fred W. Sabb, Ph.D.</b>	Assistant Professor of Psychiatry and Biobehavioral Sciences	Novel technological approaches to cognitive neuroscience and neuroinformatics in order to elucidate the biological origins of major mental illness
<b>Alvaro Sagasti, Ph.D.</b>	Associate Professor of Molecular, Cell & Developmental Biology	Development and plasticity of somatosensory neuron axon arbors in larval zebrafish
<b>Albert Sattin, M.D.</b>	Associate Clinical Professor of Psychiatry and Biobehavioral Sciences: Chief, Antidepressant Neuropharmacology Laboratory, West Los Angeles VAMC	The role of TRH and related peptides in CNS function
<b>Stan Schein, M.D., Ph.D.</b>	Professor of Psychology	Retinal circuits and color vision; retinal synapses and synaptic release processes; endocytosis and fullerene self-assembly
<b>Barnett A. Schlinger, Ph.D.</b>	Professor and Chair of Integrative Biology & Physiology; Professor of Ecology and Evolutionary Biology	Neurosteroid synthesis and actions; neuroethology
<b>Felix E. Schweizer, Ph.D.</b>	Professor of Neurobiology	Physiological and molecular mechanisms of neuronal communication at synapses

<b>Ladan Shams, Ph.D.</b>	Associate Professor of Psychology, and Biomedical Engineering	Multisensory integration, visual perception, perceptual learning
<b>Steven Shoptaw, Ph.D.</b>	Professor of Family Medicine, and Psychiatry and Biobehavioral Sciences; Vice Chair for Academic Affairs	Clinical trials of medications for stimulant dependence
<b>Nancy L. Sicotte, M.D.</b>	Associate Professor of Neurology, Division of Brain Mapping	Multimodal imaging in multiple sclerosis
<b>Jerome M. Siegel, Ph.D.</b>	Professor of Psychiatry and Biobehavioral Sciences; Chief, Neurobiology Research, Veterans, Sepulveda VAMC	Sleep, arousal and the function of orexin (hypocretin) neurons
<b>Alcino J. Silva, Ph.D.</b>	Professor of Neurobiology, Psychiatry & Biobehavioral Sciences, and Psychology	Molecular and cellular mechanisms underlying learning and memory and its disorders, including age-related cognitive decline, autism and schizophrenia
<b>Daniel H. Silverman, M.D., Ph.D.</b>	Professor of Molecular and Medical Pharmacology	Neurological basis for, and optimizing evaluation and management of, cognitive dysfunction secondary to a wide array of insults (neurodegenerative, hormonal, pharmacologic, traumatic)
<b>Dwayne D. Simmons, Ph.D.</b>	Professor of Integrative Biology & Physiology; Director, Minority Access to Research Careers Program	Synapse formation and sensory cell development
<b>Elyse J. Singer, M.D.</b>	Professor of Neurology	NeuroAIDS
<b>Yvonne S. Sininger, Ph.D.</b>	Professor of Surgery (Head & Neck)	Auditory system development and disorders
<b>Gary W. Small, M.D.</b>	Parlow-Solomon Professor on Aging; Professor of Psychiatry and Biobehavioral Sciences; Director, Longevity Center; Director, Memory & Aging Research Center; Director, Geriatric Psychiatry Division, UCLA	Early detection and prevention of age-related memory loss and dementia
<b>Desmond J. Smith, M.D., Ph.D.</b>	Professor of Molecular and Medical Pharmacology	Genetics of behavioral, neuropsychiatric and neurodegenerative disorders

<b>Judith L. Smith, Ph.D.</b>	Professor of Integrative Biology & Physiology; Vice Provost for Undergraduate Education, College of Letters and Science	Neural control of stereotypic limb motions
<b>Michael V. Sofroniew, M.D., Ph.D.</b>	Professor of Neurobiology	Astrocyte biology in health and disease
<b>Sophie Sokolow, Ph.D.</b>	Assistant Professor of Nursing	Alzheimer's disease
<b>Elizabeth R. Sowell, Ph.D.</b>	Associate Professor of Neurology	Developmental neuroimaging
<b>Igor Spigelman, Ph.D.</b>	Professor of Oral Biology & Medicine, School of Dentistry	Neurobiology of disease; mechanisms of chronic pain, seizures, stroke, brain trauma, and addiction
<b>Francis F. Steen, Ph.D.</b>	Associate Professor of Communication Studies/Speech	The nature of cognitive processes involved in interpersonal, computer-mediated, and mass communication
<b>Enrico Stefani, M.D., Ph.D.</b>	John Bartley Dillon Endowed Chair in Anesthesiology; Distinguished Professor of Anesthesiology and Physiology; Dorothy and Leonard Straus Scholar; Associate Director, Cardiovascular Research Laboratories	Stimulation emission depletion super-resolution microscopy, heart protection and mitochondria channels
<b>Catia Sternini, M.D.</b>	Professor of Medicine, and Neurobiology	Mechanisms that govern receptor-mediated responses in the enteric nervous system and chemosensing in the gastrointestinal tract
<b>Ronald Stevens, Ph.D.</b>	Professor of Microbiology, Immunology and Molecular Genetics; Director, IMMEX Project	EEG measures of workload and engagement to model the neurodynamic complexity of submarine piloting and navigation teams
<b>Hui Sun, Ph.D.</b>	Associate Professor of Physiology, and Ophthalmology; Early Career Scientist, Howard Hughes Medical Institute	A novel membrane transport system in physiology and mechanism of macular degeneration
<b>Yi E. Sun, Ph.D.</b>	Professor of Psychiatry and Biobehavioral Sciences, and Molecular and Medical Pharmacology	Epigenetic regulation of stem cells



<b>Yvette Taché, Ph.D.</b>	Professor of Medicine (Digestive Diseases); Director, Animal Core, CURE: Digestive Diseases Research Center; Co-Director, Center for Neurovisceral Sciences & Women's Health	Brain-gut interactions: Underlying mechanisms of stress influence on visceral pain with a focus on corticotrophin releasing factor signaling pathways; Gut alterations in Parkinson's disease models; Gut-brain peptides and regulation of food intake and gastric transit
<b>Anna N. Taylor, Ph.D.</b>	Professor of Neurobiology; Senior Research Career Scientist, VAGLAHS	Neuroendocrine, neuroimmunology, fetal and adult alcoholism, traumatic brain injury
<b>David B. Teplow, Ph.D.</b>	Professor of Neurology; Director, Biopolymer Laboratory; Interim Director, Easton Center for Alzheimer's Disease Research	Biology and biochemistry of human neurodegenerative disorders
<b>Bruce Teter, Ph.D.</b>	Adjunct Associate Professor of Medicine	Alzheimer's disease with focus on genetics and metabolic effects; translational research developing drugs like fish oil/DHA and curcumin for both prevention and treatment
<b>Paul Thompson, Ph.D.</b>	Professor of Neurology	Brain imaging in Alzheimer's, brain development, HIV/AIDS, schizophrenia, bipolar, and childhood neurogenetic disorders
<b>James G. Tidball, Ph.D.</b>	Professor of Integrative Biology and Physiology, and Pathology & Laboratory Medicine; Director, Duchenne Muscular Dystrophy Research Center	Pathophysiology of muscular dystrophy
<b>Niranjala Tillakaratne, Ph.D.</b>	Researcher, Department of Integrative Biology & Physiology, and the Brain Research Institute	Identification of locomotor circuits following spinal cord injury
<b>Seema Tiwari-Woodruff, Ph.D.</b>	Assistant Professor of Neurology	Aspects of demyelination-induced neurodegeneration and neuroprotection by various therapeutic interventions in mouse models of demyelination
<b>Arthur W. Toga, Ph.D.</b>	Distinguished Professor of Neurology; Director, Laboratory of Neuro Imaging; Associate Director, Brain Mapping	Development and application of scientific approaches for the comprehensive mapping of brain structure and function in health and disease

<b>Ligia Toro, Ph.D.</b>	Professor of Anesthesiology, and Molecular and Medical Pharmacology	Smooth muscle and mitochondrial K-channels
<b>Nim Tottenham, Ph.D.</b>	Assistant Professor of Psychology	Neurobiology of emotional development and the effects of early life stress on neuro-affective development
<b>Wallace W. Tourtellotte, M.D., Ph.D.</b>	Distinguished Professor of Neurology	Etiopathogenesis of multiple sclerosis
<b>Joshua T. Trachtenberg , Ph.D.</b>	Associate Professor of Neurobiology	Cortical learning, memory and plasticity
<b>Robert B. Trelease, Ph.D.</b>	Professor of Pathology and Laboratory Medicine; Associate Director, Instructional Design and Technology Unit, Dean's Office, David Geffen School of Medicine	Artificial intelligence, virtual reality, and anatomical informatics
<b>Cho-Lea Tso, Ph.D.</b>	Associate Professor of Surgery	Molecular/tumorigenic pathways and therapeutic targets of brain cancer stem cells
<b>John D. Van Horn, Ph.D., M.Eng.</b>	Assistant Professor of Neurology	Human neuroimaging
<b>Julio L. Vergara, Ph.D.</b>	Professor of Physiology	Skeletal muscle excitation-contraction coupling; synaptic transmission at the neuromuscular junction
<b>Eric Vilain, M.D., Ph.D.</b>	Professor of Human Genetics, Pediatrics, and Urology	Biology of sex differences and sexual development
<b>J. Pablo Villablanca, M.D.</b>	Associate Professor of Radiological Sciences; Chief, Neuroradiology	Diagnostic neuroradiology (stroke)
<b>Harry V. Vinters, M.D.</b>	Professor of Pathology and Laboratory Medicine, and Neurology; Daljit S. & Elaine Sarkaria Chair in Diagnostic Medicine; Director, Neuropathology Laboratory	Cellular and molecular pathogenesis of human neurologic diseases
<b>Rhonda R. Voskuhl, M.D.</b>	Professor of Neurology	Multiple sclerosis
<b>Roi Ann Wallis, M.D.</b>	Associate Professor of Neurology; Associate Chief of Neurology, VA GLAHS	Mechanisms of neuronal injury from trauma and stroke
<b>Martin Wallner, Ph.D.</b>	Assistant Professor of Molecular & Medical Pharmacology	Pharmacology and physiology of extra synaptic GABA(A) receptors

<b>Danny Jiong Jiong Wang, Ph.D.</b>	Associate Professor of Neurology	Development and applications of functional and physiological MRI
<b>James A. Waschek, Ph.D.</b>	Professor of Psychiatry and Biobehavioral Sciences	Biological functions of neuropeptides, neuroimmunology, multiple sclerosis
<b>Kate M. Wassum, Ph.D.</b>	Assistant Professor of Psychology	Use and advance sophisticated behavioral paradigms, coupled with neuropharmacology and neurochemical monitoring techniques to elucidate the precise neural mechanisms and systems that underlie discrete aspects of motivated learning and decision-making
<b>Claude G. Wasterlain, M.D.</b>	Distinguished Professor of Neurology; Vice Chair Neurology, West Los Angeles VAMC	The basic science of epilepsy and status epilepticus
<b>Joseph B. Watson, Ph.D.</b>	Professor of Psychiatry and Biobehavioral Sciences; Associate Director for Science Outreach, Brain Research Institute	Synaptic dysfunction in the neurodegenerative disorders Parkinson's disease and Huntington's disease
<b>Nancy L. Wayne, Ph.D.</b>	Professor of Physiology	Neurophysiological control of reproduction
<b>Geraldine A. Weinmaster, Ph.D.</b>	Professor of Biological Chemistry	Defining the molecular mechanisms underlying Notch signaling in mammalian cells
<b>Stephanie A. White, Ph.D.</b>	Associate Professor of Integrative Biology & Physiology	Neural basis for socially learned vocal communication
<b>Julian P. Whitelegge, Ph.D.</b>	Adjunct Professor of Psychiatry and Biobehavioral Sciences	Neurodegeneration and biological mass spectrometry
<b>Peter C. Whybrow, M.D.</b>	Director, Semel Institute for Neuroscience and Human Behavior at UCLA; Judson Braun Distinguished Professor and the Executive Chair of the Department of Psychiatry and Biobehavioral Sciences, David Geffen School of Medicine at UCLA	Depression and manic-depressive disease and the effects of thyroid hormone on the brain and human behavior
<b>Martina Wiedau-Pazos, M.D., Ph.D.</b>	Associate Professor of Neurology	Motor neuron degeneration in amyotrophic lateral sclerosis (ALS)
<b>David S. Williams, Ph.D.</b>	Professor of Ophthalmology, and Neurobiology	Intracellular trafficking in photoreceptor and RPPE cells

<b>Roger P. Woods, M.D.</b>	Professor of Neurology, and Psychiatry and Biobehavioral Sciences	Structural and functional brain imaging
<b>Ernest M. Wright, D.Sc.</b>	Professor of Physiology, Mellinkoff Professor of Medicine	Membrane transport (SLC5 gene family)
<b>Allan D. Wu, M.D.</b>	Assistant Professor of Neurology	Noninvasive transcranial neuromodulation, brain mapping, and plasticity in patients with movement disorders
<b>Benjamin M. Wu, D.D.S., Ph.D.</b>	Assistant Professor of Bioengineering	Biomaterials and tissue engineering
<b>Hong M. Wu, M.D., Ph.D.</b>	Professor of Molecular and Medical Pharmacology	Neuronal stem cells and tumorigenesis
<b>Cui-Wei (Tracy) Xie, M.D., Ph.D.</b>	Professor of Psychiatry and Biobehavioral Sciences	Synaptic plasticity, learning and memory
<b>Hong Yang, M.D., Ph.D.</b>	Research Physiologist, Department of Medicine (Digestive Diseases)	Brainstem mechanism of autonomic disorders in type 2 diabetes
<b>Xiangdong William Yang, M.D., Ph.D.</b>	Professor of Psychiatry and Biobehavioral Sciences	Pathogenesis of neurodegenerative diseases
<b>Xian-Jie Yang, Ph.D.</b>	Professor of Ophthalmology	Development and repair of the neural retina
<b>William H. Yong, M.D.</b>	Professor of Pathology and Laboratory Medicine	Pathology of brain tumors and biorepository science
<b>Alan Yuille, Ph.D.</b>	Professor of Statistics, and Psychology	Vision as Bayesian inference
<b>Dahlia Zaidel, Ph.D.</b>	Adjunct Professor of Psychology	Neuroscience of beauty in faces and art, and hemispheric specialization in memory for faces and objects
<b>Eran Zaidel, Ph.D.</b>	Professor of Psychology (Behavioral Neuroscience and Cognition)	Cognitive neuroscience of attention, perception, language and social relations
<b>Guido A. Zampighi, D.D.S., Ph.D.</b>	Professor of Neurobiology	Structure and function of chemical and electrical synapses
<b>Richard K. Zimmer, Ph.D.</b>	Professor of Ecology and Evolutionary Biology	Chemical communication and sensory ecology
<b>S. Lawrence Zipursky, Ph.D.</b>	Professor of Biological Chemistry; Investigator, Howard Hughes Medical Institute	The molecular mechanisms underlying the formation of precise patterns of synaptic connections

## New Members

During the 2011-2012 academic year, fifteen new members joined the BRI:

Michele A. Basso, Ph.D.	Professor of Psychiatry & Biobehavioral Sciences
Giovanni Coppola, M.D.	Assistant Professor of Psychiatry & Biobehavioral Sciences, and Neurology
Andrew C. Dean, Ph.D.	Assistant Professor of Psychiatry & Biobehavioral Sciences
Patricia I. Dixon, M.D.	Assistant Professor of Pediatrics
Brent L. Fogel, M.D., Ph.D.	Assistant Professor of Neurology
Peyman Golshani, M.D., Ph.D.	Assistant Professor of Neurology
Elissa A. Hallem, Ph.D.	Assistant Professor of Microbiology, Immunology, and Molecular Genetics
Sandra K. Loo, Ph.D.	Associate Professor of Psychiatry and Biobehavioral Sciences
Sotiris C. Masmanidis, Ph.D.	Assistant Professor of Neurobiology
Martin M. Monti, Ph.D.	Assistant Professor of Psychology, and Neurosurgery
Roel A. Ophoff, Ph.D.	Professor of Psychiatry & Biobehavioral Sciences, and Human Genetics
Nader Pouratian, M.D., Ph.D.	Assistant Professor of Neurosurgery
Jesse A. Rissman, Ph.D.	Assistant Professor of Psychology
Danny Jiong Jiong Wang, Ph.D.	Associate Professor of Neurology
Kate M. Wassum, Ph.D.	Assistant Professor of Psychology

## Emeritus Members

A number of emeritus members continue to contribute to the field of neuroscience through their own research, and through the education and research training of our students and postdoctoral fellows.

Claude F. Baxter, Ph.D.	Emeritus Professor of Psychiatry and Biobehavioral Sciences
Jackson T. Beatty, Ph.D.	Emeritus Professor of Psychology
Jennifer S. Buchwald, Ph.D.	Emeritus Professor of Physiology
Larry L. Butcher, Ph.D.	Emeritus Professor of Psychology
Pasquale A. Cancilla, M.D.	Emeritus Professor of Pathology
Carmine D. Clemente, Ph.D.	Emeritus Professor of Neurobiology
Robert C. Collins, M.D.	Emeritus Professor of Neurology
Donald D. Dirks, Ph.D.	Emeritus Professor of Surgery (Head and Neck)
Wilfrid J. Dixon, Ph.D.	Emeritus Professor of Biomathematics, Biostatistics, and Psychiatry and Biobehavioral Sciences
George Eisenman, M.D.	Emeritus Professor of Psychiatry and Biobehavioral Sciences
Earl Eldred, M.D.	Emeritus Professor of Neurobiology
Thelma Estrin, Ph.D.	Emeritus Professor of Computer Science, School of Engineering and Applied Science
M. David Fairchild, Ph.D.	Emeritus Associate Professor of Molecular and Medical Pharmacology
Bernard K.K. Fung, Ph.D.	Emeritus Professor of Ophthalmology, and Molecular and Medical Pharmacology
John Garcia, Ph.D.	Emeritus Professor of Psychology, and Psychiatry and Biobehavioral Sciences
Roger A. Gorski, Ph.D.	Distinguished Emeritus Professor of Neurobiology
Vicente Honrubia, M.D., D.M.Sc.	Emeritus Professor of Surgery (Head and Neck)
Chester D. Hull, Ph.D.	Emeritus Professor of Psychiatry and Biobehavioral Sciences
Donald J. Jenden, B.Sc., M.B., B.S.	Emeritus Professor of Molecular and Medical Pharmacology
Margaret H. Jones, M.D.	Emeritus Professor of Pediatrics, Neurology, and Rehabilitation
Douglas Junge, Ph.D.	Emeritus Professor of Dentistry (Oral Biology and Medicine)
Franklin B. Krasne, Ph.D.	Emeritus Professor of Psychology
Sally Krasne, Ph.D.	Emeritus Associate Professor of Physiology
Lawrence Kruger, Ph.D.	Distinguished Emeritus Professor of Neurobiology
Charles H. Markham, M.D.	Emeritus Professor of Neurology
James T. Marsh, Ph.D.	Emeritus Professor of Psychiatry and Biobehavioral Sciences
Michael T. McGuire, M.D.	Emeritus Professor of Psychiatry and Biobehavioral Sciences
Linda D. Nelson, Ph.D.	Emeritus Professor of Psychiatry and Biobehavioral Sciences
Elizabeth F. Neufeld, Ph.D.	Emeritus Professor of Biological Chemistry
Ernest P. Noble, M.D., Ph.D.	Distinguished Emeritus Professor of Psychiatry and Biobehavioral Sciences
Edward M. Ornitz, M.D.	Emeritus Professor of Psychiatry and Biobehavioral Sciences
Kent M. Perryman, Ph.D.	Emeritus Associate Research Physiologist, Department of Psychiatry and Biobehavioral Sciences
Michel Philippart, M.D.	Emeritus Professor of Neurology, Pediatrics, and Psychiatry and Biobehavioral Sciences

Robert W. Porter, M.D., Ph.D.	Emeritus Professor of Neurosurgery, University of California, Irvine
Robert W. Rand, M.D., Ph.D., J.D.	Emeritus Professor of Neurosurgery
Sidney Roberts, Ph.D.	Emeritus Professor of Biological Chemistry
Arnold B. Scheibel, M.D.	Emeritus Distinguished Professor of Neurobiology, and Psychiatry and Biobehavioral Sciences
John D. Schlag, M.D.	Emeritus Professor of Neurobiology
Madeleine Schlag-Rey, Ph.D.	Emeritus Research Neurobiologist
José P. Segundo, M.D.	Emeritus Professor of Neurobiology
Margret I. Sellers, Ph.D.	Emeritus Professor of Microbiology and Immunology
Eustace A. Serafetinides, M.D., Ph.D.	Emeritus Professor of Psychiatry and Biobehavioral Sciences
Margaret N. Shouse, Ph.D.	Emeritus Professor of Neurobiology
Grant G. Slater, Ph.D.	Emeritus Researcher, Department of Psychiatry and Biobehavioral Sciences, and School of Public Health
Ralph R. Sonnenschien, M.D., Ph.D.	Emeritus Professor of Physiology
M. Barry Sterman, Ph.D.	Emeritus Professor of Neurobiology, and Psychiatry and Biobehavioral Sciences
Bradley R. Straatsma, M.D.	Emeritus Professor of Ophthalmology
James P. Thomas, Ph.D.	Emeritus Professor of Psychology
Allan J. Tobin, Ph.D.	Emeritus Professor of Neurology, and Integrative Biology & Physiology
M. Anthony Verity, M.D.	Emeritus Professor of Pathology (Neuropathology)
Jacques J. Vidal, Ph.D.	Emeritus Professor of Computer Science
Jaime R. Villablanca, M.D.	Emeritus Distinguished Professor of Neurobiology, and Psychiatry and Biobehavioral Sciences
Jen Yu Wei, Ph.D.	Emeritus Professor of Medicine
Bernice M. Wenzel, Ph.D.	Emeritus Professor of Physiology
Charles L. Wilson, Ph.D.	Emeritus Professor of Neurology
Charles D. Woody, M.D.	Emeritus Professor of Psychiatry and Biobehavioral Sciences, and Neurobiology
Arthur Yuwiler, Ph.D.	Emeritus Professor of Psychiatry and Biobehavioral Sciences

### Corresponding Members

The national and international reputation of the Brain Research Institute attracts a number of prominent scientists as corresponding members in the Institute. These members include:

Filomena Bovet-Nitti, D.Sc.	Laboratorio di Psicobiologia e Psicofarmacologia, Consiglio Nazionale delle Ricerche, Rome, Italy
Anthony Kales, M.D.	Emeritus Professor, Department of Psychiatry, Pennsylvania State University, Hershey Medical Center
David F. Lindsley, Ph.D.	Associate Professor of Physiology, University of Southern California
Arnold J. Mandell, M.D.	Emeritus Professor of Psychiatry, University of California, San Diego
James L. McGaugh, Ph.D.	Professor of Psychobiology, University of California, Irvine
George P. Moore, Ph.D.	Professor of Biomedical Engineering and Physiology, University of Southern California
Eberhardt K. Sauerland, M.D.	Emeritus Professor of Anatomy, University of Texas, Medical Branch, Galveston
Marianne E. Schlaefke, M.D., Ph.D.	Institut für Physiologie, Ruhr-Universität, Bochum, West Germany
Oscar U. Scremin, M.D, Ph.D.	Professor of Physiology, VA Greater LA Healthcare



## INSTITUTE ACTIVITIES

### PROGRAM RESEARCH

In addition to the research funded by grants to individual members of the Institute, several collaborative research projects are supported by grants administered by the Brain Research Institute. The following brief reports indicate the nature and accomplishments of each of these programs managed by the Institute.

#### LABORATORY OF NEUROENDOCRINOLOGY (Supported by NIH Grant-HD-07228)

The Laboratory of Neuroendocrinology (LNE) is a unit of the UCLA Brain Research Institute comprising 17 faculty laboratories with a common interest in neuroendocrinology, sex differences, and reproduction. The LNE fosters education and collaborative research in neuroendocrinology and sex differences, especially in areas concerning reproduction. The activities of the LNE include graduate and undergraduate courses in neuroendocrinology, the weekly brown-bag seminar on current topics in neuroendocrinology, exchange of research ideas and methods among member laboratories, active research collaboration among labs, opportunities for students at all levels, and the annual Charles Sawyer lectureship in neuroendocrinology.

The educational activities of the LNE have been funded continuously since 1980 by an NIH training grant, "Neuroendocrinology, Sex Differences, and Reproduction." Research of the faculty spans all analytical levels, from the molecular to the behavioral. Research interests include sex determination and sexual differentiation, hormonal regulation of neural function, gender differences in disease, cellular and molecular analysis of neural development, circadian rhythms, neural regulation of gonadal and adrenal function, glial neurobiology, stress, aging, neuroendocrine immunology, growth factors and cytokines, molecular genetics of the sex chromosomes, and genetic approaches. Although the main focus is on basic research in neuroendocrinology, some faculty are also involved in direct analysis of human disease and clinical trials to develop new neuroendocrine therapies.

Annual research and training support awarded to the LNE faculty is more than \$16 million. Including faculty, postdoctoral scholars, graduate and undergraduate students, and staff, more than 70 individuals are associated with this laboratory.

The faculty of the Laboratory of Neuroendocrinology include Arthur P. Arnold (Integrative Biology & Physiology), Marie-Francoise Chesselet (Neurobiology and Neurology), Christopher S. Colwell (Psychiatry and Biobehavioral Sciences), Hong-Wei Dong (Neurology), Mansoureh Eghbali (Anesthesiology), Roger Gorski (Neurobiology), Aldons (Jake) Lusic, (Microbiology, Immunology and Molecular Genetics, and Human Genetics), Allan Mackenzie-Graham (Neurology), Paul E. Micevych (Neurobiology), Kathrin Plath (Biological Chemistry), Barney A. Schlinger (Integrative Biology & Physiology), Anna N. Taylor (Neurobiology), Seema K. Tiwari-Woodruff (Neurology), Eric Vilain (Human Genetics and Pediatrics), Rhonda Voskuhl (Neurology), Nancy L. Wayne (Physiology), and Stephanie S. White (Integrative Biology & Physiology).

