

**BRAIN RESEARCH INSTITUTE**

**UNIVERSITY OF CALIFORNIA, LOS ANGELES**

**50th ANNUAL REPORT**

**July 1, 2010 to June 30, 2011**



## 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 339 members; 264 full members who are active faculty members, 66 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 2010-2011**

Number of Members	340
Number of Member Publications	1433
Collaborative Publications between two or more BRI members	607
Predoctoral Students under Supervision of BRI Members	297
Postdoctoral Students under Supervision of BRI Members	333
Total Funding Administered through the BRI Fiscal Office (BRI Training Grants)	\$ .97 million

**Annual Lectures and Prizes:**

H.W. Magoun Lecture presented by Alcino J. Silva.

Eva Mary Kavan Prize for Excellence in Research on the Brain recipient: Jamee Berg.

Charles Sawyer Distinguished Lecture presented by David Crews.

Samuel Eiduson Student Lecture presented by Satoru Miura.

Distinguished Postdoctoral Fellow in Neuroscience Lecture presented by Eiji Shigetomi.

**Guest Lectures**

The Joint Seminars in Neuroscience sponsored twenty-nine 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 75 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 22nd Annual Neuroscience Poster Session was held on November 30, 2010. 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 40th Annual Meeting of the Society for Neuroscience. The guest speaker this year was Connie L. Cepko, Ph.D., from the Hoard Hughes Medical Institute and Department of Genetics at Harvard Medical School in Boston, Massachusetts. She presented, “Cell Fate Determination in the Vertebrate Retina” 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.

**Neural Circuits Symposium**

The Neural Circuits Symposium was held on October 7, 2010. This day-long symposium aimed to highlight cutting edge developments in understanding neural circuits. Preventing or ameliorating diseases of the brain will rely on a detailed understanding of basic mechanism underlying circuit assembly, function and

maintenance, and this this symposium had an appeal beyond beyond basic scientists to clinical scientists interested in the etiology of diseases affecting the brain and translational scientists eager to apply basic knowledge to therapeutic approaches.

#### **UCLA – Oxford Summit on Parkinson’s Disease**

The UCLA Center for the Study of Parkinson’s Disease hosted a full day symposium, the “UCLA-Oxford Summit on Parkinson’s Disease” on November 11, 2010. The symposium speaker presentations were followed by a poster session.

#### **Center for Neurobiology of Stress (CNS) Basic and Translational Science Symposium**

The Center for Neurobiology of Stress held a “Basic and Translational Science Symposium” on February 17, 2011. This NIH-funded Center for Neurobiology of Stress is dedicated to support and foster synergistic interdisciplinary basic and translational research programs in the area of the mind/brain/body interactions in health and disease. The interdisciplinary and translational focus of the Center follows the guidelines established by the NIH Roadmap Initiative. The main Center theme is the interface between stress, pain and emotion, with a particular emphasis on sex-based differences of these interactions. Ultimately, the Center aims to contribute to a better understanding of the greater vulnerability of women to develop common affective, chronic, pain and stress related disorders. Additional information about the Center can be found on the Center’s website: [www.uclacns.org](http://www.uclacns.org).

#### **Synaptic Biophysics and Excitable Cell Physiology, A symposium in Honor of Yoshi Kidokoro**

A full-day symposium, “Synaptic Biophysics and Excitable Cell Physiology” was held on February 25, in honor of Yoshi Kidokoro. Dr. Kidokoro was a long-time collaborator with a number of UCLA faculty over many years. His scientific contributions were numerous and invaluable. The symposium was co-sponsored by the David Geffen School of Medicine Departments of Neurobiology, and Physiology, and the Brain Research Institute at UCLA, and the Semel Institute for Neuroscience & Human Behavior.

#### **The UCLA Brain Research Institute Integrative Center for Learning and Memory Tenth Annual Southern California Learning and Memory Symposium**

The Tenth Annual Southern California Learning & Memory Symposium was held on June 1, 2011. This symposium is a yearly meeting primarily for Southern California laboratories interested in plasticity and learning. The annual symposium is supported by the Departments of Integrative Biology & Physiology, Neurobiology, Neurology, Physiology, the Semel Institute and the Brain Research Institute, UCLA.

#### **18th 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. The symposium brought together students and faculty for a day of short presentations. Since then, the symposium has rotated between UCSD, Caltech, UCI, UCLA, USC and UCR. This year, the 18<sup>th</sup> Annual Joint Symposium on Neural Computation was held at the University of California, San Diego on June 4, 2011.

#### **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 1400 users representing over 250 labs at UCLA, LABioMed, Harbor-UCLA and Cedars Sinai Health Center as well as several industry laboratories (e.g. Nestlé, NanoH2O, Sonendo Inc., Agensys Inc.). 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. 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 3-5) how to use the joined facility's confocal microscopes. 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. Laurent Bentolila is the scientific director of the facility.

Dr. Schibler has been a member of UCLA's Laser Safety committee responsible for reviewing and setting laser safety policy at UCLA.