Major research themes include gonadal steroid actions on the brain or other tissues (virtually all faculty); sex differences, sex determination, and sexual differentiation (all faculty); cellular and molecular analysis of development (Arnold, Chesselet, Dong, Micevych, Plath, Schlinger, Tiwari-Woodruff, Vilain, Wayne, White); endocrine regulation including ovulation and pregnancy (Eghbali, Dong, Micevych, Schlinger, Voskuhl, Wayne); neuroendocrine immunology (Mackenzie-Graham, Voskuhl, Tiwari-Woodruff); cellular physiology of hormone action (Eghbali, Micevych, Schlinger, Wayne); hormonal neuroprotection (Dong, Chesselet, Micevych, Schlinger, Tiwari-Woodruff, Voskuhl); comparative neuroendocrinology (Arnold, Schlinger, Wayne, White); genetics, gene networks, genetic models (Arnold, Chesselet, Lusic, Micevych, Plath, Vilain, Voskuhl); neurobiology of glia (Schlinger, Tiwari-Woodruff, Voskuhl); hormones, genes, gender, and behavior (Arnold, Lusic, Micevych, Schlinger, Vilain, Wayne, White), cardiovascular and metabolic disease and obesity (Arnold, Dong, Eghbali, Lusic), neuroimaging (Mackenzie-Graham), molecular genetics of X-inactivation (Plath).

## NEUROSCIENCE HISTORY ARCHIVES

The Neuroscience History Archives (NHA) continues to sponsor activities in four major areas: archival collection and consultation; teaching and advising; public outreach; and ongoing and future activities.

### **Archival Collection and Consultation**

Archival efforts have centered on the identification and preservation of BRI and NPI researchers' papers and significant institutional records. In addition to maintaining our collaboration with national and international organizations, we have expanded our collaborations with local institutions. Reference activity in person and via email and letter post continued apace throughout the year, averaging one query (information requests, photographic or photocopy orders, research referrals, etc.) per day. The NHA also continues to maintain and develop major internet resources: HISTNEUR-L (the History of Neuroscience Internet Forum and its online archives); and websites for the NHA (<http://www.NeuroscienceArchives.org>) and the International Society for the History of the Neurosciences (ISHN: <http://www.ishn.org>).

In the spring of 2012, NHA acquired the books and personal papers of noted Los Angeles psychoanalyst and UCLA clinical professor Leo Rangell, who died in 2011. We plan to use this collection as the nucleus for a History of Psychoanalysis website and historical collection, featuring the work of Rangell and his close colleagues.

The NHA's archival website, "Transforming Tragedy," on the history of public mental health in California and Los Angeles County, has continued to develop (<http://archive.semel.ucla.edu/DMH>). In 2011, we added documentary videos on DMH programs in the Antelope Valley, West Los Angeles, downtown Los Angeles (Skid Row), and East Los Angeles, as well as films on the American Indian Counseling Center and Roybal School-Based and Young Mothers and Babies Programs. In 2012, these will be joined by videos now in production documenting programs in the San Fernando Valley, Arcadia, Long Beach, and South Los Angeles, as well as films on Child and Adolescent Programs and the GENESIS program for Older Adults. Three new videos on volunteer programs and client stories are planned for 2012-13.

The NHA/DMH website continues to add to its collection of oral histories with administrators, psychiatrists, advocates, family members and mental health client activists telling the story of their work, successes, and setbacks since the early 1960s; archival documents and photographs from the Los Angeles County Department of Mental Health, Mental Health America Los Angeles, Pacific Clinics, Hillview Medical Center, the California Chapter of the National Alliance for Mental Illness, the California Network of Mental Health Clients, Mental Health Advocacy Services, and individual donors, with interpretive essays on the history of public mental health in California. In 2012-13, we will be collecting oral histories and materials on mental health history from the LA County Department of Health Services and neighboring southern California counties.

In conjunction with the Charles Drew School of Medicine Library and UCLA-Harbor, NHA in 2011 received a two-year grant from the National Library of Medicine to archive materials associated with the Community Partners in Care, a NIMH-funded Semel Institute program to develop tools for community-based treatments for depression. The archival materials have been digitized and will be presented on a new website, "Depression Connect LA," which will also present training videos on depression care for health care providers.

### **Teaching and Advising**

Dr. Joel Braslow, NHA Director, has been engaged in a number of teaching activities. Among the most significant has been integrating the history of the neurosciences and psychiatry. He first began this effort several years ago with a course for second year psychiatry residents in which he teaches the ways in which developments in the neurosciences and in clinical sciences have shaped contemporary psychiatric practice. He continued his new seminar course for graduate students in the Interdepartmental Ph.D. Program for Neuroscience (NSIDP). This course also reflects the NHA's emphasis on using history as a means to

understand contemporary issues in the neurosciences. Specifically, the course covers various topics in the philosophy and history of the neurosciences with an emphasis on the ways in which these issues inform contemporary scientific practice.

In 2012-13, Dr. Marcia Meldrum will begin teaching an Interdisciplinary Cluster Course, "Mind Games: The History, Science, and Philosophy of the Brain," with colleagues from the NSIDP, and the Departments of Integrative Biology & Physiology, Philosophy and Psychology,

Sarah Starks completed her doctoral dissertation in health sciences, "Cost and Effectiveness of Full Service Partnerships for Severe Mental Illness," and Brad Fidler received his Ph.D. in history with his thesis on "Economies of Everyday Suffering: Some Implications of Eli Lilly's Zyprexa Market Strategy in U.S. Primary Care." Dr. Braslow this year took on advisory roles for MSTP Fellow Arielle Lasky, and sociology graduate student Margaret Lee; he continues to mentor the work of history graduate students Alexander Kertzner, on post-polio disability and rehabilitation, and Christine Tarleton, on autism.

### **Public Outreach**

The NHA is continuing to work actively to develop its collaboration with LACDMH. Our research initiatives in the area of public mental health not only provide data and analysis to assist the County to provide better services, but also gather material which will enrich the historical and archival record for future generations. In future years, such projects will be incorporated into a new Translational Research Fellowship program, jointly sponsored by LACDMH, UCLA, and USC.

In collaboration with the Program for Medical History and the Medical Humanities, the NHA co-sponsors a monthly research forum, hosted in the Rare Book Room of the History and Special Collections Division for the Sciences of the Biomedical Library. Faculty, graduate students, and local scholars are invited to present their work-in-progress and initial drafts of conference presentations. Speakers this year included Dr. Braslow on mental health services in LA County, Brad Fidler on the marketing of antipsychotic drugs, Sarah Pripas on the Women's Medical College of Pennsylvania, and Cassia Roth on reproductive medicine in Brazil.

### **Ongoing and Future Activities**

Grants: Dr. Braslow and Dr. John Brekke of USC have completed data collection and are conducting the analysis for their NIMH R01 (direct costs, \$ 2,045,877) to study the impact of California's Mental Health Services Act on care in Los Angeles County. This project has involved the NHA in that the act is of major historical significance for the care of those with severe mental illness and the NHA will assist the County in documenting this major policy intervention.

Dr. Braslow and Dr. Brekke also are co-PIs on a Robert Wood Johnson Independent Principal Investigator, Robert Wood Johnson Investigator Award in Health Policy Research (direct costs-\$335,000). With this grant, we plan to use much of the rich archival material we have collected to examine contemporary mental health policy from a historical perspective.

Contracts: Over the last year, we have received \$120,000 in contracts with the Department of Mental Health, and have used these funds to develop the "Transforming Tragedy" website (described above). We expect to receive the same amount in 2012-13, with an additional \$200,000 to support the Translational Research Fellowships.

The Neuroscience History Archives will continue to sponsor lectures and conferences that examine the historical, cultural, and sociological aspects of the neurosciences. In the upcoming year, a major part of the NHA's efforts will be an educational and outreach program-on campus and at professional meetings-which will help senior faculty and researchers prepare their papers for archiving.



## RESEARCH EDUCATION

One of the principal goals recognized by the Brain Research Institute is the education of investigators for independent careers in research. Research aspirants at the undergraduate, predoctoral, and postdoctoral levels of development benefit from the same combination of departmental and interdisciplinary experience that characterizes the research activities of the Institute. A curriculum of courses is sponsored by the Institute that emphasizes interdisciplinary science education. These include both departmental courses approved for undergraduate life science majors and the Graduate Division for credit, and less formal seminars and lectures. All members of the Institute have major responsibilities as mentors of graduate students and postdoctoral fellows who are developing careers in neuroscience.

## UNDERGRADUATE EDUCATION

The undergraduate major in neuroscience is now in its eighteenth year. Officially established in the 1992-93 academic year after several years of planning and developing by the UCLA College Neuroscience Group, its majors now number approximately six hundred and fifty students.

The goal of the major is to provide an undergraduate introduction to the study of the nervous system at all levels of analysis. This concept is embodied in the core of the curriculum, the year-long series "Neuroscience: From Molecules to Mind." The courses in this series, as well as others in the major, emphasize critical thinking and analysis, and an introduction to laboratory research. Students are encouraged to complete an independent research project in a faculty member's laboratory and present their work in the annual Neuroscience Undergraduate Poster Session. The poster session was initiated in 1999, and this year 84 students presented posters and six students were awarded prizes for their projects. Students also have the option to complete a Neuroscience Laboratory course, which provides hands-on experience with important methodology and experimental approaches in neuroscience.

This interdisciplinary major avails itself of the wealth of neuroscience resources at UCLA, and receives teaching contributions from Integrative Biology & Physiology, Psychology, and Molecular, Cell & Developmental Biology in the College of Letters and Science, and Biological Chemistry, Neurobiology, Neurology, Psychiatry and Biobehavioral Sciences, Medicine, and the Brain Research Institute in the School of Medicine. In total, over sixty faculty from the College of Letters and Science and the School of Medicine participate in the major. Their enthusiasm and generosity have been essential to the success of this program.

To date, there are 650 students enrolled in the program; 170 students earned their Bachelor of Science degree, and 10 students received a minor from the undergraduate neuroscience program in 2012; nearly 1620 Bachelor of Science degrees in neuroscience have been awarded since 1994.

## GRADUATE EDUCATION

A large number of Ph.D. candidates work in BRI laboratories by virtue of the fact that their departmental supervisors are members of the Institute. There were 277 graduate students engaged in Institute activities during 2011-2012. Much of their educational activity is organized departmentally and all degrees are awarded by departments or interdepartmental programs. Generous interdepartmental experience is provided for most graduate students through preceptors' participation in collaborative research as well as by means of the broadly interdisciplinary seminars and lectures.

The following training programs utilize resources of the Brain Research Institute:

- (1) Interdepartmental Program leading to the Ph.D. in Neuroscience;
- (2) Program of instruction leading to both an M.D. and Ph.D. in Neuroscience.

#### Interdepartmental Program for Neuroscience

Organized Research Units (ORUs) themselves do not conduct graduate training within the University of California. The BRI has therefore undertaken to organize and foster the Interdepartmental Ph.D. Program for Neuroscience. This program, inaugurated in 1968, takes advantage of facilities and resources of the BRI as well as of ongoing educational activities sponsored by the Institute. The program provides for: (1) core instruction for all students in the anatomy, physiology, and chemistry of the nervous system; (2) instruction, in depth, for students with special interests in neuroanatomy, neurochemistry, neurophysiology, behavior, neurocybernetics and communication, neuroendocrinology, neuropharmacology, neuroimmunology, molecular neurobiology, neuropathology, neuroimaging, neurogenetics, neural repair, and neuroengineering; and (3) assistance and supervision in conducting dissertation research in all those fields. Trainees, in general, come from backgrounds in the life and biomedical sciences, but the program is sufficiently flexible to accommodate qualified students with other educational experiences and it is anticipated that increasing numbers of students will be attracted from physics, chemistry, mathematics, and engineering. During 2011-2012, 78 graduate students participated in the program, 12 of whom were new students selected from over 240 applicants. Since its inception, the Program has granted 298 degrees, of which 17 were awarded during the 2011-2012 academic year.

#### Program of Instruction Leading to Both the M.D. and Ph.D. Degrees in Neuroscience

This program was inaugurated in the fall quarter, 1968. It permits selected applicants to the School of Medicine to obtain both M.D. and Ph.D. degrees in a period of time substantially below that normally required. It combines the Interdepartmental Program for Neuroscience, described above, with the curriculum of the School of Medicine, revised to permit increased attention to student electives. It takes advantage of a decision of the University that permits students to register in more than one school concurrently. It is anticipated that instruction may be coordinated in such a way that a student may complete work leading to both degrees in as short a time as seven years. During 2011-2012, fourteen students participated in this program.

#### Training Programs Administered Through the Brain Research Institute

In addition to the training programs described above, six training grants were administered through the Brain Research Institute during the academic year 2010-2011:

- (1) Training Program in Cellular Neurobiology (P.I. Tom O'Dell, NIH grant NS 07101);
- (2) Training Program in Molecular and Cellular Neurobiology (P.I. David Glanzman, NIH grant MH19384);
- (3) Training Program in Neural Repair (P.I. Marie Françoise Chesselet, NIH grant NS 07449);
- (4) Training Program in Neuroendocrinology, Sex Differences and Reproduction (P.I. Art Arnold, NIH grant HD 07228);

- (5) UCLA Clinical Pharmacology Training Program (P.I. Barbara Levey, NIH T32 grant GM 75776),
- (6) UCLA-Caltech Medical Scientist Training Program (P.I.s Kelsey Martin and Stephen Smale, NIH GM 008042)

#### Training Program in Cellular Neurobiology

This program for predoctoral and postdoctoral trainees, directed by Dr. Tom O'Dell, seeks to expose students to the fundamental problems in neurobiology and then to give them an intensive interdisciplinary training in modern research techniques. Research interests of the training supervisors include membrane biophysics, cellular electrophysiology, molecular neurobiology, developmental neurobiology, intercellular interactions, sensory physiology, and central nervous processing. The program is designed to be flexible, exposing trainees to many different aspects of neurobiology while providing maximal opportunity to pursue a particular research interest. A thorough curriculum of basic science and introductory and specialized neurobiology courses is available, as are specialized lecture and technique courses in a wide variety of related disciplines. Four postdoctoral trainees participated in this program in 2011-2012.

#### Training Program in Molecular and Cellular Neurobiology

The techniques and concepts of molecular and cellular biology are increasingly important in the study of neural function and development. Future research in neuroscience depends heavily on people trained in both systems neuroscience and molecular biology. The UCLA Training Program in Molecular and Cellular Neurobiology, directed by Dr. David Glanzman, focuses on predoctoral training, and provides traineeships for highly qualified students in the third, fourth, or fifth year of enrollment in the Interdepartmental Neuroscience Ph.D. Program. The purpose of the Molecular and Cellular Neurobiology (MCN) Program is to train students in molecular and cellular approaches to the problem of neural plasticity, broadly conceived. The overall goal of the training program is to prepare young neuroscientists to perform research that will provide the scientific bases for future treatments of mental and behavioral disorders. The training comprises lecture courses, seminar courses, and one-on-one interactions in the laboratory and in other program activities, including research seminars, short courses, and retreats. All trainees are required to take an online course in ethics in biomedical research; this course is an interactive exercise designed to cover a multitude of real-life situations in the research arena. In addition, students must take an introductory course in clinical disorders of behavior for basic neuroscientists as part of their training. It is hoped that this course will promote "translational" research by the trainees that will speed the development of treatments for behavioral disorders. Four predoctoral trainees participated in this program during the academic year 2011-2012.

#### Training Program in Neural Repair

This program for predoctoral and postdoctoral trainees, directed by Dr. Marie-Françoise Chesselet, draws on the unique strength of a group of training faculty at UCLA to train young investigators in the basic aspects of neural repair. Recent years have seen tremendous progress in the understanding of the mechanisms of neuronal death and neural plasticity, leading to new perspectives for neural repair in the central nervous system. This program trains investigators to meet the challenges of the field in the next century. The program enrolls postdoctoral fellows and outstanding graduate students from the Interdepartmental Graduate Program for Neuroscience and other graduate programs at UCLA. The curriculum for predoctoral trainees in the Interdepartmental Graduate Program for Neuroscience includes training in broad areas of cellular, molecular and system neuroscience, specialized courses in neural repair, and exposure to relevant clinical situations. Students with a primary interest in neural repair are selected for support at the end of the second quarter of

their first year in the program. Students are exposed to interactions with a variety of faculty and students investigating the nervous system from many perspectives, both basic and clinical. These interactions occur in courses, seminars, and activities organized by postdoctoral fellows or students, and the annual neuroscience student retreat. During the 2011-2012 academic year, two predoctoral and two postdoctoral trainees participated in this program.

#### Training Program in Neuroendocrinology, Sex Differences and Reproduction

The objectives of this program, directed by Dr. Arthur Arnold, are to foster the training of predoctoral and postdoctoral investigators in the didactic components of, and research approaches to, the neuroendocrine regulation of reproduction. Research training available spans the discipline and includes neuroanatomical, neurochemical, physiological, molecular, and behavioral approaches. Educational goals are met through a formal course that includes background material, general lectures and research seminars given by both students and faculty, a weekly journal club, and frequent meetings of individual laboratory groups. During 2011-2012, five predoctoral and two postdoctoral trainees participated in this program.

#### UCLA Interdepartmental Clinical Pharmacology Training Program

The UCLA Interdepartmental Clinical Pharmacology Training Program (ICPTP) is a thriving, highly structured mentored clinical scholar program in patient-oriented research that is broad, interdisciplinary and focused on the area of clinical pharmacology and experimental therapeutics. This field bridges molecular medicine and health care and covers all areas of clinical medicine. The recently renewed T32 Clinical Pharmacology Training Program grant from the National Institute of General Medical Sciences (NIGMS) provides each participant with salary support and career development for a minimum of two years. During 2011-2012, four postdoctoral trainees were supported by the T32 training grant. Concurrent with the ICPTP is the K30 Training Program, which is now part of the newly awarded UCLA Clinical Translation Science Award held by the David Geffen School of Medicine, which offers a curriculum in translational investigation, principally designed for residents and clinical faculty interested in research.

#### UCLA-Caltech Medical Scientist Training Program (MSTP)

The MSTP is dedicated to educating and training exceptionally qualified individuals for careers in the biomedical sciences. To fulfill this mission, we recruit exceptionally bright and accomplished students who exhibit a passion for scientific knowledge and a life-long commitment to research and leadership. The average time to degree for students in the UCLA-Caltech MSTP is eight years. The traditional course of study begins with the first two years of medical school, followed by four years of PhD graduate training, and concluding with the third and fourth years of medical school. In 1997, an affiliation was formed with the California Institute of Technology (Caltech), which made it possible for an average of two students each year to perform their PhD thesis research at this world-renowned research institution. The NIH funded MSTP at UCLA was established in 1983. Since that time, 128 students have graduated from the program and 97 students are currently enrolled. The vast majority of alumni who have completed their postgraduate training are actively involved in biomedical research as physician-scientists at outstanding research institutions across the country. Kelsey Martin, M.D., Ph.D. and Stephen Smale, Ph.D. currently direct the UCLA-Caltech MSTP. Drs. Martin and Smale run active research programs in molecular neurobiology and immunology, respectively. They became co-directors of the program in 2005 and are devoted to providing guidance and support to students throughout their MSTP training. Thirty-three predoctoral students were supported in 2011-2012, of these, fifteen were newly appointed this academic year.



## Ph.D. Degrees Awarded

During the 2011-2012 academic year, seventeen students were granted Ph.D. degrees in neuroscience. Students receiving their degrees, their mentors, and the titles of their dissertations include:

Elizabeth Brooks

Mentor: David Krantz

“A Putative Vesicular Transporter Expressed in Drosophila Mushroom Bodies that Mediates Sexual Behavior May Define a Novel Neurotransmitter System”

Erin Gray

Mentor: Thomas O’Dell

“AMPA Receptor Phosphorylation and Synaptic Plasticity”

Kristen Henkins

Mentor: Karen Gyls

“Tau Pathology in AD Synapses: Evidence for Fragmentation and Aggregation, a Role for Fyn Kinase and Synaptic Effects of Defective Axonal Transport”

Austin Hilliard

Mentor: Stephanie White

“Neurogenetic Underpinnings of Learned Vocalization in the Zebra Finch Songbird”

Ben Huang

Mentor: Istvan Mody

“A Newfound Role of GABA-Mediated Tonic Inhibition in Regulating Functional Recovery after Stroke”

Elizabeth Reynolds-Losin

Mentor: Mirella Dapretto

“Exploring the Neural Architecture of Cultural Imitative Learning”

Evan Lutkenhoff

Mentor: Tyrone Cannon

“Multiple Genetic Determinants of Brain Structure Variation in Schizophrenia and Bipolar Disorder”

Gretchen Miller

Mentor: Neil Harris

“Endogenous Stem and Progenitor Cell Responses of the Subventricular Zone and Cortex Following Traumatic Brain Injury”

Hiroko Nobuta

Mentor: James Waschek

“STAT3-Mediated Reactive Astrocytes Control Microglial Tgfb-1 Expression and Protect Myelin Development after Neonatal Inflammatory Insult”

Ezra Rosen

Mentor: Daniel Geschwind

“Functional Genomic Studies of Progranulin Deficiency”

Florence Roussotte

Mentor: Elizabeth Sowell

“Effects of Prenatal Exposure to Alcohol and Stimulants on Human Brain Development”

Jeffrey Rudie

Mentor: Mirella Dapretto

“Imaging Genetics of Functional and Structural Connectivity in Children with Autism”

Jason Stein

Mentor: Paul Thompson

“Searching for Genetic Influences on Human Brain Structure”

Besim Uzgil

Mentor: Kelsey Martin

“Activity-Dependent CRTR1 Signaling during Long-Lasting Synaptic Plasticity”

Adam Welday

Mentor: Tad Blair

“Representing Spatial Memories through Rhythmic Harmony”

Lisa Wu

Mentor: Leif Havton

“Morphological Studies of Pelvic-Innervating Sympathetic Preganglionic Neurons and the Afferent Plasticity of the Thoracolumbar and Lumbosacral Spinal Cord Following Ventral Root Avulsion and Reimplantation in Female Rats”

Marina Ziehn

Mentor: Rhonda Voskuhl

“EAE Impairs Excitatory Synaptic Transmission and Causes Neuropathology in the Hippocampus and both Testosterone and Estriol Treatment are Capable of Preventing these EAE-Mediated Effects”

2011-2012 Graduate and Undergraduate Interdepartmental Neuroscience Programs Committee Service

Graduate Neuroscience Interdepartmental Program Committee

Dean Buonomano  
S. Thomas Carmichael  
Ellen Carpenter  
Marie-Françoise Chesselet  
Christopher Evans  
David Glanzman  
Cameron Gundersen  
Ming Guo  
Karen Gylys  
Frank Krasne  
Michael Levine, Chair  
Kelsey Martin  
Tom O'Dell  
Thomas Otis  
Alvaro Sagasti  
Suzie Vader (NSIDP Student Affairs Officer)  
Patrick Chen (Student Representative, year 2)  
Sarah Madsen (Student Representative, year 1)

Graduate Neuroscience Interdepartmental Program Neuroadmissions Committee

S. Thomas Carmichael, Chair  
Peyman Golshani  
Neil Harris  
Bal Khakh  
Edythe London  
Ben Novitch  
Emily Dennis (NSIDP Student Representative)  
Liz Losin (NSIDP Student Representative)

Graduate Neuroscience Interdepartmental Program Curriculum Committee

Aaron Blaisdell  
Karen Gylys, Chair  
Fred Sabb  
Felix Schweizer  
Kate Wassum  
Sarah Herschman (Student Representative)

Graduate Neuroscience Interdepartmental Program Advising Committee

Susan Bookheimer  
David Hovda  
David Krantz, Chair

Graduate Neuroscience Interdepartmental Program Executive Committee

Chris Evans  
S. Thomas Carmichael  
Karen Gyls  
David Krantz  
Michael Levine, Chair

Graduate Neuroscience Interdepartmental Program Membership Committee

Marie-Françoise Chesselet  
Michael Levine, Chair  
Nigel Maidment

Graduate Neuroscience Interdepartmental Written Qualifying Exam Committee

Harley Kornblum (Molecular, year 1)  
Katherine Narr (Systems, year 2)  
Joshua Trachtenberg (Cellular, year 2)

Graduate Neuroscience Interdepartmental Program Student Retreat Committee

Thuc Le  
Sarah Madsen  
Kevin McEvoy

Undergraduate Neuroscience Interdepartmental Program Executive Committee

Scott Chandler, Chair  
Carlos Grijalva  
Patricia Phelps  
Joseph Watson

Undergraduate Neuroscience Interdepartmental Program Curriculum Committee

Ellen Carpenter  
Chris Colwell  
J. David Jentsch  
Thomas O'Dell  
Joseph Watson, Chair

## GRADUATE STUDENTS IN THE BRI

<u>Trainee</u>	<u>Sponsor</u>	<u>Department</u>
Katrina Adams	Novitch	Neurobiology
Zahra Aghajan	Mehta	Physics & Astronomy
Lital Alder	Clarke	Biochemistry and Molecular Biology
Daya Alexander*	Prins, M.	Neuroscience
Qais Al-Hadid	Clarke	Biochemistry and Molecular Biology
Brendan Amer	Teplow	ACCESS
Erik Anderson	Black	Biochemistry and Molecular Biology/MSTP
Matt Anderson*	Krantz	Neuroscience
Jacob Aptekar*	Frye	Neuroscience/MSTP
Allen Ardestani	Fuster	School of Medicine
Scott Arno*	Mody	Neuroscience
Erica Arroyo	Portera-Cailliau	ACCESS
James Ashenhurst*	Jentsch	Neuroscience
Hikmat Assi	Liau	Molecular & Medical Pharmacology
Aida Attar*	Bitan	Neuroscience
Meg Babakhanian	Grundfest/Melega	Bioengineering
Guadalupe Bacio	Ray	Psychology (Clinical Area)
Kosstya Bakhurin*	Krantz	Neuroscience
Kavitha Balaji	Colicelli	Biological Chemistry
Amy Baohan*	Krantz	Neuroscience/MSTP
Vanessa Rodriguez Barrera	Fanselow	Psychology (Behavioral Neuroscience)
Julie Barske	Schlinger	Ecology and Evolutionary Biology
Jamee Bomar*	Geschwind	Neuroscience
Lisa Brooks*	Krantz	Neuroscience

<u>Trainee</u>	<u>Sponsor</u>	<u>Department</u>
Jesse Brown*	Bookheimer	Neuroscience
Nik Brown	DiStefano	Computer Science
Andrew Brumm*	Carmichael	Neuroscience
Spencer Bujarski	Ray	Psychology
Zachary Burkett	White	Molecular, Cellular & Integrative Physiology
Jeffrey Cantle*	Yang, X. William	Neuroscience
Daniel Cantu	Portera-Cailliau	ACCESS
Huan Cao	Andrews	Chemistry
Mayra Carrillo	Hallem	Microbiology, Immunology, and Molecular Genetics
Kelly Cavanaugh	Minor/Wassum	Psychology
Vuong Celine	Black	Molecular Biology
Keely Chaisson	Hallem	Microbiology, Immunology, and Molecular Genetics
Dawn Chen	Holyoak	Psychology
Lingxuan (Mabel) Chen	Mody	Molecular, Cellular & Integrative Physiology
Patrick Chen*	Martin	Neuroscience
Qianqian Chen	White	Molecular, Cellular & Integrative Physiology
Weixiang Chen	Buonomano	Neurobiology
Yi Chen	Zipursky	Biological Chemistry
Zhiping Chen	Mehta	Physics & Astronomy
Guo Cheng	Sun, H.	Molecular, Cellular & Integrative Physiology
Yin Cheng	Sun, Y.	Molecular & Medical Pharmacology
Chris Ching*	Krantz	Neuroscience
Jaehoon Choe*	Edgerton	Neuroscience
Winward Choy	Liau	School of Medicine

<u>Trainee</u>	<u>Sponsor</u>	<u>Department</u>
Amy Christensen	Micevych	Neurobiology
Leo Christov Moore*	Bookheimer	Neuroscience
John Coetzee	Monti	Psychology
Michael Condro	White	Molecular, Cellular & Integrative Physiology
Kelly Courtney	Ray	Psychology (Clinical Area)
Kristen Coveleskie	Labus/Mayer	ACCESS
Cortney Crego*	Silva	Neuroscience
Katy Cross*	Iacoboni	Neuroscience/MSTP
Anthony Daggett*	Yang, X. W.	Neuroscience/MSTP
Madelaine Daianu	Thompson	Biomedical Engineering
Jeff Dang	Hser	Community Health Sciences
Natalie De Sheltler	Rissman	Psychology
Jun Deng	Sun, H.	Molecular, Cellular & Integrative Physiology
Emily Dennis*	Thompson	Neuroscience
Martina DeSalvo*	Martin	Neuroscience
Phillip Deutsch	DiStefano	Computer Science
Colin Douglas	Koehler	Chemistry & Biochemistry
Paul Duru	Edgerton/Tillakaratne	Integrative Biology & Physiology
Maria Dzialo	Clarke	Biochemistry & Molecular Biology
Ayca Erbilgin	Lusis	Microbiology, Immunology & Molecular Genetics
Cynthia Fast	Blaisdell	Psychology (Learning & Behavior)
Isabella Ferando	Mody	Molecular, Cellular & Integrative Physiology
Kelsey Ferguson	Chesselet	School of Public Health
Brad Fidler	Braslow	History of Medicine
Melissa Flesher	Fanselow	Psychology (Learning & Memory)

<u>Trainee</u>	<u>Sponsor</u>	<u>Department</u>
Brendan Fong	Liau	School of Medicine
Natasha Fourquet	Knowlton	Psychology (Behavioral Neuroscience)
Adam Frank*	Silva	Neuroscience/MSTP
Elizabeth Fraley	White	Molecular, Cellular & Integrative Physiology
Laurel Gabard-Durnam	Tottenham	Psychology
Zachary Gaber	Novitch	Neurobiology
Negar Ghahramani	Vilain	Human Genetics
Caroline Gibson	Sun, Y.	Molecular & Medical Pharmacology/STAR Program
Bonnie Goff	Tottenham	Psychology
Bianca Gonzalez	Gyls	Nursing
Claudia Gonzalez	Olsen	Molecular & Medical Pharmacology
Vishwa Goudar	Buonomano	Computer Science
Erin Gray*	O'Dell	Neuroscience
Erin Rochelle Greiner	Yang, X. William	Chemistry & Biochemistry
Stephanie Groman	Jentsch	Psychology
Ryan Guglietta*	Krantz	Neuroscience
Boris Gutman	Thompson	Biomedical Engineering
George Hafzalla	White	Integrative Biology & Physiology
Lindsay Halladay	Blair	Psychology (Behavioral Neuroscience)
Areum Han	Black	Bioengineering
Simon Han	DiStefano	Biomedical Engineering
Yoon Han*	Novitch	Neuroscience/MSTP
Meredith Hannan	Freimer	Psychiatry & Biobehavioral Sciences
Tessa Harrison*	Krantz	Neuroscience
Kristen Henkins*	Gyls	Neuroscience



<u>Trainee</u>	<u>Sponsor</u>	<u>Department</u>
Katherine Henry	Labus/Mayer	School of Medicine
Sarah Hersman*	Fanselow	Neuroscience
Jon Heston*	White	Neuroscience
Derrek Hibar	Thompson	Biomedical Engineering
Austin Hilliard*	White	Neuroscience
David Ho*	Mehta	Neuroscience
Kent Ho	Sun, Y.	ACCESS
King Ho	DiStefano	Biomedical Engineering
Victoria Ho*	Martin	Neuroscience/MSTP
Jui-Yang (Gilbert) Hong	Labus/Mayer/Wang	Biomedical Engineering
Jui-Yi Hsieh	Papazian	Molecular, Cellular & Integrative Physiology
Julie Hsieh	Hser	Epidemiology, School of Public Health
Yun Hun	Hser	Health Services
Ben Huang*	Mody	Neuroscience
Kevin Huang	Fan	Molecular Biology
Ruyi Huang*	Sun, Y.	Neuroscience
Norianne Ingram	Phelps, P.	Integrative Biology & Physiology
J.J. Istrin	Labus/Mayer	School of Medicine
Maria Jalbrzikowski	Bearden	Psychology (Clinical Area)
Alex James	Jentsch	Psychology (Behavioral Neuroscience)
Christine Janson	Colicelli	Biological Chemistry
Yan Jin	Thompson	Biomedical Engineering
Mayank Jog	Wang	Biomedical Engineering
Meghan Johnson	Koehler	Chemistry & Biochemistry
David Johnston*	Portera-Cailliau	Neuroscience

<u>Trainee</u>	<u>Sponsor</u>	<u>Department</u>
Rachel Jonas*	Krantz	Neuroscience
Ryan Jones	Mody	Neurobiology
Michael (Selvan) Joseph	Edgerton/Gómez-Pinilla/ Tillakaratne	Integrative Biology & Physiology
Don Julien*	Krantz	Neuroscience
Diana Katsman	Farber	Molecular Biology
Michelle Kattke	Teplov	ACCESS
Ashley Kees*	Mehta	Neuroscience
Ross Kelley	Frye	Integrative Biology & Physiology
Alex Kertzner	Braslow	History of Medicine
Arshad Khan	Smith, D.	Molecular & Medical Pharmacology
Rana Khankan	Phelps, P.	Molecular, Cellular & Integrative Physiology
Elvira Khialeeva	Carpenter	Molecular Biology
Sangmok Kim*	Martin	Neuroscience
Milky Kohno*	London	Neuroscience
Jennifer Kong*	Novitch	Neuroscience
Dika Kuljis	Colwell	Neurobiology
Christine Kuo	DiStefano	Computer Science
Daniel Laks	Kornblum	Biological Chemistry
Julia Lassegard	Macey	Nursing
Maria Lazaro*	Geschwind	Neuroscience
Thuc Le*	Fan/Faull	Neuroscience
Kim LeBlanc*	Maidment	Neuroscience
SooKyung Lee	Chesselet	Integrative Biology & Physiology
Lok Kwan Leung	Guo, M.	Molecular, Cellular & Integrative Physiology
Alan Li	Demer	Biomedical Engineering

<u>Trainee</u>	<u>Sponsor</u>	<u>Department</u>
Quan Li	Sun, Y.	Molecular, Cellular & Integrative Physiology
Wei Li*	Cohen	Neuroscience
Wei-Siang Liao	Koehler	Chemistry & Biochemistry
Anthony Linares	Black	Molecular Biology/MSTP
Dominique Lisiero	Liau/Prins, R.	Molecular & Medical Pharmacology
Jia Liu*	Lee, J.-H.	Neuroscience
Ting Liu	Banerjee	Molecular, Cell & Developmental Biology
Elizabeth Losin*	Dapretto	Neuroscience
Jessica Lu	Pouratian	Biomedical Engineering
Ray Luo*	Otis	Neuroscience
Rui Luo	Geschwind	ACCESS
Evan Lutkenhoff*	Cannon	Neuroscience
Kennen MacKay	Clarke	Biochemistry & Molecular Biology
Roshni Madhvani	Olcese	Molecular, Cellular & Integrative Physiology
Sarah Madsen*	Thompson	Neuroscience
Jaione Maiz	Otis	Neurobiology
Matthew Maland	Koehler	Chemistry and Biochemistry
Mahsa Malekmohammadi	Pouratian	Biomedical Engineering
Andre Martin	Zipursky	University of Porto (GABBA Ph.D. Program)
Laurel Martin-Harris*	Bookheimer	Neuroscience
Whitney McDonald*	Harris	Neuroscience
Kevin McEvoy*	Portera-Cailliau	Neuroscience/MSTP
Elliott Meer	Martin	Biological Chemistry
Edward Meyer	Spigelman	Oral Biology
Gretchen Miller*	Harris	Neuroscience

<u>Trainee</u>	<u>Sponsor</u>	<u>Department</u>
Satoru Miura	Zipursky	Biological Chemistry
Nathasha Moallem	Ray	Psychology (Clinical Area)
Jason Moore*	Mehta	Neuroscience
Lisa Moore*	Fan	Neuroscience
Angelica Morales*	London	Neuroscience
Ala Morshedian	Fain	Molecular, Cellular & Integrative Physiology
Amit Mulkganekar	Grundfest/Melega	Bioengineering
Brian Mullen	Carpenter	Integrative Biology & Physiology
Yatendra Mulpuri	Spigelman	Oral Biology
Katherine Myers*	Krantz	Neuroscience
Anita Narasimhan	Demer	Biomedical Engineering
Sonya Neal	Koehler	Molecular Biology
Mary Nelson	Macey	Nursing
Tuck Ngun	Vilain	Human Genetics
Long Nguyen	DiStefano	Biomedical Engineering
Esther Nie*	Carmichael	Neuroscience/MSTP
Hiroka Nobuta*	Waschek	Neuroscience
Nik Novak*	Toga	Neuroscience
Kelley O'Donnell*	Sagasti	Neuroscience/MSTP
Taemin Oh	Mathern	School of Medicine
Wei Song Ong*	Bisley	Neuroscience
Luz Orozco	Lusis	Human Genetics
Ana Marie Palanca	Sagasti	Molecular, Cellular & Developmental Biology
Anna Parievsky*	Levine	Neuroscience
Neelroop Parikshak*	Geschwind	Neuroscience/MSTP
Chang Sin (Chris) Park*	Yang, X.W.	Neuroscience

<u>Trainee</u>	<u>Sponsor</u>	<u>Department</u>
Alexander Patananan	Clarke	Biochemistry & Molecular Biology
Tara Patterson	Knowlton	Psychology (Cognitive Neuroscience)
Zach Pennington	Jentsch	Psychology
Jennifer Perusini	Fanselow	Psychology (Behavioral Neuroscience)
Derek Powell	Holyoak	Psychology
Gautam Prasad	Thompson/Toga	Engineering
Jingyi Quin	Colwell	Molecular, Cellular & Integrative Physiology
Tage Rai	Holyoak	Psychology
Mrinal Rath	Edgerton	Integrative Biology & Physiology
Christoph Rau	Lusis	Human Genetics
Alex Reeves*	Krantz	Neuroscience
Maxine Reger	Fanselow/Giza/Hovda	Psychology (Learning & Memory)
Ciara Remilard	Krantz	Molecular Toxicology
Garrett Reynolds	Thompson	Physics
Esther Richler	Khakh	Molecular, Cellular & Integrative Physiology
Chelsea Robertson	London	Molecular & Medical Pharmacology
Thomas Rogerson	Silva	Neurobiology
Florence Roussotte*	Sowell	Neuroscience
Jeff Rudie*	Dapretto	Neuroscience/MSTP
Allison Sargoy	Brecha	Neurobiology
Ryan Schmidt*	Martin/Plath	Neuroscience/MSTP
Matthew Schreiner*	Bearden	Neuroscience
Analyne Schroeder	Colwell	Molecular, Cellular & Integrative Physiology
Julia Schroeder	Blaisdell	Psychology (Learning & Behavior)

<u>Trainee</u>	<u>Sponsor</u>	<u>Department</u>
Ariel Schwarcz	Bearden	Psychology
Lauren Sherman	Dapretto	Psychology
Renee Shimizu	Knowlton/Wu, A.	Psychology (Behavioral Neuroscience)
Andrew Shin	Demer	Mechanical Engineering
Matthew Silverman	Barrio	Molecular & Medical Pharmacology
Wes Smith*	Lee, J.-H.	Neuroscience
Elif Sozmen*	Carmichael	Neuroscience/MSTP
Marko Spasic	Liau	School of Medicine
William Speier	Pouratian	Biomedical Engineering
Lindsay Squeglia	Ray	Psychiatry & Biobehavioral Sciences
Sarah Starks	Braslow	Health Services, Public Health
Jason Stein*	Thompson	Neuroscience
Sarah Sterlace	Fanselow/Minor	Psychology (Behavioral Neuroscience)
Steven Storage	Brody	School of Medicine
Alexandra Sturm	McCracken	Psychology
Junichi Sugihara	Kaback	Physiology
Jae-Hoon Sul	Freimer	Computer Science
Sheena Sullivan	Hser	Epidemiology, School of Public Health
Christopher Sundberg	Guo, M.	Molecular, Cellular & Developmental Biology
Liming Tan	Zipursky	ACCESS/Biological Chemistry
Christine Tarleton	Braslow	History of Medicine
Molly Tartter	Leuchter/Ray	Psychology (Clinical Area)
Patrick Thomas	Freimer	Psychiatry & Biobehavioral Sciences
Andrew Thompson*	Krantz	Neuroscience
Yuan Tian	Geschwind	ACCESS

<u>Trainee</u>	<u>Sponsor</u>	<u>Department</u>
Jameson Tibbs*	Edgerton	Neuroscience
Pamela Ting	Colicelli	Biological Chemistry
Salvatore Torrisi*	Altshuler	Neuroscience
Christos Tsiokos	Pouratian	Biomedical Engineering
Besim Uzgil*	Martin	Neuroscience/MSTP
Michael Vendetti	Holyoak	Psychology
Derek Verley*	Harris	Neuroscience
Vishaka Vijayakumar	Knowlton	Psychology (Learning & Behavior)
Brendon Villegas	Barrio	Biomedical Physics
Andrew Vosko*	Colwell	Neuroscience
Helen Vuong	Brecha	Molecular, Cellular & Integrative Physiology
Dana Wagshal	Knowlton	Psychology (Cognitive Neuroscience)
Adam Welday*	Blair	Neuroscience
Donna Marie Werling*	Geschwind	Neuroscience
Andrew Westphal	Rissman	Psychology
Juwina Wijaya	Koehler	Chemistry & Biochemistry
Bernard Willers	Mehta	Physics & Astronomy
Shayna Williams*	Arnold	Neuroscience
Jared Wong	Blaisdell	Psychology (Behavioral Neuroscience)
Somsakul (Pop) Wongpalee	Black	Molecular Biology
Fei Wu	Hser	Social Welfare
Lisa Wu*	Havton	Neuroscience
Megan Wyeth	Houser	Neurobiology
Celia Xu	Dobkin	Engineering
Huan Yang	Guo, M.	Molecular, Cellular & Integrative Physiology

<u>Trainee</u>	<u>Sponsor</u>	<u>Department</u>
Yi Ying	Black	Molecular Biology
Jina Yun	Guo, M.	Molecular & Medical Pharmacology
Jingjing (Michele) Zhang	Alger	Biomedical Physics
Marina Ziehn*	Voskuhl	Neuroscience

\* Students in the Graduate Neuroscience Ph.D. Program.

Sources of support include:

ARCS Foundation

Dean's Office Stipend, College of Letters and Science

Dean's Office Stipend, School of Medicine

Graduate Division Fellowship Program

National Institute of Mental Health Individual Research Fellowship Award

National Science Foundation Individual Fellowships

Frances Keddie O'Malley Endowment Fund

Training Program in Molecular and Cellular Neurobiology

Training Program in Neuroendocrinology, Sex Differences and Reproduction

Training Program in Neural Repair



## POSTDOCTORAL EDUCATION

Postdoctoral research instruction is another major activity of the BRI, and 287 participants who hold the Ph.D., M.D., D.D.S. or D.V.M. degree, or the equivalent of one of these degrees, occupied Institute members' laboratories during 2011-2012. Four of them were part of a Training Program in Cellular Neurobiology awarded to Dr. Tom O'Dell, two were sponsored by the Training Program in Neural Repair awarded to Dr. Marie-Françoise Chesselet, two were sponsored by the Training Program in Neuroendocrinology, Sex Differences and Reproduction headed by Dr. Arthur Arnold, and four were sponsored by the UCLA Clinical Pharmacology Training Programs awarded to Barbara Levey. Much of the experience offered these fellows and trainees is preceptorial, although most participate in interdisciplinary courses and seminars as well.

### POSTDOCTORAL FELLOWS AND TRAINEES IN THE BRI

<u>Trainee</u>	<u>Principal Investigator</u>	<u>Institution Awarding Degree</u>
Catalina Abad, Ph.D.	Waschek	University Complutense, Madrid, Spain
Ruchi Aggarwal, M.D.	Small	University of California, Los Angeles
Rahul Agrawal, Ph.D.	Gómez-Pinilla	Central Drug Research Institute, Lucknow, India
Asami Oguro Ando, Ph.D.	Geschwind	University of Tokyo, Japan
Veronique André, Ph.D.	Levine	University Louis Pasteur, Strasbourg, France
Brigitte Angenieux, Ph.D.	Kornblum	University of Lausanne, Switzerland
Donatello Arienzo, Ph.D.	Feusner	University of Chieti, Italy
Walter Babiec, Ph.D.	Golshani/O'Dell	University of California, Los Angeles
Albert Barth, Ph.D.	Mody	Semmelweis University, Hungary
Ruth Baxter, Ph.D.	Vilain	University of Dundee, Scotland
Grant Belgard, Ph.D.	Geschwind	Cambridge University, United Kingdom
Brian Bennett, Ph.D.	Lusis	University of Washington, Seattle
Brent Bill, Ph.D.	Geschwind	University of Minnesota, Twin Cities
Tina Bilousova, Ph.D.	Gylys	Karazin Karkiv National University, Karkiv, Ukraine
Bruno Bianchi, Ph.D.	Sun, Y.	University of Marseille, France
Cara Bohon, Ph.D.	Feusner/McCracken	University of Oregon, Eugene
Jean Bopassa, Ph.D.	Stefani	University Claude Bernard of Lyon I, France

<u>Trainee</u>	<u>Principal Investigator</u>	<u>Institution Awarding Degree</u>
Elia Botelho, Ph.D.	Levine	Federal University of Rio de Janeiro, Brazil
John Brooks, M.D., Ph.D.	Altshuler	Stanford University, California
Lisa Burklund, Ph.D.	Leuchter	University of California, Los Angeles
Denise Cai, Ph.D.	Silva	University of California, San Diego
Kara Calkins, M.D.	Levey	University of California, Irvine
Kelly Callahan, M.D.	Levey	University of New Mexico, Albuquerque
Marine Camus-Duboc, M.D.	Taché	University Paris VII, France
Luca Caracciolo, Ph.D.	Carmichael	University of Brescia, Italy
Rachel Casas, Ph.D.	Bilder	University of Iowa, Iowa City
Michelle Castelletto, Ph.D.	Hallem	University of Pennsylvania, Philadelphia
Marissa Caudill, M.D., Ph.D.	Levey/McCracken	University of Connecticut, Storrs
Catalinia Cervantes, Ph.D.	Jentsch	University of Texas at Austin
Vijayendran Chandran, Ph.D.	Geschwind	University of Bielefeld, Germany
Shaohong Cheng, Ph.D.	Geschwind	University of Manitoba, Canada
Toh-Hean Ch'ng, Ph.D.	Martin	Princeton University, New Jersey
Meeryo Choe, M.D.	Kornblum	University of Southern California, Los Angeles
Arthur Chou, M.D., Ph.D.	Lai/Liau	University of California, Los Angeles
Mete Civelek, Ph.D.	Lusis	University of Pennsylvania, Philadelphia
Kristi Clark, Ph.D.	Toga	University of California, Los Angeles
Volkan Coskun, M.D., Ph.D.	Sun, Y.	Emory University, Atlanta, Georgia
Yijun Cui, M.D., Ph.D.	Yang, X.W.	Hebei Medical University, Shijiazhuang, China; University of California, Los Angeles
Jesse Cushman, Ph.D.	Mehta	University of California, Los Angeles
Deepa Dabir, Ph.D.	Koehler	University of Pennsylvania, Philadelphia
Audrey Damianov, Ph.D.	Black	Justus-Liebig University Geissen, Germany

<u>Trainee</u>	<u>Principal Investigator</u>	<u>Institution Awarding Degree</u>
Michael Davis, M.D., Ph.D.	Kagan	Case Western Reserve University, Cleveland, Ohio
Nancy Day, Ph.D.	White	University of Minnesota, Twin Cities
Choi Deblieck, Ph.D.	Wu, A.	University of Milan, Bicocca, Italy
Shlomo Dellal, Ph.D.	Otis	University of Michigan, Ann Arbor
Hansong Deng, Ph.D.	Guo, M.	National Institute of Biological Sciences, Beijing, China
Catherine DeRidder, M.D.	Levey	University of Indiana, Bloomington
Balasubramaniam Dhandayuthapani, Ph.D.	Kaback	Madurai Kamaraj University, Tamilnadu, India
Andrew Dorsch, M.D.	Dobkin/Levey	Case Western University, Cleveland, Ohio
Henri Duboc, M.D.	Taché	Montpellier University, France
Celine Duraffourd, Ph.D.	Sternini	University of Lyon, INSERM U855, France
Garima Dutta, Ph.D.	Chesselet	University of Florida, Gainesville
Lauren Elder, Ph.D.	Jeste/Leuchter	University of Washington, Seattle
Marissa Ericson, Ph.D.	Bearden	University of Southern California, Los Angeles
Julian Esteve, Ph.D.	Williams	University of Alicante, Spain
Richard Everson, M.D.	Liau/Prins, R.	Duke University, Durham, North Carolina
Guido Faas, Ph.D.	Mody	University of Amsterdam, The Netherlands
Scott Fears, M.D., Ph.D.	Freimer	University of Chicago
Alice Fleming, Ph.D.	Vilain	University of Texas, Austin
Jessica Fox, Ph.D.	Frye	University of Washington, Seattle
Nicholas Franich, Ph.D.	Chesselet	University of Auckland, New Zealand
Jack Friedman, Ph.D.	Braslow	Duke University, Durham, North Carolina
Matthew Fuxjager, Ph.D.	Schlinger	University of Wisconsin

<u>Trainee</u>	<u>Principal Investigator</u>	<u>Institution Awarding Degree</u>
Gelareh Gabayan, M.D.	Levey	University of California, Los Angeles
Parag Gad, Ph.D.	Edgerton	University of California, Los Angeles
Laurie Galvan, Ph.D.	Levine	Paris XI University, France
Rajendra K. Gangalum, Ph.D.	Bhat	Osmania University, Hyderabad, India
Dennis Garlick, Ph.D.	Blaisdell	University of Sydney, Australia
Matthew Garrett, M.D.	Liau	Columbia University, New York
Weihong Ge, Ph.D.	Sun, Y.	Fudan University, Shanghai, China
Chiara Ghezzi, Ph.D.	Wright	University of Zurich, Switzerland
Maryam Ghorbani, Ph.D.	Mehta	University of Tehran, Iran
Saumya Gill, M.D.	Nuwer	Medical College of Virginia, Richmond
Aroa Relano Gines, Ph.D.	Chesselet	University of Madrid, Spain
David Gloss, M.D., Ph.D.	Engel/Nuwer	Tulane University, New Orleans, Louisiana
Anubhuthi Goel, Ph.D.	Buonomano	University of Maryland, Baltimore
Jeffrey Goodenbour, Ph.D.	Geschwind	University of Chicago, Illinois
Edurne Gorraitz, Ph.D.	Wright	University of Navarra, Pamplona, Spain
Tiffany Greco, Ph.D.	Hovda	University of Maryland, College Park
Anna Grygoruk, Ph.D.	Krantz	University of California, Los Angeles
Arpana Annie Gupta, Ph.D.	Labus/Leuchter/Mayer	University of Tennessee, Knoxville
Mary Hamby, Ph.D.	Irwin/Sofroniew	University of Connecticut
Huma Hasnain, M.D.	Kurtz	St. George's University
Martin Haustein, Ph.D.	Khakh	Leicester University, United Kingdom
Eric Hayden, Ph.D.	Teplow	Albert Einstein College of Medicine, New York
Michelle Hickey, Ph.D.	Kruse	University of California, Irvine
Jason Hinman, M.D., Ph.D.	Carmichael	Boston University, Massachusetts
Houri Hintiryan, Ph.D.	Dong	University of Southern California, Los Angeles

<u>Trainee</u>	<u>Principal Investigator</u>	<u>Institution Awarding Degree</u>
Arlene Hirano, Ph.D.	Brecha	Rockefeller University, New York
Vivian Hoang, M.D.	Nuwer	Tulane University, New Orleans, Louisiana
Sandra Holley, Ph.D.	Levine	Cornell University, Ithaca, New York
Xue Hua, Ph.D.	Toga	University of California, Los Angeles
Yu Huang, Ph.D.	Freimer	University of Southern California, Los Angeles
Christina Mow-Kay Hui, M.D.	Small	University of California, Los Angeles
Christine Hung, M.D.	Nuwer	Case Western Reserve University, Cleveland, Ohio
Andrei Irimia, Ph.D.	Van Horn	Vanderbilt University, Nashville, Tennessee
Kenji Ishibashi, M.D., Ph.D.	London	Tokyo Medical and Dental University, Japan
Fadi Issa, Ph.D.	Papazian	Georgia State University
Olan Jackson-Weaver, Ph.D.	Khakh	University of New Mexico, Albuquerque
Mei Jiaing, Ph.D.	Williams	Shanghai Institute of Biochemistry & Cell Biology, Chinese Academy of Science, Shanghai
Xiaoxu Jiang, Ph.D.	Kaback	University of Oklahoma
Xuan Jiang, Ph.D.	Wright	Wayne State University, Detroit, Michigan
Zhiguo Jiang, Ph.D.	Labus	Cleveland State University, Ohio
Li Jing, Ph.D.	Whitelegge	University of Georgia, Athens
Kevin Jones, Ph.D.	Banerjee	University of California, San Francisco
Simone de Jong, Ph.D.	Ophoff	University Medical Center Utrecht, The Netherlands
Prasad Joshi, M.D., Ph.D.	Levine	University of Bombay, India; University of Alaska, Fairbanks
Shantanu Joshi, Ph.D.	Toga/Van Horn	Florida State University, Tallahassee
Siddhartha Joshi, Ph.D.	Basso	New York University

<u>Trainee</u>	<u>Principal Investigator</u>	<u>Institution Awarding Degree</u>
Atsushi Kasai, Ph.D.	Waschek	Osaka University, Japan
Corrina Keenmon, M.D.	Small	University of California, Los Angeles
Niroshika Keppetipola, Ph.D.	Black	Cornell University, Ithaca, New York
Mohammed Khafaja, M.D.	Small	University of California, Los Angeles
Lisa Kilpatrick, Ph.D.	Labus	University of California, Irvine
Jun Kohyama, M.D., Ph.D.	Sun, Y.	Keio University, Tokyo, Japan
Takashi Kudo, Ph.D.	Colwell	Waseda University, Japan
Jane Kuo, M.D.	Levey	Kaohsiung Medical University, Taiwan
Christina Lam, M.D.	Levey	University of California, Los Angeles
Rocco Latorre, Ph.D.	Sternini	University of Bologna, Italy
Rick Laughlin, Ph.D.	Jentsch	University of California, Los Angeles
Hakeem Lawal, Ph.D.	Krantz	University of Alabama, Tuscaloosa
Chung-Ying (Daniel) Lee, Ph.D.	Yang, X.W.	Case Western Reserve University, Cleveland, Ohio
Ji-Ann Lee, Ph.D.	Martin	University of California, Los Angeles
Ka-Hung Lee, Ph.D.	Otis	University of Southern California, Los Angeles
Yong-Seok Lee, Ph.D.	Silva	Seoul National University, South Korea
Agatha Lenartowicz, Ph.D.	Cohen/Loo	Princeton University, New Jersey
Dong Li, M.D., Ph.D.	Levey	Inner Mongolia Medical College, University of Science & Technology, China
Fuxin Li, Ph.D.	Basso	Shanghai University, China
Junning Li, Ph.D.	Toga	University of British Columbia, Vancouver, Canada
Yun Li, Ph.D.	Coppola	Chinese Academy of Sciences
Wei-Ssu Liao, Ph.D.	Andrews	Texas A&M University, College Station
Kellie Lim, M.D.	Levey	University of California, Los Angeles
Andy Lin, Ph.D.	Smith, D.	University of California, Los Angeles

<u>Trainee</u>	<u>Principal Investigator</u>	<u>Institution Awarding Degree</u>
Quan Lin, Ph.D.	Sun, Y.	Ohio State University, Columbus
A. Kerstin Lindemeyer, Ph.D.	Olsen	Freiburg University, Germany
Xue Liu, Ph.D.	Brecha	Shanghai Jiao Tong University, China
Yue Liu, Ph.D.	Tso	Beijing Institute of Pharmacology and Toxicology, China
Shahrdad Loftipur, Ph.D.	Boulter/Brody	University of California, Irvine
Dawn Loh, Ph.D.	Colwell	University of Edinburgh, Scotland
Thomas Lombardi, M.D.	Nuwer	University of Southern California, Los Angeles
G. Mohiddin Lone, Ph.D.	Guo, M.	University of Mainz, Germany
Vanda Lopes, Ph.D.	Williams	Imperial College, United Kingdom
Manuel Lopez-Aranda, Ph.D.	Silva	University of Malaga, Spain
Carrie Louie, Ph.D.	Williams	University of California, San Diego
Evan Lutkenhoff, Ph.D.	Monti	University of California, Los Angeles
M. Gregor Madej, Ph.D.	Kaback	Johann Wolfgang Goethe University, Frankfurt a. Main, Germany
Iddo Magen, Ph.D.	Chesselet	Hebrew University of Jerusalem, Israel
Safraaz Mahamed, Ph.D.	Basso	University of Toronto, Canada
Amandeep Mann, Ph.D.	Chesselet	University of Toronto, Canada
Rohit Marawar, M.D.	Engel/Nuwer	Government Medical College and Hospital, Nagpur, Maharashtra, India
Lisa Martin, Ph.D.	Lusis	University of California, Los Angeles
Vincent Marty, Ph.D.	Spigelman	University of Bordeaux 2, France
Sarah Marvin, Ph.D.	Bearden	Bryn Mawr University, Pennsylvania
Ava Masoumi, Ph.D.	Wiedau-Pazos	University of Goettingen, Germany
Paul Matthews, Ph.D.	Otis	University of Texas-Austin
Kimberly McDowell, Ph.D.	Chesselet	University of Maryland, Baltimore
Sarah Jacobson McEwen, Ph.D.	Bearden/Cannon	Trinity College, Dublin, Ireland

<u>Trainee</u>	<u>Principal Investigator</u>	<u>Institution Awarding Degree</u>
Sunil Mehta, M.D., Ph.D.	McCracken	Baylor University, Waco, Texas
Ian Mendez, Ph.D.	Maidment	Texas A&M University, College Station
Melvi Methippara, Ph.D.	McGinty	Mahatma Gandhi University, India
Julie Miller, Ph.D.	White	University of Arizona
Justin Miller, Ph.D.	Bilder	Wayne State University, Detroit, Michigan
Amaya Miquelajauregui, Ph.D.	Portera-Cailliau	Max Plank Institute, Gottingen, Germany
Koorosh Mirpour, M.D., Ph.D.	Bisley	Medical Azad University, Tehran, Iran
Leili Mirsadraei, M.D.	Yong	University of Tehran, Iran
Non Miyata, Ph.D.	Koehler	University of Fukuoka, Japan
Bama Charan Mondal, Ph.D.	Banerjee	University of Calcutta, India
Pouria Moshayedi, Ph.D.	Carmichael	University of Cambridge, United Kingdom
Ricardo Mostany, Ph.D.	Portera-Cailliau	University of Leon, Spain
Tina Mukherjee, Ph.D.	Banerjee	Max Planck Institute for Chemistry, Germany
Luis Perez de Sevilla Müller, Ph.D.	Brecha	University Oldenberg, Germany
Imran Mungrue, Ph.D.	Lusis	University of Toronto, Canada
Shareef Nahas, Ph.D.	Gatti	University of California, Los Angeles
Jennifer Ogren, Ph.D.	Harper	University of California, Los Angeles
Aviva Olsavsky, M.D.	Tottenham	University of California, Los Angeles
Carolina Osario, M.D.	Small	University of California, Los Angeles
Justine Overman, Ph.D.	Carmichael	University of California, Los Angeles
Howard Padwa, Ph.D.	Braslow/Rawson	University of California, Los Angeles
Antonios Pantazis, Ph.D.	Olcese	Cambridge University, United Kingdom
Jung Ho Park, M.D., Ph.D.	Taché	Yonsei University, Seoul, Korea
Brian Parks, Ph.D.	Lusis	University of Alabama



<u>Trainee</u>	<u>Principal Investigator</u>	<u>Institution Awarding Degree</u>
Prajal Patel, Ph.D.	Guo, M.	Baylor College of Medicine, Houston, Texas
Caroline Pearson, Ph.D.	Novitch	University of Sheffield, England
Olga Penagarikano, Ph.D.	Geschwind	University of Pais Vasco, Spain
Philippe Petrov, Ph.D.	Bisley	University of Oxford, United Kingdom
Pierre Olivier Polack, Ph.D.	Golshani	University Pierre and Marie Curie, France
Andrew Poulos, Ph.D.	Fanselow	University of Southern California, Los Angeles
Amynah Pradhan, Ph.D.	Evans	McGill University, Montreal, Quebec, Canada
Mochtar Pribadi, Ph.D.	Coppola	University of California, Los Angeles
Li Qin, Ph.D.	Black	University of Michigan, Ann Arbor
Manisha Ramchandani, DDS	Levey	University of California, Los Angeles
Lehka Rao, M.D.	Nuwer	Drexel University, Philadelphia, Pennsylvania
Shilpa Rao, Ph.D.	Levine	Indian Institute of Sciences, Bangalore
Shubha Gururaja Rao, Ph.D.	Banerjee	University of Edinburgh, United Kingdom
Michelle Rensel, Ph.D.	Schlinger	University of Memphis, Tennessee
Pascal Revassard, Ph.D.	Mehta	CNRS, France
Heidi Richardson, Ph.D.	Harper	Monash University, Victoria, Australia
Adam Roberts, Ph.D.	Glanzman	University of California, Los Angeles
Pedro Felipe Gardezabal Rodriguez, Ph.D.	Stefani	University of Pierre and Marie Curie, France
Lisa Rogo-Gupta, M.D.	Levey	University of Southern California, Los Angeles
Shira Rosenzweig, Ph.D.	Carmichael	University of Toronto, Canada
David Rousso, Ph.D.	Novitch	University of California, Los Angeles
Shubhendu Sen Roy, Ph.D.	Banerjee	Indian Institute of Science, Bangalore

<u>Trainee</u>	<u>Principal Investigator</u>	<u>Institution Awarding Degree</u>
Robin Roychaudhuri, Ph.D.	Teplov	University of Nebraska, Lincoln
Barbara Rust, Ph.D.	Black	University of Göttingen, Germany
Kumi Sakurai, Ph.D.	Fan	City of Hope
Cisco Sanchez, Ph.D.	Vilain	University of Iowa, Iowa City
Claudia Sanmiguel, M.D.	Mayer	University of Calgary, Alberta, Canada
Yoshitake Sano, Ph.D.	Silva	Hokkaido University, Japan
Catherine Santiago, Ph.D.	McCracken	University of Denver, Colorado
Claudio Scafoglio, Ph.D.	Barrio	Seconda Università degli Studi di Napoli, Italy
Jason Schiffman, M.D.	Kagan	University of Southern California, Los Angeles
Christopher Schmitt, Ph.D.	Freimer	New York University, New York City
Cristine Serway, Ph.D.	Krantz	University of Nevada, Las Vegas
Emanuele Seu, Ph.D.	Jentsch	University of Cagliari, Italy
Lynn Shapiro, M.D.	Mayer	New York University School of Medicine, New York
Shalini Sharma, Ph.D.	Black	Indian Institute of Science, Bangalore
Jane Shay, M.D.	Kornblum	University of California, Davis
Ya-Shin Shih, Ph.D.	Kornblum	University of California, San Francisco
Katsunori Shijo, M.D., Ph.D.	Hovda	Nihon University, Tokyo, Japan
Jiwon Shim, Ph.D.	Banerjee	Seoul National University, Korea
Matthew Shtrahman, M.D., Ph.D.	Nuwer	University of Pittsburgh, Pennsylvania
Anita Sicolo, M.D.	Levey	University of California, Irvine
Harpreet Singh, Ph.D.	Toro	Edinburgh University, United Kingdom
Melinda Smith, Ph.D.	Micevych	University of Arizona
Robert Smith, Ph.D.	Wang	Florida State University
Janos Steffen, Ph.D.	Koehler	University of Charite, Berlin, Germany
Jason Stein, Ph.D.	Geschwind	University of California, Los Angeles

<u>Trainee</u>	<u>Principal Investigator</u>	<u>Institution Awarding Degree</u>
Samuel Strom, Ph.D.	Gorin	University of California, Los Angeles
Sudhakar Subramaniam, Ph.D.	Chesselet	University of Strathclyde, Glasgow, United Kingdom
Wang-Dar Sun, Ph.D.	Waschek	Albert Einstein College of Medicine, New York
Yu Sun, Ph.D.	Dreier	Chinese Academy of Sciences, Shanghai
Natalia Suntsova, Ph.D.	McGinty	Rostov State University, Russia
Asha Suryanarayanan, Ph.D.	Spigelman	University of Alaska, Fairbanks
Nanthia Suthana, Ph.D.	Fried	University of California, Los Angeles
Shinya Takahashi, Ph.D.	Black	University of Tokyo, Japan
Nelly Tan, M.D.	Levey	University of California, Los Angeles
Anna Taylor, Ph.D.	Evans	McGill University, Montreal, Canada
April Thames, Ph.D.	Bilder	Alliant International University
Xiaoping Tong, Ph.D.	Khakh	Chinese Academy of Sciences
Rosemarie Tsoa, Ph.D.	Sun, Y.	University of California, Los Angeles
Ethika Tyagi, Ph.D.	Gómez-Pinilla	Central Drug Research Institute, Lucknow, India
Luis de la Torre Ubieta, Ph.D.	Geschwind	Harvard University, Cambridge, Massachusetts
Neha Vaghasia, M.D.	Levey	University of California, Davis
Ritu Vahi, M.D.	Kurtz	Government Medical College and Hospital, Punjab University, Chandigarh, India
Mauricio Vargas, M.D., Ph.D.	Sagasti	Stanford University, California
Suvi Vartiainen, Ph.D.	Guo, M.	University of Finland
Gaia Vegezzi, Ph.D.	Sternini	University of Parma, Italy
Sharmila Venugopal, Ph.D.	Chandler	Ohio State University, Columbus
Moin Vera, M.D., Ph.D.	Dickson	Drexel University, Philadelphia, Pennsylvania
Nathalie Vizueta, Ph.D.	Altshuler	University of Minnesota, Minneapolis

<u>Trainee</u>	<u>Principal Investigator</u>	<u>Institution Awarding Degree</u>
Irina Voineagu, Ph.D.	Geschwind	University of Illinois
Patricia Walshaw, Ph.D.	Altshuler	University of California, Los Angeles
Fang Wang, Ph.D.	Sagasti	Fudan University, Shanghai, China
Geng Wang, Ph.D.	Koehler	University of Iowa, Iowa City
Jingtian Wang, M.D., Ph.D.	Nuwer	Dalhousie University, Halifax, Nova Scotia, Canada
Nan Wang, Ph.D.	Yang, X. W.	University of California, Berkeley
Sara Wasserman, Ph.D.	Frye	Brandeis University, Waltham, Massachusetts
Melanie Watson, Ph.D.	Chesselet	Trinity College, Dublin
Weizheng Wei, M.D., Ph.D.	Mody	University of Wuhan, China
Joyce Wondolowski, Ph.D.	Otis	Oregon Health Sciences University, Portland
Pauline Wu, D.O.	Small	University of California, Los Angeles
Xundong Wu, Ph.D.	Stefani	University of Southern California, Los Angeles
Ryan Wyatt, Ph.D.	Trachtenberg	University of Pennsylvania, Philadelphia
Doris He Xu, Ph.D.	Fan	Second Military Medical University, Shanghai, China
Ji Xu, Ph.D.	Khakh	University of Texas, San Antonio
Ken Yamauchi, Ph.D.	Novitch	University of Southern California, Los Angeles
Lirong Yan, Ph.D.	Wang	Chinese Academy of Sciences
Hongyan Yang, Ph.D.	Andrews	East China Normal University, Shanghai
Mingfeng Yang, Ph.D.	Teplow	Clark University, Massachusetts
Kyu-Hyeon Yeom, Ph.D.	Black	Seoul National University, Korea
Lawrence Yoo, Ph.D.	Demer	University of California, Los Angeles
Var Yossan-Tan, Ph.D.	Waschek	University of Paris, France
Alejandra Young, Ph.D.	Farber	University of California, Los Angeles

<u>Trainee</u>	<u>Principal Investigator</u>	<u>Institution Awarding Degree</u>
Xinhai Zhang, Ph.D.	Dong	The Fourth Military Medical University, China
Zhu Zhang, Ph.D.	Toro	Academy of Military Medical Sciences, Beijing, China
Jun Zhao, Ph.D.	Taché	Chongqing Medical University, China
Sika Zheng, Ph.D.	Black	Johns Hopkins University, Baltimore, Maryland
Ming Zhong, Ph.D.	Sun, H.	University of British Columbia, Canada
Miou Zhou, Ph.D.	Silva	University of Southern California, Los Angeles
Yonggang Zhou, Ph.D.	Kaback	Hebrew University



## EXTRAMURAL AND FOREIGN ASSOCIATIONS

The Brain Research Institute has always endeavored to provide its members with the opportunity to exchange information with colleagues from other institutions, here and abroad. Early in the history of the Institute, extramural research associations were established to conduct collaborative research in laboratories of the regional Veterans Administration Medical Centers in Long Beach, Brentwood, Sepulveda, and West Los Angeles. These associations have been particularly gratifying and productive for BRI members. In addition, scientific communication has been enhanced by inviting scientists to visit BRI laboratories and by holding conferences.

## VISITING SCIENTISTS

As in past years, the BRI has been able to offer space to a large number of mature and distinguished investigators from UCLA and elsewhere that have conducted independent research activities at the Institute or joined programs already established at the BRI. Some of these investigators, particularly those from foreign countries, returned to their home laboratories after completing research in Institute programs. Others remained as associates of BRI members for prolonged periods, or even permanently as resident investigators.

The list of visiting investigators included in this section contains the names of 51 scientists with whom Institute members have enjoyed extended periods of association during the past year.

### VISITING SCIENTISTS IN THE BRI

<u>Name</u>	<u>Affiliation</u>	<u>Sponsor</u>
Roshanak Al	University of Iran	Lusis
Mohammed Bardi	Ministry of Health, Riyadh, Saudi Arabia	Rawson
Steve Barnes	Dalhousie University, Halifax, Nova Scotia, Canada	Brecha
Miriam Bassok	University of Washington, Seattle	Holyoak
Apasit Boongirt	University of Thailand, Bangkok	Nuwer
Isac Bruck	Federal University of Parana, Curitiba, Parana, Brazil	Philippart
Catherine Cahill	University of California, Irvine	Evans
Gloria Cantero	University of Seville, Spain	Sun, Y.
Zia Chaudhuri	Azad Medical College, New Delhi, India	Demer
Chiuying Chen	China Medical University, Taiwan	Hser
Marcel Daadi	Stanford University, Stanford, California	Lévesque
Evert-Jan ten Dam	Martini Hospital, Groningen, The Netherlands	Ophoff
Araceli Espinosa-Jeffreys	University of California, Los Angeles	de Vellis

<u>Name</u>	<u>Affiliation</u>	<u>Sponsor</u>
Cristina Ghiani	University of Calgari, Italy	de Vellis
Juliana Gomez	Universidad de Antioquia, Medellin, Columbia	Freimer
Cecilia Grinsvall	Sahlgrenska University Hospital, Gothenburg, Sweden	Mayer
David Healy	Bangor University, North Wales, Great Britain	Braslow
Jinghua Jin	Zhejiang University School of Medicine, China	Chesselet
Yingli Jin	The First Hospital of Jilin University, Changchun, China	Kaufman
Sera Anne Jytte de With	Sint Radboud University Medical Center, Utrecht, The Netherlands	Ophoff
Huseyin Kayadibi	Iskenderun Military Hospital, Iskenderun Hatay, Turkey	Faull
Brigitte Kieffer	Centre Européen de Recherche en Biologie et en Médecine GIE (CERBM-GIE)	Evans
Hye Yun Kim	Korean Institute of Science and Technology, Seoul	Wright
Shalini Kumar	University of California, Los Angeles	de Vellis
Rodrigo Laje	University of Buenos Aires, Argentina	Buonomano
Xiao-Ming Li	Zhejiang University, China	Smith, D.
Dahabada Lopes	University of Rio De Janeiro, Brazil	Bitan
Joe Ma	Pathologist, Orlando, Florida	Vinters
Yoshihiko Minegishi	Kao Corporation, Japan	Edgerton
Saeed Momtazi	Iranian National Centre for Addiction Studies (INCAS), Tehran, Iran	Rawson
Seok Woo Moon	Konkuk University, Seoul, Korea	Toga
Agata Mulak	Wroclaw Medical University, Poland	Taché
Frode Norheim	University of Norway	Lusis
Takanobu Omata	University of Tokyo, Japan	Holyoak
Elin Org	University of Estonia	Lusis
Geoffrey Owens	Neurosciences Institute, San Diego, California	Kruse/Mathern



<u>Name</u>	<u>Affiliation</u>	<u>Sponsor</u>
Monika Polczynska	Adam Mickiewicz University, Poznan, Poland	Bookheimer
Ivanka Savic	Karolinska Institute, Stockholm, Sweden	Engel
Gregory Sayuk	Washington University School of Medicine, St. Louis, Missouri	Labus
Michele Schultz	University of São Paulo, Brazil	Gómez-Pinilla
Chan Young Shin	Konkuk University, Seoul, South Korea	Geschwind
Marjin Stokman	Utrecht University, The Netherlands	Ophoff
Young Hee Sung	Gachon University Gil Hospital, South Korea	Toga
Yu Tahara	Waseda University, Tokyo, Japan	Colwell
Lukas Van Oudenhove	University of Leuven, Belgium	Labus
Rury-Yun Wong	China Medical University, Taiwan	Hser
Ming Yang	Shanghai University, China	Wayne
Jingfeng Zhan	Shandong University Medical School, China	Toga
Jinhua (Polly) Zhang	Fujian Medical University, Fuzhou, China	Liau
Yibei Zhang	Zhongshan Hospital, Xiamen University, China	Tso
Qian Zhou	Secong Xiang-ya Hospital of Central South University, Changsha Human, China	Nuwer



## BRAIN RESEARCH INSTITUTE ADMINISTRATION

The Brain Research Institute operates under a director and three associate directors, one for research, one for education and training, and one for science outreach. Smooth and efficient operation of the Brain Research Institute depends to a very large extent on the guidance provided by its associate directors, program and administrative directors, committees, and participation of individual members. The BRI members who serve in these capacities give freely of their time, and their services are greatly appreciated.

During 2011-2012 the following people played a central role in the administrative activities of the Brain Research Institute:

### **Administration:**

Christopher J. Evans, Director  
J. David Jentsch, Associate Director for Research  
Michael S. Levine, Associate Director for Education  
Joseph B. Watson, Associate Director for Science Outreach  
Terry Novorr: Chief Administrative Officer/Chief Financial Officer

Director's administrative staff consisted of seven full-time positions, and three part-time positions:

### Personnel

Arielle Lin Chin	Clerk
Jodie Crites	Administrative Analyst
Debra Kozel	Administrative Specialist
Patricia Lowe	Administrative Analyst
Linda Maninger	Administrative Analyst
Melissa Moran	Student Affairs Officer, Undergraduate Neuroscience IDP
Huy Pham	Programmer Analyst
Mark Reynolds	Public Administrative Analyst
Eddie Songtanin	Programmer Analyst
Suzie Vader	Student Affairs Officer, Graduate Neuroscience IDP

### **Committee Service**

#### BRI Executive Committee

Scott Chandler (*ex officio*: Chair, Undergraduate Interdepartmental Neuroscience Program)  
Reggie Edgerton  
Christopher Evans (*ex officio*: BRI Director)  
Joaquin Fuster  
Michael Levine (*ex officio*: BRI Associate Director for Education; Chair, Graduate Interdepartmental Neuroscience Program)  
Terry Novorr (*ex officio*; BRI Chief Administrative Officer)  
Felix Schweizer  
Rhonda Voskuhl  
Peter Whybrow  
Larry Zipursky

BRI Faculty Advisory Committee

J. David Jentsch (*ex officio*; BRI Associate Director for Research)  
Joel Braslow  
Scott Chandler (*ex officio*: Chair, Undergraduate Interdepartmental Neuroscience Program)  
Marie-Françoise Chesselet, Chair  
Michael Fanselow  
Debra Farber  
Daniel Geschwind  
David Glanzman  
Michael Levine (*ex officio*; BRI Associate Director for Education; Chair, Graduate Interdepartmental Program for Neuroscience)  
Arthur Toga  
Peter Whybrow

Magoun Lecture Committee

Michael Fanselow  
Joaquin Fuster  
Ronald Harper  
Kelsey Martin, Chair  
S. Lawrence Zipursky

Eiduson and Kavan Student Awards Committee

Ellen Carpenter  
Tom Otis  
Michael Levine, Chair

Brain Research Institute Predoctoral and Postdoctoral Awards Committee

Michele Basso  
Carrie Bearden  
H. Tad Blair  
James Boulter  
J. David Jentsch, Chair  
Tom Otis  
Seema Tiwari-Woodruff

Joint Seminars in Neuroscience Committee

Tad Blair  
Dean Buonomano  
Ming Guo  
J. David Jentsch  
Baljit Khakh  
David Krantz  
Carlos Portera-Cailliau  
Alvaro Sagasti  
Felix Schweizer  
Yi Sun  
Stephanie White, Chair

BRI Training Committee

J. David Jentsch, Chair  
Ellen Carpenter  
Michael Irwin  
Michael Levine  
Thomas O'Dell  
Shahrooz Rabizadeh  
Dwayne Simmons  
Joseph Watson

"Friends of BRI" Committee

Carmine Clemente	Michael Levine
Christopher Evans	Arnold Scheibel
Alan Han	Joseph Watson
J. David Jentsch	Abe Zarem

**Training Grant Directors**

Training Grant

Cellular Neurobiology (T32)

Clinical Pharmacology Training  
Program (T32)

Molecular and Cellular Neurobiology (T32) David Glanzman

Neural Repair (T32)

Neuroendocrinology, Sex Differences, and  
Reproduction (T32)

UCLA-Caltech Medical Scientist Training  
Program (T32)

Faculty Coordinator

Tom O'Dell

Barbara Levey

Marie-Françoise Chesselet

Arthur P. Arnold

Kelsey Martin and Stephen Smale

## Affinity Group Leaders

Addictions Research Consortium, Edythe London & Igor Spigelman  
Astrocyte Biology, Baljit Khakh & Michael Sofroniew  
Autism, Daniel Geschwind  
Brain-Mind-Body Interactions, Michael Irwin  
Circadian and Sleep Medicine, Christopher Colwell  
Computational Neuroscience, Ladan Shams  
Higher Cognitive Function in Neural Integration, Arnold Scheibel & Joaquin Fuster  
Immunology in Neuroscience, James Waschek  
Inner Ear, Felix Schweizer  
Learning, Memory & Plasticity, Alcino Silva, David Glanzman & Michael Fanselow  
Neural Repair, Marie-Françoise Chesselet  
Neural Stem Cells, Harley Kornblum  
Neurobiology of *Drosophila melanogaster* and *C. Elegans*, David Krantz  
Neuroendocrinology, Arthur Arnold  
Neuronuclear Imaging, Daniel Silverman  
Neurophysics and Neuroengineering, Mayank Mehta  
Neurogenetics, Xiangdong William Yang  
Neuroscience History Affinity Group, Joel Braslow and Russell Johnson  
Songbird, Stephanie White  
Stress, Pain and Emotion, Emeran Mayer  
Synapse to Circuit Club, Kelsey Martin & Larry Zipursky  
Undergraduate Researchers in Parkinson's Disease, Marie-Françoise Chesselet  
Zebra Fish, Alvaro Sagasti

## UCLA BRAIN RESEARCH INSTITUTE CORE FACILITIES

The UCLA Brain Research Institute Imaging Core Facilities provide microscopic imaging and specimen preparation services for Institute members and other members of the biomedical community at UCLA. The Imaging Core consists of three components: the Carol Moss Spivak Cell Imaging Facility (primarily confocal and multiphoton microscopy), the Microscopic Techniques laboratory (for preparation of all types of specimens for light microscopy), and the Electron Microscopy Laboratory (for preparation and imaging of ultrastructural specimens by transmission electron microscopy). Another core facility, the Pasarow Mass Spectrometry Laboratory, is also associated with the Brain Research Institute.

### **The Carol Moss Spivak Cell Imaging Facility**

The Carol Moss Spivak Cell Imaging Facility, the Institute's microscope laboratory, moved to the California Nanosystems Institute (CNSI) in 2008 and joined with another imaging facility from the Department of Chemistry to form the CNSI Advanced Light Microscopy/Spectroscopy Facility, located in Rooms B145 and 2144 of the CNSI. The new facility has five point scanning confocal microscopes: two Leica TCS-SP MP Confocal and 2-Photon Microscopes one inverted and one upright fixed-stage, two Leica TCS-SP2 AOBS confocal microscopes, one with multiphoton capability and finally a Leica TCS-SP5 STED confocal-multiphoton microscope. The latter is a STimulated Emission Depletion laser-scanning superresolution microscope which allows fluorescence scanning below the limit of light resolution (60-90 nm as opposed to 200-300nm). The Facility also has a widefield fluorescence microscope dedicated to FISH (fluorescence in situ hybridization) imaging, and a home-built system for ALEX (alternating laser excitation spectroscopy). Another lab in the facility is more dedicated to macroscale imaging and has one upright and one inverted microscopes set up for microinjection as well as fluorescence widefield timelapse (inverted) and multispectral unmixing (upright). The Facility also has a Yokogawa laser-scanning spinning disk microscope system with a Leica DMI6000 inverted microscope and an Andor EMCCD camera as well as two small animal imaging systems, a Maestro (CRi) for multispectral fluorescence unmixing and an Optix (ART) for lifetime imaging by time domain. The Facility also will soon have a Nikon TIRF (total internal reflection) microscope. In the past six months, the Facility obtained a new Leica LMD7000 laser Microdissection system for isolation of cells within tissues for downstream processing and analysis. Technologies available include fluorescence point-scanning and spinning disk laser-scanning confocal microscopy, fluorescence lifetime imaging (FLIM), fluorescence resonance energy transfer (FRET), fluorescence correlation spectroscopy (FCS), alternating laser excitation spectroscopy (ALEX), microscopic multispectral fluorescence and widefield color unmixing, microinjection and most recently, laser microdissection. Drs. Laurent Bentolila and Matt Schibler (originally in charge of the facility in the Gonda Center) are responsible for training, operation and upkeep of the facility.

### **Microscopic Techniques Laboratory**

The Microscopic Techniques Laboratory, located in room 78-177 CHS, is directed by Sirius Kohan, Ph.D. This facility provides equipment for general histology for frozen, paraffin, vibratome and plastic sectioning. The facility also provides instruction and service in preparing tissue specimens for all aspects of light microscopic observation. Staining methods available include immunohistochemistry (immunofluorescence, immunoperoxidase and other enzyme-immune complex techniques), routine histological stains: (e.g., Nissl and hematoxylin/eosin), special stains (e.g., Kluver and iron reaction, Trichrome stains) and in situ hybridization. Procedures offered are paraffin sectioning, slide preparation for in situ hybridization, frozen sectioning and semi-thin plastic sectioning. The laboratory also provides staining setups and a Nikon photomicroscope and digital imaging system for use by trained personnel. The facility also houses an Applied Biosystems 7900HT Sequence Detection System. This system is a second-generation sequence detection system instrument designed for automated, high-throughput detection of fluorescent PCR-related chemistries. The instrument is capable of real-time, end-point, and dissociation curve analysis of assays arrayed on multiple formats.

### **Electron Microscopy Services Center**

The Electron Microscopy Services Center, located in room 63-377 CHS, is run by Sirius Kohan, Ph.D. This facility houses a JEOL 100CX transmission electron microscope, Reichert Ultracut and RMC MT-X ultramicrotomes. Balzers vacuum evaporator is also available for use by trained personnel. This facility provides service and training in fixation and embedding of specimens, thin sectioning, and use of the electron microscopes (with or without assistance), negative stain, and examination and interpretation at the EM level. The facility offers advice on appropriate preparatory procedures and other technical matters, including EM immunohistochemistry. Training and assistance in the use of the electron microscope are also offered.

### **Pasarow Mass Spectrometry Laboratory**

The Pasarow Mass Spectrometry Laboratory (PMSL) performs teaching and research functions for the entire UCLA community and beyond by making available a range of mass spectrometric and chromatographic equipment and expertise. Virtually no week passes without a new contact made with one or another UCLA research group who seek access to the expertise and facilities of the PMSL. Some of these interactions are short-lived and involve analysis of only a few samples. Some of these contacts develop into long-term research collaborations with important teaching components and eventually result in joint grant applications. Often the visiting group initially seeks to collect pilot data to support a forthcoming grant application. Many of these collaborations result in joint publications, and the publication records of both the director, co-director and staff members reflect this wide diversity of research exposure.

The mass spectrometric equipment currently available in the PMSL includes: a hybrid quadrupole-time-of-flight (TOF) tandem mass spectrometer (ABI QstarXL) equipped with electrospray (ESI), laser desorption (LD) and atmospheric pressure chemical (APCI) ionization sources (a photo-ionization source for this instrument is currently available also as a loan from the manufacturer), and a fully dedicated microbore HPLC (LC Packings Ultimate system with Switchos and Famos injection systems); an ESI-ion trap LCMS system (Finnigan LCQdeca) equipped with a fully dedicated microbore HPLC system (Finnigan Surveyor) and nanospray and ESI ion sources; four Sciex API IIIIR+ triple quadrupole mass spectrometers, two with dedicated HPLC's (ABI models 120A and 172) and ESI and APCI sources; a high resolution LD-TOF instrument (ABI DE STR); a Finnigan LCT linear ion trap mass spectrometer equipped with ESI and nanospray sources and a fully dedicated microbore HPLC system. In addition, through the Molecular Instrumentation Center, an IonSpec Ultima Fourier Transform mass spectrometer with a 7 Tesla magnet and ESI and LD sources, and a combined gas chromatograph-TOF (Micromass/Waters GCT) equipped with EI/CI and positive/negative ion capability, are also available.

The available stand-alone HPLC equipment includes three computer controlled HP 1090 Chemstations (two binary and one ternary), two with diode array detectors, one with a single wavelength detector, and two with two channel A/D converters, each for recording signals from up to two additional detectors. Two of these HPLC's are fitted with automatic sample injectors. The laboratory also has several single piston HPLC pumps (Altex 110A and Milton Roy minipumps) for isocratic HPLC analyses; a Beckman P/ACE System 5000 Capillary Electrophoresis, and additional electrochemical (BAS model LC-4B) and fluorescence (Shimadzu and McPherson SF-749) HPLC detectors.

The laboratory is a beta-test site for a Beckman Coulter ProteomeLab PF 2D two-dimensional chromatography system which uses chromato-focusing in the first dimension and reverse phase in the second dimension. Additionally the laboratory is also involved in testing Beckman Coulter capillary electrophoresis system PA800 coupled with the ABI QstarXL mass spectrometer. Because of the capabilities that contemporary mass spectrometry offers for the structural characterization of compounds of biological importance, the number of research projects in which the laboratory is involved is continually increasing.

The laboratory is directed by Professor Dr. Kym Faull and co-directed by Adjunct Professor Dr. Julian Whitelegge.



**Animal Facilities**

The BRI moved its facilities from the Center for the Health Sciences to the Gonda (Goldschmied) Neuroscience and Genetics Research Center in 1998.

**Administrative Support Services**

This service provides preparation of proposals and progress reports; budget consultation and preparation; student advising services; grant and/or resource administration, such as accounting, purchasing, personnel management, receiving and delivery of supplies; symposium, seminar, and event coordination, publications management; editorial assistance; and clerical support.



## INSTRUCTIONAL ACTIVITY

### JOINT SEMINARS IN NEUROSCIENCE

The Joint Seminars in Neuroscience series was initiated Fall, 1995. It is organized and coordinated by the BRI, and is sponsored by the Brain Research Institute, the Semel Institute for Neuroscience & Human Behavior, and the David Geffen School of Medicine at UCLA. The participation of numerous departments and ORUs campus-wide reflects the truly interdisciplinary nature of neuroscience at UCLA. This weekly seminar series brings scientists of national and international repute to UCLA to meet with faculty, postdoctoral fellows, and students, and to present a lecture to the neuroscience community. Below is a list of this year's speakers and the title of their presentations.

#### Fall 2011

**Alison L. Barth, Ph.D.**, Department of Biological Sciences, Carnegie Mellon University, Pittsburgh, Pennsylvania

*“Experience-Dependent Changes in Neocortical Circuits: Perceptual Plasticity and Synaptic Change”*

**Michael E. Hasselmo, Ph.D.**, Center for Memory and Brain, Department of Psychology and Program in Neuroscience, Boston University, Massachusetts

*“Oscillations and Grid Cells in the Entorhinal Cortex”*

**Ricardo E. Dolmetsch, Ph.D.**, Department of Neurobiology, Stanford University School of Medicine, Stanford, California

*“Using Stem Cells to Study Autism Spectrum Disorders”*

**Miriam B. Goodman, Ph.D.**, Department of Molecular & Cellular Physiology, Stanford University School of Medicine, Stanford, California

*“Deconstructing Touch and Pain Sensation in *C. elegans*”*

**Eduardo Perozo, Ph.D.**, Department of Biochemistry & Molecular Biophysics, Institute for Biophysical Dynamics, University of Chicago, Illinois

*“Structural Dynamics of Activation and Inactivation Gating in  $K^+$  Channels”*

**Pablo E. Castillo, M.D., Ph.D.**, Dominick P. Purpura Department of Neuroscience, Albert Einstein College of Medicine, Bronx, New York

*“Endocannabinoids as Mediators of Synaptic Plasticity”*

**David E. Featherstone, Ph.D.**, Department of Biological Sciences, University of Illinois, Chicago

*“Ambient Extracellular Glutamate in the Brain Regulates Synaptic Transmission and Behavior in Flies and Mice”*

**Kate Wassum, Ph.D.**, Laboratory of Nigel Maidment, Department of Psychiatry & Bibehavioral Sciences, University of California, Los Angeles

The Arnold Scheibel Distinguished Postdoctoral Fellow in Neuroscience Lecture

*“Liking, Learning and Longing: Exploring the Role of Mesolimbic Dopamine Signaling in Reward Seeking Actions”*

**Nicholas C. Spitzer, Ph.D.**, Distinguished Professor and Vice Chair, Neurobiology Section, Division of Biological Sciences, Kavli Institute for Brain and Mind, University of California, San Diego  
The Brain Research Institute Neuroscience Poster Session Distinguished Lecturer  
*“Activity-Dependent Neurotransmitter Respecification: Novel Plasticity”*

Winter 2012

**Alcino Silva, Ph.D.**, Departments of Neurobiology, Psychiatry & Biobehavioral Sciences, and Psychology, University of California, Los Angeles  
*“Molecular and Cellular Mechanisms of Memory Allocation in Neuronal Networks”*

**Edward S. Boyden, Ph.D.**, MIT Media Lab and McGovern Institute, Departments of Brain and Cognitive Sciences and Biological Engineering, Massachusetts Institute of Technology, Cambridge  
*“Optogenetics, Automated Electrophysiology, and Other Neural Circuit Tools”*

**Richard J. Krauzlis, Ph.D.**, Senior Investigator, Laboratory of Sensorimotor Research, National Eye Institute, National Institutes of Health, Bethesda, Maryland  
*“The Underbelly of Vision and Action: The Role of the Brainstem in Spatial Attention”*

**B.J. Casey, Ph.D.**, Director of the Sackler Institute and the Neuroscience Graduate Program, Departments of Psychiatry, Neurology and Neuroscience, Weill Cornell Medical College, New York, New York  
*“Development of Fear-Related Processes: From Human Imaging to Mouse Genetics”*

**Michael Rosbash, Ph.D.**, Howard Hughes Medical Institute, and Department of Biology, Brandeis University, Waltham, Massachusetts  
*“Circadian Rhythms: Molecules, Neurons and Circuits”*

**Oliver Hobert, Ph.D.**, Howard Hughes Medical Institute, and Department of Biochemistry & Molecular Biophysics, Columbia University Medical Center, New York, New York  
*“Gene Regulatory Mechanisms Controlling Terminal Neuronal Differentiation”*

**Timothy A. Ryan, Ph.D.**, Department of Biochemistry, Weill Cornell Medical College, New York, New York  
*“What Your Brain Uses to Think: The Biology of Synapses and Their Control”*

**Anis Contractor, Ph.D.**, Department of Physiology and Neurobiology, Northwestern University, Chicago, Illinois  
*“Life Without Kainate Receptors: Insights from Kainate Receptor Knockout Mice”*

Spring 2012

**Margaret M. McCarthy, Ph.D.**, Department of Pharmacology, School of Medicine, University of Maryland, Baltimore  
Charles H. (Tom) Sawyer Distinguished Lecture  
*“Surprising Roles for Neuroinflammatory Mediators and Epigenetics in the Establishment and Maintenance of Sex Differences in the Brain”*

**Beth Stevens, Ph.D.**, F.M. Kirby Neurobiology Center; Children’s Hospital Boston; Harvard Medical School, Boston, Massachusetts  
*“Pruning CNS Synapses: An Active Role for Glia and the Complement Cascade”*

**Michael L. Platt, Ph.D.**, Director, Duke Institute for Brain Sciences; Director, Center for Cognitive Neuroscience; Professor, Departments of Neurobiology and Evolutionary Anthropology, Duke University, Durham, North Carolina

*“Neuronal Basis of Giving and Receiving”*

**Andre A. Fenton, Ph.D.**, Center for Neural Science, New York University, New York

*“Mind Games: Cognitive Control and Neural Coordination”*

**Maria Karayiorgou, M.D.**, Professor of Psychiatry (in Genetics and Physiology); Acting Director, Division of Psychiatric Genetics, Department of Psychiatry, Columbia University, New York, New York

*“Schizophrenia Genetics: New Mutations and Emerging Paradigms”*

**Rajesh P.N. Rao, Ph.D.**, Department of Computer Science and Engineering, and Neurobiology and Behavior Program, University of Washington, Seattle

*“Bayes, Rewards, and Decision Making: A New View of the Cortex-Basal Ganglia Network”*

**Li Zhang, Ph.D.**, Department of Physiology & Biophysics, Zilkha Neurogenetic Institute, Keck School of Medicine, University of Southern California, Los Angeles

*“Synaptic Circuitry Mechanisms for the Functional Development of Auditory Cortex”*

**Stephanie Groman**, Department of Psychology, University of California, Los Angeles

The 20th Annual Samuel Eiduson Student Lecture

*“Dopamine D2-Like Receptors: At the Nexus between Self Control and Addiction”*

**Daniel H. Geschwind, M.D., Ph.D.**, Professor of Neurology and Psychiatry; Gordon and Virginia MacDonald Distinguished Professor in Human Genetics; Director, UCLA Center for Autism Research and Treatment; Institute of Medicine Inductee

The Brain Research Institute Twenty-Third Annual H.W. Magoun Lecture

*“Advances in Autism: The Path from Genetics and Neurobiology to Therapeutic Development”*

**Craig E. Jahr, Ph.D.**, Vollum Institute, Oregon Health & Science University, Portland

*“Presynaptic Receptors and Analog Signaling”*

## THE TWENTY-THIRD ANNUAL BRAIN RESEARCH INSTITUTE NEUROSCIENCE POSTER SESSION

The BRI Neuroscience Poster Session, featuring the research of all UCLA neuroscientists, including predoctoral students and postdoctoral fellows, was initiated in 1989. This year, the 23<sup>rd</sup> Annual Neuroscience Poster Session was held on November 29, 2011. The Poster Session was attended by well over 300 neuroscientists comprised of graduate students, postdoctoral fellows, and faculty members that represent a multitude of departments on campus. Nearly 200 posters were presented, many of which had been presented at the 41st Annual Meeting of the Society for Neuroscience. The guest speaker this year was Nicholas C. Spitzer, Ph.D., Distinguished Professor and Vice Chair, Neurobiology Section, Division of Biological Sciences, Kavli Institute for Brain and Mind, University of California, San Diego. He presented, “Activity-Dependent Neurotransmitter Respecification: Novel Plasticity,” to a standing-room-only crowd. This yearly poster session represents continuing efforts to educate investigators about state-of-the-art neuroscience research being conducted at UCLA.

## H.W. MAGOUN DISTINGUISHED LECTURESHIP

The H.W. Magoun Lecture was instituted in 1989 as an annual lecture both to honor the BRI's founder, Dr. Horace (Tid) Magoun, and to recognize outstanding achievements by BRI members. The lecturer is selected by a faculty committee, which evaluates nominations from the membership at large.

Daniel H. Geschwind, M.D., Ph.D., Professor of Neurology and Psychiatry, Gordon and Virginia MacDonald Distinguished Professor in Human Genetics, Director, Center for Autism Research and Treatment, University of California, Los Angeles, and Institute of Medicine Inductee, presented the Twenty-Third Annual H.W. Magoun Lecture. Dr. Geschwind's lecture, "Advances in Autism: The Path from Genetics and Neurobiology to Therapeutic Development," was presented to the neuroscience community on May 29, 2012.

Dr. Geschwind has made major contributions in several fields. He is a world leader in uncovering the complex genetics and biology of autism, and has been a key person in moving autism research from the backrooms to the forefront. As a recipient of numerous awards for outstanding achievements in the genetic basis of cognitive disorders, this is a well-deserved recognition of an outstanding scientist and citizen of the UCLA neuroscience community.

Previous H.W. Magoun Distinguished Lecturers include:

- First Annual H.W. Magoun Distinguished Lecturer: William H. Oldendorf, M.D.
- Second Annual H.W. Magoun Distinguished Lecturer: Arnold B. Scheibel, M.D.
- Third Annual H.W. Magoun Distinguished Lecturer: Joaquin Fuster, M.D.
- Fourth Annual H.W. Magoun Distinguished Lecturer: Francisco Bezanilla, Ph.D.
- Fifth Annual H.W. Magoun Distinguished Lecturer: John C. Liebeskind, Ph.D.
- Sixth Annual H.W. Magoun Distinguished Lecturer: Elizabeth F. Neufeld, Ph.D.
- Seventh Annual H.W. Magoun Distinguished Lecturer: Enrico Stefani, M.D., Ph.D.
- Eighth Annual H.W. Magoun Distinguished Lecturer: Lutz Birnbaumer, Ph.D.
- Ninth Annual H.W. Magoun Distinguished Lecturer: Lawrence Kruger, Ph.D.
- Tenth Annual H.W. Magoun Distinguished Lecturer: William M. Pardridge, M.D.
- Eleventh Annual H.W. Magoun Distinguished Lecturer: S. Lawrence Zipursky, Ph.D.
- Twelfth Annual H.W. Magoun Distinguished Lecturer: Debora Farber, Ph.D., D.Ph.hc.
- Thirteenth Annual H.W. Magoun Distinguished Lecturer: Anthony Campagnoni, Ph.D.
- Fourteenth Annual H.W. Magoun Distinguished Lecturer: Arthur P. Arnold, Ph.D.
- Fifteenth Annual H.W. Magoun Distinguished Lecturer: Allan J. Tobin, Ph.D.
- Sixteenth Annual H.W. Magoun Distinguished Lecturer: Jack L. Feldman, Ph.D.
- Seventeenth Annual H.W. Magoun Distinguished Lecturer: Jerome M. Siegel, Ph.D.
- Eighteenth Annual H.W. Magoun Distinguished Lecturer: Richard W. Olsen, Ph.D.
- Nineteenth Annual H.W. Magoun Distinguished Lecturer: Diane M. Papazian, Ph.D.
- Twentieth Annual H.W. Magoun Distinguished Lecturer: Michael S. Fanselow, Ph.D.
- Twenty-First Annual H.W. Magoun Distinguished Lecturer: Ronald M. Harper, Ph.D.
- Twenty-Second Annual H.W. Magoun Distinguished Lecturer: Kelsey C. Martin, M.D., Ph.D.

## DR. EVA MARY KAVAN PRIZE FOR EXCELLENCE IN RESEARCH ON THE BRAIN

The Eva Mary Kavan Prize for Excellence in Research on the Brain was established in 1999 by a generous endowment from Dr. Eva Kavan. Dr. Kavan earned her doctorate degree in medicine at Charles University in her native Prague, Czechoslovakia. She came to UCLA in 1956 at a time when there were only five hospitals performing open-heart surgery with a heart-lung machine; UCLA had one of the first teams to do open-heart surgery in the West. Dr. Kavan was a pioneer in the administration of anesthesia, utilizing the electroencephalogram to perform important research on the effects of the heart-lung machine on brain function during open-heart operations. Dr. Kavan has created this award, which is to be announced at the H.W. Magoun Lecture, to encourage a talented young scholar to pursue scientific research on the brain.

Each year a prize is given to one graduate student who has demonstrated excellence in his or her field of basic research in neuroscience. The awardee is selected by a faculty committee, which evaluates nominations solicited from the UCLA neuroscience community. One student from any neuroscience research department at UCLA receives a cash prize and a certificate of merit.

This year, Austin Hilliard was chosen as the recipient of the 14<sup>th</sup> Eva Mary Kavan Prize for Excellence in Research on the Brain. Austin is a senior student in the graduate Interdepartmental Program for Neuroscience. Austin was selected for this award for his genuine scientific curiosity, ability to glean biologically meaningful information from high dimensional data sets, and gift for translating complex scientific concepts into their component parts resulting in outstanding writing and lecturing skills. Austin is broadly interested in human cognitive abilities that are articulated in the domains of music and language. His dissertation project fits well with these interests as he has identified neuromolecular networks involved in how the brain accomplishes vocal learning, such as speech, using the songbird as a model system. His most exciting work is now coming to fruition in two projects. One is in press at *Neuron*, following positive responses by four reviewers. It describes the first application of the weighted gene coexpression network analysis (WGCNA), developed at UCLA by Dr. Steve Horvath and colleagues, to a naturally learned behavior, specifically birdsong. Austin isolated RNA from a striatal brain region dedicated to song, and an outlying striatal region, from 27 birds that each sang a different amount. The expression of ~20,000 genes was then determined through hybridization to zebra finch-specific microarrays. Rather than comparing gene expression levels one at a time, he applied WGCNA, an unsupervised technique that uses a biologically meaningful measure of gene similarity to organize co-expressed genes. This technique is at the forefront of modern tools required to analyze high dimensional data sets while avoiding the pitfalls of multiple hypothesis testing. The approach highlights clusters of genes whose expression levels change in concert, and groups these into modules, with genes at the center of the modules being the most connected; so-called 'hub' genes. Austin's initial findings pinpointed molecules at two ends of the spectrum that were previously known to be regulated by singing, namely *Egr-1* and *FoxP2*. *Egr-1* had been identified as being up-regulated several-fold by singing. The Stephanie White lab had shown that *FoxP2*, the only single molecule to date whose mutation produces a language disorder, was down-regulated by singing. Austin's networks place *Egr-1*, along with other immediate early genes such as *arc*, as a hub gene within one module that is positively regulated by singing. They find *FoxP2* in another module that is down regulated by singing where it is not a hub gene (indeed, if it were, humans with *FoxP2* mutations might not be able to speak at all!), but is highly connected to other genes in that module. The networks are specific to the brain region dedicated to singing, and do not extend into the adjacent region even though it is composed of similar cell types and expresses similar levels of genes. The main message of biological salience emerging from this work is that particular 'molecular microcircuitry' in addition to anatomical and synaptic microcircuitry underlies the functional specificity of brain circuits subserving behavior, and much more-so than gene expression levels. This is a novel idea that is now informing similar hypotheses in mammals about specializations in synaptic plasticity mechanisms within sub-regions of a larger brain area, e.g. between the vermis and the flocculus of the cerebellum. Austin is presently adapting the 4th chapter of his dissertation into a manuscript on which he is sole first author to be submitted to *PLoS Genetics*. This paper reveals gene co-

expression networks in the non-vocal learning portion of the songbird basal ganglia and the findings reinforce the novel observations made in his Neuron publication. Austin's doctoral work has relevance not just for basic research but also for clinical neuroscience. For example, some of the highly connected genes that emerged from his analysis are implicated in Parkinson's disease. Austin's research will contribute to important questions about neurodevelopment and disorders related to human cognitive capacity, and he is clearly at the start of a promising career.

<b>Previous Eva Kavan Prize Recipients</b>		
<b>Year</b>	<b>Student</b>	<b>Mentor and Research Project</b>
1999 1 <sup>st</sup> Eva Kavan Prize Recipient	Albert Cha	Francisco Bezanilla Laboratory Research Project: Ion channels
2000 2 <sup>nd</sup> Eva Kavan Prize Recipient	U. Valentin Nägerl	Istvan Mody Laboratory Research Project: Calbindin and other intracellular calcium-binding proteins in the calcium-buffering capacity of central neurons and the role of these proteins in temporal lobe epilepsy
2001 3 <sup>rd</sup> Eva Kavan Prize Recipient	Michael Zeineh	Susan Bookheimer Laboratory Research Project: Novel methods of increasing the resolution of functional magnetic resonance imaging
2002 4 <sup>th</sup> Eva Kavan Prize Recipient	Christine Bredfeldt	Dario Ringach Laboratory Research Project: Focused on one of the basic transformations in visual processing observed between the lateral geniculate nucleus and primary visual cortex (area V1)
2003 5 <sup>th</sup> Eva Kavan Prize Recipient	Jeffrey Gotts	Marie-Françoise Chesselet Laboratory Research Project: Mechanism by which cortical lesions induce a large increase in cell numbers in the subependymal layer of adult rats
2004 6 <sup>th</sup> Eva Kavan Prize Recipient	Alison Burggren	Susan Bookheimer Laboratory Research Project: Alzheimer's Disease
2005 7 <sup>th</sup> Eva Kavan Prize Recipient	Kim Thompson	Kelsey Martin Laboratory Research Project: Pioneering studies on the mechanisms whereby signals are retrogradely transported from distal synapses to the nucleus in neurons
2006 8 <sup>th</sup> Eva Kavan Prize Recipient	Mary Kay Lobo	X. William Yang Laboratory Research Project: Application of molecular genetic tools to study basal ganglia biology and disease
2007 9 <sup>th</sup> Eva Kavan Prize Recipient	Joshua Johansen	H. Tad Blair Laboratory Research Project: Groundbreaking work on the circuit and computational mechanisms of teaching signal processing in the fear conditioning system
2008 10 <sup>th</sup> Eva Kavan Prize Recipient	Michael Oldham	Daniel Geschwind Laboratory Research Project: Foundational research on the organization of the human brain transcriptome



Previous Eva Kavan Prize Recipients		
Year	Student	Mentor and Research Project
2009 11 <sup>th</sup> Eva Kavan Prize Recipient	Tiago Carvalho	Dean Buonomano Laboratory Research Project: How excitatory and inhibitory synaptic plasticity interact in a concerted manner to govern neuron behavior
2010 12 <sup>th</sup> Eva Kavan Prize Recipient	Kate Wassum	Nigel Maidment Laboratory Research Project: Identifying dissociable roles for endogenous opioids in mediating reward palatability and incentive learning.
2011 13 <sup>th</sup> Eva Kavan Prize Recipient	Erin Gray	Thomas O'Dell Laboratory Research Project: Electrophysiological and molecular studies of the role of AMPA receptor phosphorylation in synaptic plasticity.
2012 14 <sup>th</sup> Eva Kavan Prize Recipient	Austin Hilliard	Stephanie White Laboratory Research Project: Human cognitive abilities that are articulated in the domains of music and language; neuromolecular networks involved in how the brain accomplishes vocal learning, such as speech, using the songbird as a model system.

## SAMUEL EIDUSON STUDENT LECTURESHIP

The Samuel Eiduson Student Lectureship was initiated in 1993 to recognize extraordinarily meritorious contributions by a neuroscience graduate student. This lectureship was named in honor of Dr. Samuel Eiduson for his many years of dedication to the Neuroscience Program and the Brain Research Institute. Dr. Eiduson served as the Chairman of the Interdepartmental Program for Neuroscience from its inception in 1972 until 1985, and was instrumental in forwarding the careers of many UCLA neuroscientists and graduates. Each year one student who has conducted especially commendable research during his/her thesis study is selected to deliver a lecture to the neuroscience community.

This year the Twentieth Samuel Eiduson Student Lecture, "Dopamine D<sub>2</sub>-Like Receptors: At the Nexus between Self Control and Addiction" was presented May 22, 2012, by Stephanie Groman. Stephanie is currently a senior graduate student in the Behavioral Neuroscience area of the Department of Psychology.

Stephanie's thesis work is complex, sophisticated and technically challenging. It integrates behavioral and cognitive analyses, behavioral pharmacological manipulations, in vivo PET and MR imaging, post mortem neurochemical analyses and a non-human primate model. Her work requires the simultaneous mastery of conceptual knowledge and technical skills at many levels. From pharmacology, to cognitive neuroscience, to neuroimaging, to animal husbandry and welfare, Stephanie performs at an outstanding and unimpeachable level. When she began working as a graduate student in the laboratory, she initially contributed to a research project funded by a NIDA grant. This project involved a combination of cognitive analyses, PET and MR imaging and drug administration. The basic concept was to evaluate across times the causal changes in brain and behavior associated with a "realistic" pattern of methamphetamine exposure, because past animal models had either not involved a drug exposure protocol similar to the way people take the drugs or because the measurements of brain function in animals were not translational (they were solely post mortem). Despite the fact that it was an awesome undertaking for a new student, she nearly single handedly made the project work. She did all the cognitive testing, collaborated with a senior researcher to collect the PET and MR scans (3 per

animal – before, early after and long after methamphetamine exposure). But perhaps most importantly, she developed the image analysis approaches, conducted the most rigorous analysis possible (involving approaches faculty were unaware of) and wrote the manuscript that described the results; at each stage, input from other, more senior scientists was limited to consultation. This manuscript has been accepted, pending minor revisions, to the Journal of Neuroscience.

While engaged in this project, Stephanie began creatively conceiving new analyses that were not part of the original study design and new experiments that were possible, based upon her acquired skills. Stephanie realized that, independent of methamphetamine administration, it would be interesting to examine the relationship between receptor availability and behavior at baseline – prior to any manipulations. In a paper published in the Journal of Neuroscience last year, Stephanie showed a strong, inverse relationship between native individual differences in dopamine D<sub>2</sub> receptor availability and measures of reversal learning. Stephanie then sought to examine the relationship between D<sub>2</sub> receptor availability and cognition in another sample that we have been studying since 2004 (aspects of their performance in cognitive tests was described in a Journal of Neuroscience paper that Stephanie co-first authored in 2007). We identified a statistical association between tendencies to engage in impulsive behaviors and cognitive performance, with more impulsive subjects exhibiting working memory and discrimination learning problems. Molecular neuroimaging was never intended on these subjects, but Stephanie was convinced that imaging dopamine receptors in these subjects was another crucial test of hypotheses emerging from her earlier work. She applied for, and received, pilot funding from a very competitive initiative (the Consortium for Neuropsychiatric Phenomics), conducted the scans and identified new relationships between D<sub>2</sub> receptor availability, impulsivity and cognition. Based upon this preliminary data, she submitted an F32 (independent National Research Service Award application to NIDA) to explore the mechanistic basis of the relationship between dopamine receptors, measured with PET, and behavior. That application was funded on its first submission.

Stephanie is continuing her efforts to characterize receptor functionality. She discovered that she could measure a simple spontaneous motor behavior that correlated strongly with the imaging-based measures of dopamine receptor function. With these data in hand, she once again applied for pilot funding from the Consortium for Neuropsychiatric Phenomics to conduct behavioral pharmacological. She is the first and only individual to twice receive funding from the group, a true distinction. She has conducted the proposed studies and now finds that when dopamine receptor agonists are applied, the motor behavior increases as a function of their endogenous dopamine receptor function. These studies confirm the idea that individual differences in the receptor complement measured with PET represent a functional population of receptors.

Stephanie has first authored two published review articles that propose mechanistic relationships between dopamine receptor function, impulsivity and cognition, and she contributed substantially to a book chapter. She is currently co-authoring another review article with a research faculty member in Psychiatry on cognitive dysfunction in addiction.

In addition to being a very capable researcher, Stephanie excels in the classroom; she has mastered the scientific approach and yet finds the time and motivation to be an excellent teacher, as well. Stephanie is a truly remarkable student and this award is truly well-deserved.

<b>Previous Samuel Eiduson Student Lecturers</b>		
<b>Year</b>	<b>Student</b>	<b>Lecture Title</b>
1993 1 <sup>st</sup> Eiduson Student Lecturer	David Rector	“Illuminating the Brain: Neural Activation Produces Changes in Light Scattering”
1994 2 <sup>nd</sup> Eiduson Student Lecturer	Michael DeRosa	“Why Do Children Seize? What Epileptic Brain Tissue Tells Us”
1995 3 <sup>rd</sup> Eiduson Student Lecturer	Kerry Thompson	“Focal Status Epilepticus in the Immature Brain”

Previous Samuel Eiduson Student Lecturers		
Year	Student	Lecture Title
1996 4 <sup>th</sup> Eiduson Student Lecturer	Li-Tao Zhong	“A Novel Type of Cell Death Receptor in Neocortical Neurons”
1997 5 <sup>th</sup> Eiduson Student Lecturer	Christine Schulteis	“Aspects of Shaker Potassium Channel Biogenesis Revealed by Analysis of Mutant Subunits”
1998 6 <sup>th</sup> Eiduson Student Lecturer	Paul Thompson	“Mathematical/Computational Strategies for Human Brain Mapping and Pathology Detection”
1999 7 <sup>th</sup> Eiduson Student Lecturer	Albert Cha	“Using Optical Probes to Study the Behavior of Voltage-Gated Ion Channels”
2000 8 <sup>th</sup> Eiduson Student Lecturer	Paul Gray	“Every Breath You Take: Looking for the Respiratory Rhythm Generator”
2001 9 <sup>th</sup> Eiduson Student Lecturer	Holly Carlisle	“The Role of NMDA Receptor Associated Proteins in Hippocampal LTP”
2002 10 <sup>th</sup> Eiduson Student Lecturer	Robert Agate	“Sex Chromosomes as Carriers for Genes Involved in Sex Specific Brain Development”
2003 11 <sup>th</sup> Eiduson Student Lecturer	Christopher Cain	“Overcoming Fear: Behavioral Pharmacology and Physiology of Fear Extinction in Mice”
2004 12 <sup>th</sup> Eiduson Student Lecturer	Spencer Smith	“The Role of Spontaneously Firing Neurons and New Tools for Exploring Them”
2005 13 <sup>th</sup> Eiduson Student Lecturer	Keri Martinowich	“Epigenetic Gene Regulation in Mental Retardation Disorders”
2006 14 <sup>th</sup> Eiduson Student Lecturer	John Ohab	“A Novel Neurovascular Niche for Neurogenesis after Stroke”
2007 15 <sup>th</sup> Eiduson Student Lecturer	Louisa Wang	“The Circadian Regulation of Learning and Memory”
2008 16 <sup>th</sup> Eiduson Student Lecturer	Woj Wojtowicz	“A Role for Molecular Diversity and Specificity in Wiring the Fly Brain”
2009 17 <sup>th</sup> Eiduson Student Lecturer	Doris Payer	“Neural Correlates of Emotion and Inhibitory Control During Early Abstinence from Methamphetamine”
2010 18 <sup>th</sup> Eiduson Student Lecturer	David Rousso	“Successive Actions of FoxP Transcription Factors in Spinal Cord Neurogenesis and the Establishment of Motor Circuits”
2011 19 <sup>th</sup> Eiduson Student Lecturer	Jason Stein	“Searching for Genetic Influences on Brain Structure”
2012 20 <sup>th</sup> Eiduson Student Lecturer	Stephanie Groman	“Dopamine D <sub>2</sub> -Like Receptors: At the Nexus between Self Control and Addiction”

The Brain Research Institute is proud to have created a lecture series designed to spotlight the achievements of its neuroscience graduate students.

**ARNOLD SCHEIBEL DISTINGUISHED POSTDOCTORAL FELLOW IN NEUROSCIENCE LECTURE**

In 2004 the Brain Research Institute initiated the Arnold Scheibel Distinguished Postdoctoral Fellow in Neuroscience Lecture. This annual lecture honors one postdoctoral fellow for outstanding research in neuroscience, and includes presentation of a lecture in the Joint Seminars in Neuroscience series, and a cash prize to attend a scientific meeting during the year.

This year, the Ninth Annual Distinguished Postdoctoral Lecturer was Kate Wassum, Ph.D., a postdoctoral fellow working in the laboratory of Dr. Nigel Maidment in the Department of Psychiatry and Biobehavioral Sciences. Her lecture, “Liking, Learning and Longing: Exploring the Role of Mesolimbic Dopamine Signaling in Reward Seeking Actions,” was presented to the neuroscience community on November 22, 2011.

<b>Previous Arnold Scheibel Distinguished Postdoctoral Fellow in Neuroscience Lecture</b>		
<b>Year</b>	<b>Postdoctoral Fellow</b>	<b>Lecture Title</b>
2004 1 <sup>st</sup> Scheibel Distinguished Postdoctoral Fellow in Neuroscience Lecture	Bingbing Song, M.D., Ph.D.	“Release of Endogenous Opioids in the Spinal Cord Measured Through Mu-opioid Receptor Internalization”
2005 2 <sup>nd</sup> Scheibel Distinguished Postdoctoral Fellow in Neuroscience Lecture	Sheila Fleming, Ph.D.	“Behavioral Phenotyping of Genetic Mouse Models of Parkinson’s Disease”
2006 3 <sup>rd</sup> Scheibel Distinguished Postdoctoral Fellow in Neuroscience Lecture	Catalina Abad, Ph.D.	“VIP and PACAP: Two Neuropeptides with Therapeutic Prospects”
2007 4 <sup>th</sup> Scheibel Distinguished Postdoctoral Fellow in Neuroscience Lecture	Bruno Bianchi, Ph.D.	“Deciphering Neurological Disorder Mechanisms Using Genetically Modified Human Neurons Derived from Human Embryonic Stem Cells”
2008 5 <sup>th</sup> Scheibel Distinguished Postdoctoral Fellow in Neuroscience Lecture	Grégoire Courtine, Ph.D.	“Regaining Stepping Capacities Following a Severe Spinal Cord Injury”
2008 6 <sup>th</sup> Scheibel Distinguished Postdoctoral Fellow in Neuroscience Lecture	Arne Ekstrom, Ph.D.	“Correlation Between Navigational Performance and Place Cell Recruitment in the Human Hippocampal Area”
2009 7 <sup>th</sup> Scheibel Distinguished Postdoctoral Fellow in Neuroscience	Dan Ohtan Wang, Ph.D.	“Visualizing New Protein Synthesis at Synapses During Neuronal Plasticity”
2010 8 <sup>th</sup> Scheibel Distinguished Postdoctoral Fellow in Neuroscience	Eiji Shigetomi, Ph.D.	“Astrocyte Calcium Dynamics Revealed by a Refined Genetically Encoded Calcium Indicator”
2011 9 <sup>th</sup> Scheibel Distinguished Postdoctoral Fellow in Neuroscience	Kate Wassum, Ph.D.	“Liking, Learning and Longing: Exploring the Role of Mesolimbic Dopamine Signaling in Reward Seeking Actions”

SPECIAL LECTURE SERIES (Sponsored or Co-Sponsored by the Brain Research Institute)

Neurogenetics Affinity Group & Consortium for Neuropsychiatric Phenomics Lectures

Fall 2011

Alvaro Sagasti, Ph.D., Department of Molecular, Cell and Developmental Biology, UCLA  
*"Molecular Mechanisms Establishing Sensory Territories in the Skin"*

Hazel L. Sive, Ph.D., Whitehead Institute for Biomedical Research, Department of Biology, Massachusetts Institute of Technology, Cambridge  
*"Development and Dysregulation of the Brain Ventricular System"*

David Krantz, M.D., Ph.D., Department of Psychiatry and Biobehavioral Sciences, UCLA  
*"Using Drosophila to Identify New Neuropsychiatric Drugs"*

Marie-Francoise Chesselet, M.D., Ph.D., Charles H. Markham Professor of Neurology, Chair, Department of Neurobiology, UCLA  
*"Genetic-Based Therapies for Sporadic Parkinson's Disease"*

Gunter Schumann, M.D., Ph.D., Chair of Biological Psychiatry, Deputy Director, NIHR-BRC Mental Health, MRC-SGDP Centre, Institute of Psychiatry, King's College, London  
*"From Gene to Function: Characterization of rasgrf2 in Alcohol Drinking"*

Winter 2012

Roel Ophoff, Ph.D., Department of Psychiatry and Biobehavioral Sciences, UCLA  
*"Gene Expression Studies of Schizophrenia"*

Alcino J. Silva, Ph.D., Departments of Neurobiology, Psychiatry and Biobehavioral Sciences, and Psychology, UCLA  
*"Molecular and Cellular Mechanisms Responsible for Cognitive Deficits in Neurodevelopmental Disorders"*

Eleazar Eskin, Ph.D., Departments of Computer Science, and Human Genetics, UCLA  
*"Handling Uncertainty of Read Mapping in Next Generation Sequencing"*

Robert M. Bilder, Ph.D., ABPP-CN, Michael E. Tennenbaum Family Professor of Psychiatry and Biobehavioral Sciences, David Geffen School of Medicine at UCLA, and Professor of Psychology, UCLA  
*"Multilevel Mechanistic Models from Biology to Psychology: Mission Impossible?"*

John Blangero, Ph.D., Director of the AT&T Genomic Computing Center, Department of Genetics, Southwest Foundation for Biomedical Research, Texas Biomedical Research Institute, San Antonio  
*"Neuroimaging Genomics: A Rare Opportunity"*

Spring 2012

Eric Wexler, M.D., Ph.D., Department of Psychiatry and Biobehavioral Sciences, UCLA  
*"Death & Rebirth: Insights from Transcriptional Time-Series Analysis"*

Matthew W. State, M.D., Ph.D., Donald J. Cohen Professor of Child Psychiatry, Department of Psychiatry and Genetics, Co-Director, Yale Program on Neurogenetics; Deputy Chairman for Research, Yale School of Medicine

*"The Genomic Architecture of Simplex Autism"*

Scott Fears, M.D., Ph.D., Daniel X. Freedman Scholar and Clinical Instructor, Semel Institute for Neuroscience & Human Behavior, UCLA

*"Neuroimaging Genetics of Psychiatric Disorders"*

Lawrence Zipursky, Ph.D., Howard Hughes Medical Institute, and Department of Biological Chemistry, UCLA

*"Chemoaffinity Revisited"*

James Knowles, Ph.D., Professor and Associate Chair for Research, Psychiatry and the Behavioral Sciences, Zilkha Neurogenetic Institute, Keck School of Medicine, USC

*"Utility of RNA-Seq of Human Brain Development"*

Michael Halassa, M.D., Ph.D., Clinical Fellow in Psychiatry, Massachusetts General Hospital, Boston

*"Brain State Dynamics: Synaptic and Circuit-Level Investigations"*

Paul Thompson, Ph.D., Department of Neurology, UCLA

*"Genetic Analysis of Brain Images from 21,000 People: The ENIGMA Project"*

#### Synapse to Circuit Club Affinity Group

##### Fall 2011

Lora Sweeney, Ph.D., Salk Institute, La Jolla, California

*"Semaphorins and the Assembly of an Olfactory Circuit"*

Baljit Khakh, Ph.D., Department of Physiology, UCLA

*"Astrocyte Roles in Neuronal Circuits"*

Caroline Yi, Ph.D., Department of Biological Chemistry, UCLA

*"Molecular Mechanisms of Dendrite Target Recognition"*

##### Winter 2012

Samantha Butler, Ph.D., Department of Biological Sciences, University of Southern California, Los Angeles

*"The Establishment of Neural Circuitry in the Developing Dorsal Spinal Cord"*

Toh Hean Ch'ng, Ph.D., Kelsey Martin laboratory, Department of Biological Chemistry, UCLA

*"Activity-Dependent Transport of the Transcriptional Co-Activator CRTCI from the Synapse to the Nucleus"*

Amos Gdalyahu, Ph.D., Joshua Trachtenberg laboratory, Department of Neurobiology, UCLA

*"Network Learning in Sensory Cortex"*

Anupama Dahanukar, Ph.D., Department of Entomology, Institute of Integrative Genome Biology, University of California, Riverside

*“To Eat or Not to Eat: Receptors and Neurons that Guide Drosophila Feeding Behaviors”*

Wael Tadros, Ph.D., Larry Zipursky laboratory, Department of Biological Chemistry, UCLA

*“Assembly of Layer Specific Circuits in the Drosophila Visual System”*

Nan Wang, Ph.D., William Yang laboratory, Department of Psychiatry and Biobehavioral Sciences, UCLA

*“Neurocircuitry Mechanism in Pathogenesis of Selective Neurodegeneration in Huntington's Disease”*

Elissa Hallem, Ph.D., Department of Microbiology, Immunology and Molecular Genetics, UCLA

*“The Neural Basis of Host Seeking in Parasitic Nematodes”*

Spring 2012

Dean Buonomano, Ph.D., Department of Neurobiology, UCLA

*“Computing with Randomly Connected Neural Microcircuits”*

Jason McEwen, Ph.D., Howard Hughes Medical Institute and Department of Biological Chemistry, UCLA

*“TRAPing the Transcriptome of Developing Visual System Neurons”*

Dion K. Dickman, Ph.D., Department of Neurobiology, University of Southern California, Los Angeles

*“Genes and Mechanisms Controlling Homeostatic Synaptic Plasticity”*

Orkun Akin, Ph.D., Larry Zipursky laboratory, Department of Biological Chemistry, UCLA

*“In vivo Analysis of Growth Cone Targeting with Genetics and Live Imaging”*

Massimo Scanziani, Ph.D., Howard Hughes Medical Institute, and the Division of Biology, University of California, San Diego

*“Cortical Inhibition and Visual Processing”*

Training Program in Neural Repair (and seminars co-sponsored by Neuroendocrinology Affinity Group)

Fall 2011

S. Thomas Carmichael, M.D., Ph.D., Department of Neurology, UCLA

*“A Biology of Neural Repair after Stroke”*

James Waschek, Ph.D., Department of Psychiatry and Biobehavioral Sciences, UCLA

*“The Brain, Neuropeptides, and Control of Inflammation: Lessons from Genetically-Engineered Mice”*

Hiroko Nobuta, Graduate Student, James Waschek lab, Department of Psychiatry and Biobehavioral Sciences, UCLA

*“STAT3-Mediated Reactive Astrocytes Control Microglial TGFb-1 Expression and Protect Myelin Development”*

Peter Butler, M.D., Director, Hillblom Islet Research Center, UCLA

*“The Islet in Type 2 Diabetes, Alzheimer's Disease of the Brain?”*

Harley Kornblum, M.D., Ph.D., Departments of Psychiatry and Biobehavioral Sciences, Molecular and Medical Pharmacology, and Pediatrics  
*“Is Resistance to Resistance Useless?”*

Rajesh Khanna, Ph.D., Department of Pharmacology & Toxicology, Indiana University  
*“CRMPs Curb Calcium Channels in Chronic Pain Relief”*

Rhonda Voskuhl, M.D., Department of Neurology, UCLA  
*“Estrogens and Neuroprotection”*

Mauricio Vargas, Laboratory of Alvaro Sagasti, Department of Molecular, Cell, and Developmental Biology, UCLA  
*“What is the Role of Calcium Dynamics during Axon Degeneration?”*

Devin Binder, M.D., Ph.D., Center for Glial-Neuronal Interactions, Division of Biomedical Sciences, University of California, Irvine  
*“Unexpected Roles of Aquaporin Water Channels in the Central Nervous System”*

Winter 2012

Zena Vexler, Ph.D., Director of Research, Neonatal Brain Disorders Center, Department of Neurology, University of California, San Francisco  
*“The Neurovascular Unit after Neonatal Focal Stroke: Dogmas and Reality”*

Patty Phelps, Department of Integrative Biology and Physiology, UCLA  
*“The Past and Future of Olfactory Ensheathing Cell Transplantation Following Spinal Cord Injury”*

Bruce Dobkin, M.D., Department of Neurology, UCLA  
*“Clinically Meaningful Behavioral Outcome Measurements of Repair”*

Agenor Limon, Ph.D., Cellular & Molecular Neurobiology Laboratory, Department of Neurobiology and Behavior, University of California, Irvine  
*“Remodeling of Human GABA Receptors in Alzheimer’s Disease”*

Luisa Iruela-Arispe, Ph.D., Department of Molecular, Cell and Developmental Biology, UCLA  
*“Expansion of Vascular Networks: Signaling Pathways and Molecular Mechanisms”*

David Chan, M.D., Ph.D., Howard Hughes Medical Institute Investigator; Division of Biology, California Institute of Technology, Pasadena  
*“Mitochondrial Dynamics and mtDNA”*

Hilal Lashuel, Ph.D., Director, Laboratory of Molecular and Chemical Biology of Neurodegeneration, Brain Mind Institute, Swiss Federal Institute of Technology, Lausanne, Switzerland, (Ecole polytechnique federale de Lausanne)  
*“Integrative Chemical Biology Approach to Elucidating the Role of Alpha-Synuclein Phosphorylation in the Pathogenesis of Parkinson’s Disease and Related Disorders”*

George Bartzokis, M.D., Department of Psychiatry & Biobehavioral Sciences, UCLA  
*“Neuroglialpharmacology and Myelin Repair”*



Spring 2012 (Jointly sponsored with the Laboratory of Neuroendocrinology)

Art Arnold, Ph.D., Department of Integrative Biology and Physiology, UCLA

*“What Neural Repair Scientists Need to Know about Sex Differences”*

Allan Mackenzie-Graham, Ph.D., Department of Neurology, UCLA

*“Morphological Differences in the Brains of Four Core Genotype Mice”*

Roberta Diaz Brinton, Ph.D., R. Pete Vanderveen Chair in Therapeutic Discovery and Development  
Professor of Pharmacology and Pharmaceutical Sciences, Biomedical Engineering and Neurology, Norris  
Foundation Laboratory for Neuroscience Research, School of Pharmacy, University of Southern California

*“Bioenergetic Signaling of Estrogen Action in Brain: Implications for Neurodegenerative Disease”*

Barney Schlinger, Ph.D., Professor and Chair, Department of Integrative Biology and Physiology, UCLA

*“Estrogen Synthesis in the Brain: A Response to Neural Injury and a Pathway Towards Repair”*

Paul Micevych, Ph.D., Department of Neurobiology, UCLA

*“Estrogen Receptors at the Membrane Regulate Reproduction”*

Rory Spence, Rhonda Voskuhl laboratory, Department of Neurology, UCLA

*“Neuroprotection via Estrogen Receptor Alpha in Astrocytes”*

Negar Ghahremani, Eric Vilain laboratory, Department of Human Genetics, UCLA

*“Genetic and Epigenetic Influences on Brain Sex Differences”*

Isabella Ferando, Istvan Mody laboratory, Department of Neurology, and MCIP Graduate Program, UCLA

*“GABAARs Delta Subunit is Downregulated in Interneurons during Pregnancy. Effects on Hippocampal  
CA3 Gamma Oscillations and Excitability”*

Justin Hill, M.D., The Buck Institute for Research on Aging, Novato, California

*“Neural Repair In Chronic Stroke”*

#### UCLA Center for Autism Research and Treatment (CART) Affinity Group Seminars

Fall 2011

Amanda Gulsrud, Ph.D., Semel Institute for Neuroscience and Human Behavior, CART Co-Investigator,  
UCLA

*“New Directions in Intervention Research for Infants at Risk for Autism Spectrum Disorder”*

Claudia Bagni, Ph.D., Center for Human Genetics, K.U. Leuven- V.I.B., Belgium University of Rome,  
“Tor Vergata,” Italy

*“The Cytoplasmic Fragile X Mental Retardation Protein 1 CYFIP1 is a Key Player in Neurodevelopment:  
The Link with Autism”*

Nicole Gage, Ph.D., Cognitive Neuroscience of Language Laboratory, Department of Cognitive Science,  
University of California, Irvine

*“Developing Biomarkers of Language Impairment in Nonverbal Children with Autism: An MEG  
Investigation”*

Winter 2012

Lonnie Zwaigenbaum, M.D., University of Alberta, Canada  
*"Early Developmental Trajectories in Autism"*

UCLA Center for Autism Research and Treatment (CART) 4th Annual Autism Research Symposium  
*"Autism 2012 - Autism Spectrum Disorders: Research Update and Evidence-Based Treatment Models"*

Gabriel S. Dichter, Ph.D., Departments of Psychiatry, and Psychology; Director of Clinical Affective Neuroscience (CAN) Laboratory, University of North Carolina at Chapel Hill  
*"Reward Processing in Autism Spectrum Disorder"*

Spring 2012

Katarzyna Chawarska, Ph.D., Department of Psychology, Yale School of Medicine; Director, Toddler Developmental Disabilities, Yale Child Study Center, New Haven, Connecticut  
*"Perceptual and Social-Cognitive Features of Autism Spectrum Disorder in Infancy"*

Janine LaSalle, Ph.D., Genome Center, M.I.N.D. Institute; University of California, Davis  
*"Mapping the Neuronal Methyloome and its Implications for Autism"*

James McPartland, Ph.D., Assistant Professor of Child Psychiatry and Psychology, Yale University; Associate Director, Developmental Electrophysiology Laboratory, Yale University, New Haven, Connecticut  
*"Revisiting the Social Motivation Hypothesis: A Developmental Model of Function and Dysfunction in Autism"*

UCLA Center for the Study of Parkinson's Disease (CSPD) Colloquium

Fall 2011

David Krantz, M.D., Ph.D., Department of Psychiatry and Biobehavioral Sciences, UCLA  
*"Using Drosophila to Study Parkinson's Disease"*

Christopher Colwell, Ph.D., Department of Psychiatry and Biobehavioral Sciences, UCLA  
*"The Aging Clock: Impact of Aging and Neurodegeneration on the Circadian System"*

James Waschek, Ph.D., Department of Psychiatry and Biobehavioral Sciences, UCLA  
*"A Potential Gene-Environmental Interaction Suggested by Investigations of Paraquat Toxicity in PACAP Knockout Mice"*

Joseph Watson, Ph.D., Department of Psychiatry and Biobehavioral Sciences, UCLA  
*"Impact of Elevated Human  $\alpha$ -Synuclein on Mitochondrial Function and Glutathione Metabolism in a Mouse Model for PD"*

Gal Bitan, Ph.D., Department of Neurology, UCLA  
*"Novel Inhibitors of Protein Aggregation: From Basic Principles to Therapeutic Promise"*

Winter 2012

Yvette Taché, Ph.D., Professor of Medicine (Digestive Diseases); Co-Director Center for Neurovisceral Sciences and Women's Health, UCLA

*“Stress and CRF Signaling Pathways: Implications in PD?”*

Safia Costes, Ph.D., Larry L. Hillblom Islet Research Center, UCLA

*“Defective Protein Clearance in Beta-Cells in Type 2 Diabetes: Any Common Features with Neurodegenerative Diseases?”*

Pinchas Cohen, M.D., Vice Chair for Research, Mattel Children's Hospital at UCLA; Professor and Chief of Pediatric Diabetes & Endocrinology, David Geffen School of Medicine at UCLA

*“Mitochondrial-Derived Peptides: Novel Regulators of Metabolism and Cell Survival”*

Henry Lester, Ph.D., Bren Professor of Biology, California Institute of Technology, Pasadena, California

*“Mechanisms for the Apparent Neuroprotection Effect of Nicotine in Parkinson's Disease”*

Giovanni Coppola, M.D., Department of Psychiatry & Biobehavioral Sciences, UCLA

*“Genetic and Genomic Studies in Neurodegeneration”*

Oliver Hankinson, Ph.D., Professor, Department of Pathology and Laboratory Medicine Chair, Molecular Toxicology Interdepartmental Program, UCLA

*“Cigarette Smoke Protection Against Paraquat Toxicity to Substantia Nigra Neurons in a Mouse Model of Parkinson's Disease, and the Role of Nrf2 in Such Protection”*

Spring 2012

George Bartzokis, M.D., Department of Psychiatry and Biobehavioral Sciences, UCLA

*“Brain Myelin and Iron: The Yin and the Yang of Brain Degeneration”*

Julie E. Miller, Ph.D., Department of Integrative Biology & Physiology, UCLA

*“Vocal Deficits in PD - What's the Appropriate Animal Model?”*

Ming Guo, M.D., Ph.D., Departments of Neurology, and Molecular and Medical Pharmacology, UCLA

*“Molecular Pathways to Parkinson's Disease”*

Beate Ritz, M.D., Ph.D., Departments of Epidemiology, and Neurology, UCLA

*“What (Candidate) Gene-Environment Interactions Can Teach Us about PD”*

Alex van der Blik, Ph.D., Department of Biological Chemistry, UCLA

*“Changes in Mitochondrial Fission and Fusion in Response to Cellular Stress”*

Franziska Richter, D.V.M., Ph.D., Department of Neurology, UCLA

*“Mitochondria Targeted Neuroprotective Compounds Show Promise as PD Therapeutic in Mice Overexpressing Alpha-Synuclein”*

Tian Xia, Ph.D., Department of Medicine-Nanomedicine, David Geffen School of Medicine, UCLA

*“Exploration of the Potential Effects of Engineered Nanomaterials on Parkinson's Disease using Zebrafish Models”*

**SPECIAL LECTURES (Sponsored or Co-Sponsored by the Brain Research Institute)**

**Thierry Galli, Ph.D.**, Inserm U950, Institut Jacques Monod, Université Denis Diderot/Paris 7, Paris, France  
*“Role of Membrane Trafficking in Neuronal Differentiation and Signaling”*

(Special Seminar Sponsored by the Brain Research Institute, the Training Program in Neural Repair, and the Intellectual & Developmental Disability Research Center)

**Mark Mayford, Ph.D.**, Department of Cell Biology, The Scripps Research Institute, La Jolla, California  
*“Genetic Control of Memory Circuits”*

(UCLA Integrative Center for Learning & Memory {ICLM} Annual Distinguished Lecture)

**Sebastian Seung, Ph.D.**, Professor of Computational Neuroscience, Massachusetts Institute of Technology;  
Scientific Director, Wired Differently

*“Mapping the Retinal Connectome with EyeWire, an Online Community for ‘Citizen Neuroscience’”*

(Special Seminar Sponsored by The Keck Center for Neurophysics and the Brain Research Institute at UCLA)

**Sir John E. Walker, FRS**, Nobel Laureate in Chemistry 1997; Director, Medical Research Council (MRC)  
Mitochondrial Biology Lab, Cambridge, United Kingdom

*“ATP Synthase: the Understood, the Uncertain and the Unknown”*

(Department of Physiology Distinguished Lecture)

**SPECIAL CONFERENCES (Sponsored or Co-Sponsored by the Brain Research Institute)**

**Collaborations in Translation~A Tribute to Charles H. Markham, M.D.**

Collaborations in Translation, a symposium held in honor of Dr. Charles Markham, was held on September 22, 2012.

Schedule

Welcome: Marie-Françoise Chesselet and John Mazziotta

Introductory Remarks: Eugene Washington, M.D., Dean, David Geffen School of Medicine

Steve Dubinett, M.D., Director, UCLA Clinical and Translational Science Institute

David Glanzman, Ph.D., *Erasing Memories: Clinical Implications.*

Michael Sofroniew, M.D., Ph.D., and Rhonda Voskuhl, M.D., Ph.D., *Astroglial Cells, Sex Hormones and Multiple Sclerosis.*

V. Reggie Edgerton, Ph.D., *Neuromodulated Motor Recovery after Spinal Cord Injury.*

Felix Schweizer, Ph.D. & Larry Hoffman, Ph.D., *Hair Cells and Gravity: A NASA Project.*

Marie-Françoise Chesselet, M.D., Ph.D., *New Drugs for Parkinson’s Disease.*

## **Recovery of Movement after Paralysis with Epidural Stimulation**

Recovery of Movement after Paralysis with Epidural Stimulation, a joint symposium featuring the University of California, Los Angeles, the California Institute of Technology, University of Louisville, and Case Western Reserve University was held at the California Institute of Technology on January 23, 2012. The symposium was sponsored by the Departments of Integrative Biology & Physiology, Neurobiology, and Neurosurgery, and the Brain Research Institute at UCLA

### Schedule

Reggie Edgerton (UCLA), *Basic Biological Concepts Underlying Epidural Stimulation*.

Susie Harkema (University of Louisville), *Effects of Acute and Chronic Epidural Stimulation after Complete Paralysis in Human Subjects*.

Joel Burdick (Caltech), *Machine Learning and Modeling of Epidural Stimulation*.

YC Tai (Caltech), *Development of Epidural Stimulator Devices*.

Kevin Kilmore (Case Western), *Technical Developments for FES and Possible Interface with Epidural Stimulation*.

## **Basic and Translational Symposium of the UCLA SCOR Specialized Center for Neurovisceral Interactions and Women's Health**

The 10th Year Anniversary Basic and Translational Symposium of the UCLA SCOR Specialized Center for Neurovisceral Interactions and Women's Health was held on February 9, 2012.

### Schedule

#### Introduction

Symposium Chairs: Kirsten Tillisch, MD (Oppenheimer Center for Neurobiology of Stress; CURE: Digestive Diseases Research Center, UCLA) and Million Mulugeta, DVM, PhD (CURE: Digestive Diseases Research Center; Oppenheimer Center for Neurobiology of Stress, UCLA; VA Greater Los Angeles Healthcare System)

John Mazziotta, MD, PhD, Executive Vice Dean, David Geffen School of Medicine and Associate Vice Chancellor, UCLA

Gary Gitnick, MD, Chief, Division of Digestive Diseases, UCLA

#### Overview of Accomplishments of UCLA SCOR in Research, Career Development and Outreach

Emeran Mayer, MD, Director, Oppenheimer Center for Neurobiology of Stress; Co-Director, CURE: Digestive Diseases Research Center; Division of Digestive Diseases, UCLA

Frank Hamilton, MD, MPH, Chief, Digestive Diseases Programs Branch, NIDDK, NIH

Janine Clayton, MD, Acting Director, Office of Research on Women's Health, NIH

#### Career Development Through UCLA SCOR (10-minute presentation with 5-minute discussion each)

Chairs: Bruce Naliboff, PhD (Co-Director, Oppenheimer Center for Neurobiology of Stress; CURE: Digestive Diseases Research Center, UCLA; VA Greater Los Angeles Healthcare System) and Margaret Heitkemper, RN, PhD (Department of Biobehavioral Nursing and Health Systems, University of Washington)

#### *Sex Differences in Brain Structure*

Eileen Luders, PhD, Laboratory of Neuro Imaging (LONI), Department of Neurology, UCLA

#### *Differential Effects of Sucrose Ingestion on Nucleus Tractus Solitarius Intrinsic Activity in Lean and Obese Women*

Lisa Kilpatrick, PhD, Oppenheimer Center for Neurobiology of Stress, Department of Medicine, Division of Digestive Diseases, UCLA

#### *Functional Brain Mapping of Stress-induced Visceral Hypersensitivity in the Rat*

Zhuo Wang, PhD, Keck School of Medicine, Department of Psychiatry and Behavioral Sciences, USC

*Different Impact of Visceral Stimuli on Attention in IBS Patients and Healthy Controls*

Florian Kurth, MD, Oppenheimer Center for Neurobiology of Stress, Department of Medicine, Division of Digestive Diseases, UCLA

SCOR Outreach: Sex Difference and Women's Health Research At UCLA (15-minute presentation with 5-minute discussion each)

Chairs: Yvette Taché (Co-Director, Oppenheimer Center for Neurobiology of Stress; CURE: Digestive Diseases Research Center, UCLA; VA Greater Los Angeles Healthcare System) and Gautam Chaudhuri, MD, PhD (Executive Chair, Department of Obstetrics/Gynecology, UCLA)

*Animal Model of Interstitial Cystitis/Painful Bladder Syndrome*

Larissa Rodríguez, MD, PhD, Department of Urology, UCLA

*Sex Differences in Obesity and Metabolic Disease: That Second X Chromosome Makes a Big Difference*

Art Arnold, PhD, Department of Integrative Biology and Physiology, UCLA

*Physiology of Membrane-initiated Estradiol Signaling*

Paul Micevych, PhD, Department of Neurobiology, UCLA

*Imaging Menstrual Cycle Related Mood and Pain Disorders*

Andrea Rapkin, MD, Director, UCLA Pelvic Pain Program, Department of Obstetrics/Gynecology, UCLA  
UCLA Women's Health Center of Excellence

Janet Pregler, MD, Director, Iris Cantor UCLA Women's Health Center

Poster Session

SCOR Outreach: Inter-Scor Collaboration - Early Life Antecedents of Chronic Disease (20-minute presentation with 10-minute discussion each)

Chairs: Fawzy Fawzy, MD (Louis Jolyon West Distinguished Professor of Psychiatry; Executive Vice Chair, Department of Psychiatry and Biobehavioral Sciences; Executive Associate Director, Semel Institute for Neuroscience and Human Behavior, UCLA) and Michelle Craske, PhD (Director, Anxiety Disorders Research Center; Professor and Vice-Chair, Department of Psychology, UCLA)

*Fetal Hormonal Programming of the Brain: Implications for Understanding Sex Differences in Depression*

Jill Goldstein, PhD, Director, Harvard SCOR; Professor of Psychiatry and Medicine, Harvard Medical School

*Early Life Stress and Glucocorticoid Receptor Gene Methylation in Irritable Bowel Syndrome*

Lin Chang, MD, Co-Director, Oppenheimer Center for Neurobiology of Stress; CURE: Digestive Diseases Research Center, Division of Digestive Diseases, UCLA

Joseph Pisegna, MD (Chief, Division of Gastroenterology and Hepatology, VA Greater Los Angeles Healthcare System; Assistant Director, UCLA Affiliated Training Programs in Gastroenterology, UCLA)

Poster Award

Lin Chang, MD

Closing Comments

The anniversary symposium was sponsored by the Gail and Gerald Oppenheimer Family Center for Neurobiology of Stress, Department of Medicine, UCLA, in collaboration with the UCLA Brain Research Institute, the UCLA Semel Institute for Neuroscience and Human Behavior, and the Oppenheimer Foundation. Additional information about the Center can be found on the Center's website: [www.uclacns.org](http://www.uclacns.org).

## The Integrative Center for Learning and Memory (ICLM) Inaugural Symposium

The Integrative Center for Learning and Memory (ICLM) Inaugural Symposium marked the inauguration of the new UCLA Integrative Center for Learning and Memory. The Center is a new academic unit that leverages UCLA's leadership in this area, and is designed to promote studies of molecular, cellular, systems and cognitive mechanisms of learning & memory. This two-day symposium was held on March 5 & 6, 2012, and was sponsored by the Brain Research Institute at UCLA, the UCLA Departments of Biological Chemistry, Integrative Biology & Physiology, Neurobiology, Neurology, Physiology, and Psychology, and the Semel Institute for Neuroscience and Human Behavior, David Geffen School of Medicine at UCLA.

### Schedule, Monday, March 5, 2012

#### Welcome and Opening Remarks

Alcino J. Silva, Ph.D., Departments of Neurobiology, Psychiatry & Biobehavioral Sciences, and Psychology, University of California, Los Angeles

Session 1 Chair: Alcino J. Silva, Ph.D., Departments of Neurobiology, Psychiatry & Biobehavioral Sciences, and Psychology, University of California, Los Angeles

#### *Neural Circuit Genetics of Hippocampal Memory*

Susumu Tonegawa, Ph.D., 1987 Nobel Laureate (Physiology or Medicine), Picower Professor of Biology and Neuroscience, Massachusetts Institute of Technology; Director of the RIKEN Brain Science Institute

#### *Hippocampal Representation of Space*

Mayank Mehta, Ph.D., Keck Center for Neurophysics, and Departments of Physics & Astronomy, Neurology, and Neurobiology, University of California, Los Angeles

#### *Climbing Fibers and Cerebellar Learning*

Thomas Otis, Ph.D., Department of Neurobiology, University of California, Los Angeles

Session 2 Chair: Michael Fanselow, Ph.D., Departments of Psychology, and Psychiatry & Biobehavioral Sciences, University of California, Los Angeles

#### *Effects of Aging on Behavior and Temporal Lobe Circuits*

Carol Barnes, Ph.D., Evelyn F. McKnight Brain Institute, University of Arizona, Tucson

#### *Brain Systems for Modulation of Attention in Associative Learning*

Peter Holland, Ph.D., Department of Psychological and Brain Sciences, Johns Hopkins University, Baltimore, Maryland

#### *The Hippocampus in Space and Time*

Howard Eichenbaum, Ph.D., Center for Memory and Brain, Boston University, Massachusetts

Session 3 Chair: Stephanie White, Ph.D., Department of Integrative Biology and Physiology, University of California, Los Angeles

#### *Changing Fear*

Elizabeth Phelps, Ph.D., Department of Psychology, New York University, New York

#### *Basal Ganglia Circuits, Social Context, and Plasticity*

Allison Doupe, M.D., Ph.D., Departments of Psychiatry and Physiology, University of California, San Francisco

#### *The Emotional Brain*

Joseph LeDoux, Ph.D., Center for Neural Science, Department of Psychology, and Department of Child and Adolescent Psychiatry, New York University, New York

Session 4 Chair: Joaquin Fuster, M.D., Ph.D., Department of Psychiatry & Biobehavioral Sciences, University of California, Los Angeles

#### *Learning Temporal Patterns in In Vitro Cortical Networks*

Dean Buonomano, Ph.D., Departments of Neurobiology, and Psychology, and the Brain Research Institute, University of California, Los Angeles

#### *Restoring Memory Formation following Neurodegeneration-Mediated Cognitive Impairment*

Li Huei Tsai, Ph.D., Howard Hughes Medical Institute, and the Picower Institute for Learning and

Memory, Department of Brain and Cognitive Sciences, Massachusetts Institute of Technology, Cambridge  
*Oscillations Organize Cell Assemblies*  
György Buzsáki, M.D., Ph.D., Biggs Professor of Neuroscience, The Neuroscience Institute, New York  
University, School of Medicine, New York

Schedule, Tuesday, March 6, 2012

Welcome and Opening Remarks

Alcino J. Silva, Ph.D., Departments of Neurobiology, Psychiatry & Biobehavioral Sciences, and Psychology,  
University of California, Los Angeles

Session 5 Chair: David Glanzman, Ph.D., Departments of Integrative Biology & Physiology, and  
Neurobiology, University of California, Los Angeles

*On the Persistence of Memory Storage*

Eric Kandel, M.D., 2000 Nobel Laureate (Physiology or Medicine), Fred Kavli Professor and Director,  
Kavli Institute for Brain Science; Senior Investigator, Howard Hughes Medical Institute, Department of  
Neuroscience, Columbia University, New York

*High Throughput Behavioral Analyses of Habituation for 550 Predicted Nervous System Genes in C. elegans*

Catharine Rankin, Ph.D., Department of Psychology, University of British Columbia, Vancouver, British  
Columbia, Canada

*Brain Maps for Space*

Edvard Moser, Ph.D., Kavli Institute for Systems Neuroscience, Norwegian University of Science and  
Technology, Trondheim, Norway

Session 6 Chair: J. David Jentsch, Ph.D., Departments of Psychology, and Psychiatry & Biobehavioral  
Sciences, University of California, Los Angeles

*The Storage Mechanism of Long-Term Memory*

Todd Sacktor, M.D., Departments of Physiology, Pharmacology, and Neurology, SUNY Downstate  
Medical Center, Brooklyn, New York

*Molecular Mechanisms of Memory Consolidation and Enhancement*

Cristina Alberini, Ph.D., Center for Neural Science, New York University, New York, New York

*Epigenetic Mechanisms in Memory Formation*

John David Sweatt, Ph.D., Evelyn F. McKnight Chair, Department of Neurobiology; Director, McKnight  
Brain Institute, University of Alabama at Birmingham

Session 7 Chair: Hugh Tad Blair, Ph.D., Department of Psychology, University of California, Los Angeles

*Habit Learning and the Neostriatum*

Barbara Knowlton, Ph.D., Department of Psychology, University of California, Los Angeles

*Representations and Processes in the Human Medial Temporal Lobe*

Anthony Wagner, Ph.D., Department of Psychology & Neuroscience Program, Stanford University,  
California

*Alterations in Brain Network Connectivity in the APOE4 Genotype*

Susan Y. Bookheimer, Ph.D., Department of Psychiatry & Biobehavioral Sciences, University of  
California, Los Angeles

Session 8 Chair: Kate Wassum, Ph.D., Department of Psychology, University of California, Los Angeles

*The Role of NMDA Receptor Signaling Complexes in Hippocampal Synaptic Plasticity*

Thomas O'Dell, Ph.D., Department of Physiology, University of California, Los Angeles

*Spatial Navigation Based Decisions, Learning and Memory: A Neural Systems Analysis*

Sheri J.Y. Mizumori, Ph.D., Department of Psychology, and Center for Integrative Neuroscience,  
University of Washington, Seattle

*Synapse-Specific Translational Regulation during Neuronal Plasticity*

Kelsey Martin, M.D., Ph.D., Departments of Biological Chemistry, and Psychiatry & Biobehavioral  
Sciences, University of California, Los Angeles



## **Circadian Clocks and Metabolic Diseases Symposium**

Circadian Clocks and Metabolic Diseases Symposium was held at the UCLA Conference Center in Lake Arrowhead April 20-22, 2012. This meeting represents the first gathering of the Circadian and Sleep Medicine Affinity Group at UCLA. The objective of the meeting was to share and discuss rapid developments and intersections in the fields of circadian biology and metabolic diseases in an informal but stimulating environment at the Lake Arrowhead UCLA Conference Center. The meeting brought together academic and industry experts presenting current research in areas of circadian biology, energy metabolism, diabetes, cardiovascular disease and neurodegeneration. In addition to several keynote speakers, the meeting also included chosen oral presentations from submitted abstracts.

### Schedule Saturday, April 21, 2012

Introduction and meeting overview

Session 1: Key Concepts in Circadian Timing

Erik D. Herzog, Ph.D (Washington University, St. Louis, MO)

*Circadian neural networks*

Hitoshi Okamura, M.D., Ph.D (Kyoto University, Japan)

*Circadian regulation of intracellular G-protein signaling mediates intercellular synchrony and rhythmicity in the suprachiasmatic nucleus*

Michael H. Hastings, FRS, FMedSci (Cambridge University, United Kingdom)

*Mapping cytosolic and transcriptional cycles in the SCN*

Session 2: SCN Outputs

Ruud Buijs, Ph.D (Universidad Nacional Autónoma de México)

*Clock output mechanisms*

Yu Tahara, Ph.D. (Waseda University, Tokyo, Japan)

*In vivo monitoring of peripheral circadian clocks of the mouse*

Claudia P. Coomans, Ph.D. (Leiden University Medical Center, Leiden, The Netherlands)

*Role of SCN in energy and glucose metabolism*

Session 3: Circadian Disruption and Diabetes

Aleksey V. Matveyenko, Ph.D (University of California Los Angeles)

*Disruption of circadian rhythms and development of diabetes*

Richard M. Watanabe, Ph.D (University of Southern California)

*Genetic basis of Type 2 diabetes, possible role of melatonin receptor variant*

Fernando Gomez-Pinilla, Ph.D (University of California Los Angeles)

*The impact of metabolic syndrome in the brain and cognition: Influence of diet and exercise*

Eva Schemhammer, M.D., Ph.D (Harvard University)

*Shift work as risk factor for type 2 diabetes and cancer*

Poster Session

### Schedule Sunday, April 22, 2012

Session 4: Other Rhythms

Garret A. Fitzgerald, M.D (University of Pennsylvania)

*Circadian regulation of cardiovascular function*

Analyne Schroeder (University of California Los Angeles)

*Can timed exercise help fix a broken circadian clock?*

Dawn Loh, Ph.D (University of California Los Angeles)

*Circadian dysfunction and deficits in memory*

Session 5: Beginning and the End

Gabriela Monsalve (University of California Los Angeles)

*Circadian clock genes in development*

Gene D. Block, Ph.D (University of California Los Angeles)

*The aging clock*

Christopher S. Colwell, Ph.D (University of California Los Angeles)

*Circadian dysfunction as an integral part of neurodegenerative disorders*

The symposium was sponsored by Takeda Pharmaceuticals, the UCLA Clinical and Translational Science Institute, the UCLA Brain Research Institute, the UCLA Larry L. Hillblom Islet Research Center, the UCLA Laboratory for Circadian and Sleep Medicine, and the UCLA Department of Psychiatry and Biobehavioral Sciences.

### **Dynamics of Neural Microcircuits- The 6th Annual Neural Microcircuits Training Program Symposium**

The Dynamics of Neural Microcircuits Symposium was held on May 17, 2012. The symposium was sponsored by the UCLA Department of Neurobiology and the Brain Research Institute at UCLA

#### Schedule

Introduction: Jack Feldman (UCLA)

Martyn Goulding (Salk Institute)

*Neuronal Control of Movement: Circuits, Behavior and Evolution*

Jennifer Raymond (Stanford)

*Error Signals Controlling Cerebellum-Dependent Learning*

Paul Mathews (UCLA Postdoc & Training Grant Fellow - Otis Lab)

*Shining Light on the Role of Climbing Fibers in the Cerebellar Cortex*

Mark Goldman (UC Davis)

*Microcircuits for Short-Term Memory Storage and Neural Integration*

Poster Session

Andrew Huberman (UCSD)

*Genetic Dissection of Visual Circuits*

Kai Wen Kam (UCLA Postoc - Feldman Lab)

*When Inspiration Strikes: Burst Initiation and Timing in the Neural Circuit Controlling Breathing*

Anu Goel (UCLA Postdoc & Training Grant Fellow - Buonomano lab)

*Interval Learning in Cortical Networks in vitro*

Alan Basbaum (UCSF)

*Treating the "Disease" of Chronic Pain by Renewing Spinal Cord Circuitry*

### **19th Annual Joint Symposium on Neural Computation**

In 1994, the Institute for Neural Computation at the University of California, San Diego hosted the first Joint Symposium on Neural Computation with the California Institute of Technology in Pasadena. This Symposium brought together students and faculty for a day of short presentations. Since then, this Symposium has rotated between San Diego, Caltech, UCI, UCLA, USC and UCR. This year, the 19<sup>th</sup> Annual Joint Symposium on Neural Computation was held at UCR on June 2, 2012.

Speakers:

Tad Blair, UCLA

Stijn Cassenaer, Caltech

Gary Cottrell, UCSD

Sergei Gepshtein, Salk Institute

Jason Kutch, USC

Anand Ray, UCR

Craig Stark, UCI

Jing W. Wang, UCSD

Keynote Speakers:

Bard Ermentrout, University of Pittsburgh

John Lisman, Brandeis University

### **Eleventh Annual Southern California Learning & Memory Symposium**

The Eleventh Annual Southern California Learning & Memory Symposium was held on June 6, 2012 at UCSD. This symposium is a yearly meeting primarily for Southern California laboratories interested in plasticity and learning.

#### Symposium Schedule

Welcome and Opening Remarks

Session 1

Larry Squire: *The hippocampus, memory and spatial cognition*

John Wixted: *Recollection and familiarity in the hippocampus*

Rosie Cowell: *Paradoxical False Recognition: New objects look old in a model of amnesia*

Session 2

Alcino Silva: *Molecular and cellular mechanisms of memory allocation*

Mark Mayford: *Genetic control of memory circuits*

Jill Leutgeb: *A neuronal code for extended time in the hippocampus*

Session 3

Barbara Knowlton: *The role of medial temporal lobe subregions in declarative memory*

Sarah Bottjer: *Singing in the brain: cellular and circuit mechanisms of vocal learning*

Xin Jin: *Basal ganglia and action learning in mice*

Session 4

Sarah Mednick: *Reaching beyond the limits of memory: Experimenting with learning, sleep, and drugs*

Antonio Rangel: *What is the role of learning in simple and complex choice?*

Tom Albright: *Gaining sensory expertise.*

### **CAROL MOSS SPIVAK CELL IMAGING FACILITY**

In March 2008, the BRI Cell Imaging Facility moved to the California Nanosystems Institute (CNSI) to join with the CNSI Advanced Light Microscopy Facility. The joined facility has since served over 800 users representing over 250 labs at UCLA, LABioMed, Harbor-UCLA and Cedars Sinai Health Center as well as several industry laboratories. The facility houses five Leica spectral confocal microscopes, three of which have multiphoton laser scanning ability. The facility now has a Spinning Disk Confocal microscope, a Laser Microdissection System and will soon have a TIRF (Total Internal Reflectance) microscope online. Additional techniques now available include: FRET (fluorescence resonance energy transfer) FLIM (fluorescence lifetime imaging), FRAP (fluorescence recovery after photobleaching) and STED (scanning transmission depletion microscopy, which allows imaging below the diffraction limit of normal light resolution) and spectral unmixing both on microscopic and macroscopic (small animal) imaging scales. Dr. Laurent Bentolila is the scientific director of the facility.

Dr. Matt Schibler, former director of the BRI Cell Imaging Facility and now a Microscopy Staff Scientist in the combined CNSI/BRI Advanced Light Microscopy/Spectroscopy Facility, has primary responsibility for training new users in the facility and has taught over 150 individuals (in groups of 3-7) how to use the joined facility's confocal microscopes. Training sessions are held on the average of once every ten days depending on demand. Each training session included three hours of confocal microscope theory and instruction in the use of the microscope software. Dr. Schibler also continues instruction for all of these users beyond the initial

class. Dr. Schibler has been a member of UCLA's Laser Safety committee responsible for reviewing and setting laser safety policy at UCLA. Dr. Schibler also coordinates the collection of images for the annual BRI calendar.

The combined facility in conjunction with Leica Microsystems hosted one distinguished lecture on light microscopy research during the past year. Professor Xiaowei Zhuang, from the Department of Chemistry and Chemical Biology, Department of Physics, and the Howard Hughes Medical Institute at Harvard University presented "Bioimaging on the Nanoscale: Single-Molecule and Super-Resolution Fluorescence Microscopy."

The combined facility hosted the following tours of the facility during the current period: CSST 10-week Summer Program, "Cross-Disciplinary Scholars in Science and Technology," for students in their third year of undergraduate study at a summer research internship at UCLA; RAPID Pharmaceuticals and Laboratories; Members of CleanTech LA; Members of the UCLA Department of Bioengineering Industry Advisory Board; UCLA Medical Center volunteers; Lee Goodglick, Ph.D., M.B.A., Associate Professor, Department of Pathology and Laboratory Medicine; Group of Special Agents from the FBI (U.S. Federal Bureau of Investigation); Adah Almutairi, Ph.D., Skaggs School of Pharmacy and Pharmaceutical Sciences, Department of NanoEngineering and the Materials Science and Engineering Program School, UCSD; Three groups of students from Dr. Laurent Bentolila's microscopy class (part of normal curriculum); Aleksandra Kalinichenko - Daria Mironova, NRU ITMO State University Russia; Distinguished panel from UCOP for site visit to CNSI; EURECA (European Research and Educational Collaboration with Asia) Program; ITMO (Saint-Petersburg National Research University of Information Technologies, Mechanics and Optics) Delegation visit to UCLA consisting of several ITMO faculty members and project managers; Jeff Joyner - Greenberg Trarig, Warner Phillips - Co-founder & President of Lemnis Public Lighting; ROMEO (Retired Old Men Eating Out) Members, specifically interested in the area of nanomedicine, many were retired medical faculty and doctors; Dr. Eli Wiener, founder and CEO of LEEOAT Company; Three professors from the University of Tokyo, Kazuhiko Kakehi, Ph.D., Project Associate Professor, Division of University Corporate Relations, the University of Tokyo, Yutaka Minezaki, Senior Manager, Patent Attorney, and Akihiko Okamoto, Ph.D., Program Officer, Division of University Corporate Relations, the University of Tokyo; Summer Math and Science Honors Academy (SMASH) Program, 30 ninth grade students participated in a five-week, intensive, math and science academy. SMASH is geared toward high achieving, economically disadvantaged, high school students who are underrepresented in Science, Technology, Engineering and Mathematics (STEM) fields; Dr. John Miao from the Department of Physics and Astronomy at UCLA, and several graduate students; UCLA Department of Electrical Engineering students; College of the Canyons student tour; Dr. Clotilde Thery, INSERM Director of Research (DR2) working at Institut Curie, where she heads a team entitled "Exosomes and Tumor Growth."

The Facility also acts as a bridge between UCLA researchers and the vendors of imaging technologies. In this capacity during the 2011-2012 academic year, the Facility hosted the following demonstrations and workshops along with vendors that were open to all UCLA researchers: The 7<sup>th</sup> Workshop on Advanced Fluorescence Spectroscopy and Microscopy: From Cells to Single Molecules;" Joint workshop between PicoQuant GmbH and CNSI UCLA, UCLA Department of Chemistry and Biochemistry; and Leica Microsystems GSD TIRF- (Ground State Depletion- Total Internal Reflection Microscopy Workshop & Hands-on Imaging Demonstration.

## AFFINITY GROUPS

A variety of interdisciplinary affinity groups, developed to provide scientific exchange on specific research topics, meet at regular intervals. A number of these groups have developed program project, center, and training grant proposals. These groups represent one of the greatest strengths of the Institute, that is, the scientific depth and diversity of its membership, and their collaborative interaction. These affinity groups include:

<u>Affinity Group</u>	<u>Leader(s)</u>
Addictions Research Consortium	Edythe London & Igor Spigelman
Astrocyte Biology	Baljit Khakh & Michael Sofroniew
Autism	Daniel Geschwind
Brain-Mind-Body Interactions	Michael Irwin
Circadian and Sleep Medicine	Christopher Colwell
Computational Neuroscience	Ladan Shams
Higher Cognitive Function in Neural Integration	Arnold Scheibel & Joaquin Fuster
Immunology in Neuroscience	James Waschek
Inner Ear	Felix Schweizer
Learning, Memory & Plasticity	Alcino Silva, David Glanzman & Michael Fanselow
Neural Repair	Marie-Françoise Chesselet
Neural Stem Cells	Harley Kornblum
Neurobiology of <i>Drosophila melanogaster</i> and <i>C. Elegans</i>	David Krantz
Neuroendocrinology	Arthur Arnold
Neuronuclear Imaging	Daniel Silverman
Neurophysics and Neuroengineering	Mayank Mehta
Neurogenetics	Xiangdong William Yang
Neuroscience History Affinity Group	Joel Braslow & Russell Johnson
Songbird	Stephanie White
Stress, Pain and Emotion	Emeran Mayer
Synapse to Circuit Club	Kelsey Martin & Larry Zipursky
Undergraduate Researchers in Parkinson's Disease	Marie-Françoise Chesselet
Zebra Fish	Alvaro Sagasti

## SCIENTIFIC and EDUCATIONAL OUTREACH PROGRAMS

### Brain Awareness Week March 2012

(Held in conjunction with the Society for Neuroscience Brain Awareness Week)

The UCLA Chapter of the Society for Neuroscience recognized Brain Awareness Week (BAW) with a number of special events during a busy, educational and exciting week at the UCLA Brain Research Institute (BRI).

The focus of BAW is “Community-to-Campus Outreach,” bringing over 300 students from Los Angeles area middle schools and high schools to the UCLA Brain Research Institute (BRI). This program provides students the opportunity to visit the UCLA BRI and participate in neuroscience educational activities, lab and campus tours, and career/mentoring workshops. With over 100 faculty and student volunteers from numerous groups (Project Brainstorm, Interaxon, STEMPLEDGE, Neuroscience Undergraduate Society) full-day events included brain demonstrations, hands-on activities and presentations, lab tours, campus tours, and career/mentorship workshops.

During Brain Awareness Week, a number of teachers from local schools are invited to bring their class on a very special field trip to the UCLA Brain Research Institute. Each day, visiting students arrived in front of the Gonda (Goldschmied) Neuroscience and Genetics Research Center to join “Project Brainstorm” leaders, Martina DeSalvo and Aida Attar. (Project Brainstorm is the ongoing science outreach program organized by graduate students in the Interdisciplinary Program for Neuroscience at UCLA.) The tour began with a brief overview on the structure and function of the brain, and then graduate students from Project Brainstorm conducted presentations on the brain, including some hands-on activities, and educational, age-appropriate presentations ranging from brain injury, two-point discrimination testing, sensation, synaptic function, hemispheric differences, motor system and lobe functions set up by the Interaxon group. The students then visited research laboratories in the Gonda Center where they heard presentations about a number of research topics. The day concluded with a campus tour, and a career/mentoring workshop. In the morning session the goal was to inspire excitement and educate our youth audience, specifically focusing on neuroscience hands-on activities. In the afternoon session, the campus tour had two benefits: 1) Introduce K-12 students to the UCLA campus, and 2) Expose students to the ethnic diversity of the UCLA community. In the career/mentoring panels students had the opportunity to meet a diverse graduate student panel. Graduate students from multiple ethnic and socioeconomic backgrounds described their personal paths to graduate education, and the hardships and successes they have experienced. Students expressed a lot of curiosity, insight, and interest throughout the entire day while being guided through the fascinating neuroscience research environment at UCLA. Before departing, the students all received a Brain Research Institute pencil and brain eraser as souvenirs of their visit to UCLA. This year, our BAW was sponsored by the UCLA Brain Research Institute, the Center for Student Programming, Campus Programs Committee, the Graduate Student Association’s Discretionary Funds, and the Biological Sciences Council.

### **Project Brainstorm**

Project Brainstorm is the current outreach project of the Brain Research Institute and Neuroscience Interdepartmental Educational Programs. Project Brainstorm grew out of the former SPARCS (Special Achievement Rewards for College Scholars) Program that was developed by Dr. Arnold Scheibel and Ms. Norma Bowles of the ARCS Foundation (Achievement Rewards for College Scientists).

The goal of Project Brainstorm is to stimulate interest in science for children and young adults by emphasizing the function and importance of the brain. Students in the Interdepartmental Graduate and Undergraduate Neuroscience Programs devote a great deal of time to this outreach program. Teams of graduate and undergraduate students participate in the program and visit private and public schools in the Los Angeles area throughout the academic year. On a typical visit, a team of two predoctoral and two undergraduate students teach two classrooms of students at the elementary level. Through group participation,

interactive games, and hands-on exercises, the young students receive instruction in the basic science of the brain. With each visit, new techniques and strategies are learned for effectively reaching the children. Topics such as "What does the brain do? What is it made of? Does size matter? Are there sex differences in brains? What happens as your brain grows? What is good for your brain? and What is bad for your brain?" - are all topics the children love to explore. The teaching teams often get some surprisingly accurate answers from even the first- and second-graders!

Project Brainstorm participants carry a combined body of knowledge into the classroom with a few teaching props, a plastic model of the brain, one or two real human brains, skulls, and a spinal cord, and a few animal brains for comparison. The children respond with enthusiasm and show a great deal of interest in the brain. Hopefully this interest will survive, be nurtured, and grow until the children are able to pursue an educational path that will lead them to careers in science.

### **Interaxon**

Interaxon is an Undergraduate Neuroscience Educational Outreach Group founded at UCLA (<http://Interaxon.scienceontheweb.net>) and affiliated with the BRI. Interaxon was founded in 2006 by Shanna Fang, who was among the first group of students to take the NS195 Project Brainstorm course. Interaxon has grown and now consists of 30 or more members from freshmen to seniors, as well as some alumni, from a wide variety of majors encompassing not only the sciences (neuroscience, biology, integrative biology & physiology, molecular & cell biology) but also economics, philosophy, foreign language, and international development. Interaxon has been a huge success in the Los Angeles area, reaching out to a large number of 1st-12th grade student groups with as many as 6 presentations per quarter to as many as 150 students in a single visit to a school. Interaxon meets weekly to schedule their activities and practice their presentations for upcoming venues. They use approaches such as stations, brain models, props to talk about the brain in a simple way, as is done in Project Brainstorm, but with more senior graduate students and faculty supervising when human brains are shown. Interaxon excels in developing novel interactive games such as "Pirates of the Crrrrrrranium." Presentations have included: Human/Animal Brain Lab, Lobe Functions, Sensory Systems, Neurons/Neurotransmitters, Brain Injury, Learning and Memory, Neurological Disorders, Effects of Drugs on the Brain, and Alcohol and the Brain. Interaxon also holds career panels for high school students to encourage them to pursue higher education and interests towards careers in science and medicine.

Interaxon made numerous presentations during the 2011-2012 academic year. Venues included: Promoting Individuality Through the Arts (PITA), Brain Awareness Week (in collaboration with Project Brainstorm), Early Academic Outreach Program (EAOP) at UCLA, and a number of visits to schools within the Los Angeles United School District.

### **New Initiatives**

#### **NeuroCamp**

The first annual NeuroCamp was held in summer 2010. The inaugural NeuroCamp saw 10 students, drawn mainly from local high schools, enjoy a crash course of lectures and hands-on exercises covering many aspects of the fundamentals of neuroscience. Students spent several hours attending lectures by UCLA professors and mastering a wide variety of laboratory techniques crucial to modern science. This intensive two-week course exposed the students to the basics of neuroanatomy and molecular biology.

NeuroCamp is the brainchild of Dr. Joe Watson, the BRI's Associate Director for Outreach. Students interned in UCLA neuroscience labs for two weeks and met every afternoon in a teaching lab in Franz Hall for instruction from Professors Bill Grisham and Jim Boulter. Dr. Watson has plans to expand NeuroCamp with a third week covering brain imaging, and also to enroll more students from schools in disadvantaged areas. More: [http://www.bri.ucla.edu/bri\\_education/scienceoutreach.asp](http://www.bri.ucla.edu/bri_education/scienceoutreach.asp).

The BRI Outreach Program also sponsors science fairs off campus at local high schools and also at the state level. The BRI sponsors prizes at the Annual California State Science Fair, awarding multiple Neuroscience prizes for both the senior (grades 9-12) and junior (grades 6-8) levels. The BRI also sponsors prizes at the Los Angeles County Science Fair, and co-sponsors the LA BRAIN BEE (<http://www.losangelesbrainbee.com>). During the summer the BRI also places as many as 20 local high school students in research labs in the UCLA neuroscience community. The BRI will also sponsor winners of local high school fairs as part of the Summer Internship Program.

**NEUROSCIENCE NEWS**, the BRI's newsletter, provides a quarterly update on Institute news and events, including new members in the BRI, and graduate students in the Interdepartmental Program for Neuroscience, fellowships and awards currently available, and laboratory personnel and positions available in the UCLA neuroscience community.

**UCLA NEUROSCIENCE RESEARCH SEMINARS AND LECTURES** calendar is published bi-monthly and is a summary of all neuroscience-related lectures and activities on the entire campus.

**BRI ANNUAL NEUROSCIENCE CALENDAR** includes major national and international neuroscience conferences as well as UCLA neuroscience events throughout the year.



## BRAIN RESEARCH INSTITUTE FUNDING

### STATISTICAL DATA

1.	Number of Graduate and Postdoctoral Students Directly Contributing to BRI's Work	
(a)	Who are on payroll	0
(b)	Who participate through assistantships, traineeships, fellowships or otherwise	
(1)	BRI fellowships from ARCS Predoctoral	6
(2)	Interdepartmental Ph.D. Program in Neuroscience (including fellowships from ARCS)	
	Candidates for Ph.D.	78
	Candidates for M.D.-Ph.D.	14
(c)	Total number of graduate and postdoctoral students under supervision of BRI members	
(1)	Predoctoral	277
(2)	Postdoctoral	287
2.	Number of Faculty Members Actively Engaged in BRI's Research or Its Supervision	
	Total number of members	347
	Regular members	281
	Emeritus members	57
	Corresponding members	9
3.	Extent of Faculty Participation from Other Campuses	0
4.	Number of FTEs of Professional, Technical, Administrative, and Clerical Personnel Employed	
(a)	Positions supported by grants and contracts administered by the BRI	
(1)	Academic	0
(2)	Non-academic (administrative, technical, and clerical)	0
(3)	Total	0
(b)	Positions supported by UC 19900 budget	
(1)	Academic	0.21
(2)	Non-academic	4.55
(3)	Total	4.76

5. List of Publications Issued by the BRI
  - (a) Publications of individual members and BRI affiliates and programs (1495)
  - (b) BRI Annual Report  
(50 copies distributed free of charge)
  - (c) Joint Seminars in Neuroscience flyers  
(E-mail distribution only)
  - (d) UCLA Neuroscience Research Seminars and Lectures 2011 #13-21; 2012 #1-12  
(E-mail distribution only)
  - (e) Neuroscience News Vol. 20, # 3; Vol. 21, # 1-2  
(E-mail distribution and limited mailings (development, alumni, etc.))
  - (f) BRI Annual Calendar  
(Distribution to the neuroscience community, donors and guest speakers)

## RESEARCH AND TRAINING SUPPORT

Substantial support continued to be provided from the ARCS Foundation (Achievement Rewards for College Scientists) for scholarships given to a number of talented graduate students in neuroscience.

Evidence of a broadening base was also apparent in efforts to acquire additional funds for the endowment, the nucleus of which was formed by the Leslie Fund in 1974. The BRI continues to aim at achieving a large stabilizing fund in order to assure the potential productivity of which it is capable.

The amount and sources of extramural funding administered by the BRI are listed in the table below. These figures do not include gift and endowment principal. BRI members have additional research funding administered through their home departments.

### Brain Research Institute Contracts & Grants Administration Sources of Extramural Financial Support 2011-2012

Agency	Title	Total Direct Cost	Principal Investigator
National Institutes of Health			
National Institute of Child Health & Human Development HD-07228	Training Program in Neuroendocrinology, Sex Differences, and Reproduction	\$274,674	A. Arnold (Life Sciences)
National Institute of Neurological Disorders & Stroke NS07449	Training Program in Neural Repair	\$160,120	M. Chesselet (Neurology)
NS-07101	Cellular Neurobiology Training Program	\$194,656	T. O'Dell (Physiology)
National Institute of Mental Health			
MH 19384	Training Program in Molecular and Cellular Neurobiology	\$121,176	D. Glanzman (Integrative Biology & Physiology)
National Institute of General Medical Sciences			
GM 75776	Clinical Pharmacology Training	\$245,848	B. Levey (Pharmacology)
GM 08042	Medical Scientist Training Program	\$1,050,816	S. Smale (Microbiology, Immunology & Molecular Genetics)
Federal		\$2,047,290	
Total Funding Administered Through BRI		\$2,047,290	

## PUBLICATIONS

BRI Members' Total Number of Peer Reviewed Publications: 1495.

Total Number of Collaborative Publications with one or more BRI Member: 640.

To view publications by member please search PubMed at: <http://www.ncbi.nlm.nih.gov/pubmed/>.