The combined facility in conjunction with the Laeica Microsystems hosted one distinguished lecture on light microscopy research during the past year; Dr. Jeff Lichtman from Harvard, presented "the Future of Connectomics" on December 15, 2010. The combined facility hosted the following tours of the facility during the current period: 30 undergraduate researchers from California State University Los Angeles on August 4, 2010; The President and CEO of the US Russia Foundation for Economic Advancement and the Rule of Law (USRFL), October 11, 2010; Director of Korea Photonics Technology Institute and 2 additional guests. October 27, 2010; Delegation from RUSNANO, the non-profit state run organization for Nanotechnology in Russia November 18, 2010; Attendees of the CNSI 10<sup>th</sup> Anniversary Celebration including former governor Gray Davis, December 7, 2010; 15 students from the UCLA class in Molecular Pharmacology, February 10, 2011; Several first year Ph.D. students from Bristol University, United Kingdom, April 5, 2011; Professor M.K. Wu, Director General of Taiwan National Nanoscience & Nanotechnology Program, May 20, 2011; and Mr. Dick Neilly, Gooch & Hosego (California) LLC, an industrial glass polishing firm, one of our industry users.

The Facility also acts as a bridge between UCLA researchers and the vendors of imaging technologies. In this capacity during the 2010-2011 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; 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
Brain Tumor Affinity Group	Linda Liau and Robert Prins
Circadian and Sleep Medicine	Christopher Colwell
Computational Neuroscience	Ladan Shams
Immunology in Neuroscience	James Waschek
Inner Ear	Felix Schweizer
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
Neuroimaging/Cognition*	Susan Bookheimer
<u>Affinity Group</u>	<u>Leader(s)</u>
Neuronuclear Imaging Affinity Group	Daniel Silverman
Neurophysics & Neuroengineering	Mayank Mehta
Neuroscience History	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 2011

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 the Interdepartmental Graduate Program for Neuroscience, "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 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 2010-2011, there were 340 members in the Brain Research Institute; 274 full members, 56 emeritus members, and 10 corresponding members. These faculty members represent 27 academic departments, 18 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, 1 in the School of Nursing, and 1 in the School of Public Health. 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	Mood disorder
Anne M. Andrews, Ph.D.	<b>Professor of Psychiatry &amp; Biobehavioral Sciences</b>	Understanding how the serotonin neurotransmitter system modulates complex behaviors including anxiety, mood, stress responsiveness, and learning and memory.
Liana G. Apostolova, M.D.	Assistant Professor of Neurology	Neuroimaging biomarkers for Alzheimer's and Parkinson's disease
Arthur P. Arnold, Ph.D.	Distinguished Professor of Integrative Biology & Physiology; Director, Laboratory of Neuroendocrinology, Brain Research Institute	Factors causing sex differences in physiology and disease, including effects of gonadal hormones and cell-autonomous actions of sex chromosome genes
Bernard W. Balleine, Ph.D.	Professor of Psychology	Learning and motivation, specifically the neural bases of instrumental conditioning
Utpal Banerjee, Ph.D.	Professor and Chair of Molecular, Cell & Developmental Biology; Professor of Biological Chemistry	<i>Drosophila</i> hematopoiesis; <i>Drosophila</i> eye development; zebrafish hematopoiesis

<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	PET molecular imaging in dementias
<b>George Bartzokis, M.D.</b>	Professor of Psychiatry and Biobehavioral Sciences	Brain imaging of neuropsychiatric disorders
<b>Ulrich Batzdorf, M.D.</b>	Professor of Neurosurgery; Director of Spine Surgery	Chiari malformations and Syringomyelia
<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	Cognitive phenomics, neuroinformatics, and neuroimaging
<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>	Assistant Professor of Neurology	Structure-activity relationship studies and structure-based rational drug design for protein misfolding and aggregation diseases including Alzheimer's and Parkinson's diseases

Douglas L. Black, Ph.D.	Professor of Microbiology, Immunology & Molecular Genetics; Investigator, Howard Hughes Medical Institute	Regulation of pre-mRNA splicing in differentiated cells, particularly in neurons, RNA metabolism in mammalian cells, structure and function of hnRNP complexes
Hugh T. Blair, Ph.D.	Associate Professor of Psychology (Behavioral Neuroscience)	Fear conditioning, memory representations, neural coding, and neural oscillations
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 retinal photoreceptors and pigment epithelium in health and disease
Susan Y. Bookheimer, Ph.D.	Joaquin Fuster Professor of Cognitive Neuroscience, Department of Psychiatry and Biobehavioral Sciences	Functional magnetic resonance imaging, language, memory
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
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 biological psychiatry and neuroscience
Nicholas C. Brecha, Ph.D.	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	Addiction; tobacco; brain imaging
<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 basis of cortical computations and temporal processing
<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	The cellular and molecular mechanisms of neural repair, such as axonal sprouting and neurogenesis, after stroke and brain injury
<b>Ellen M. Carpenter, Ph.D.</b>	Professor of Psychiatry and Biobehavioral Sciences	Expression and activity of components of the reelin signaling pathway in mouse models of autism and breast cancer

<b>Maria G. Castro, Ph.D.</b>	Professor of Medicine, and Molecular and Medical Pharmacology	Gene therapy
<b>Scott H. Chandler, Ph.D.</b>	Professor of Neuroscience, Department of Integrative Biology & Physiology; Chair, Interdepartmental Undergraduate Program for Neuroscience	Neuronal mechanisms controlling movement
<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 neural repair and movement disorders 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- osteoimmunology.
<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	Biochemistry of aging
<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 properties of RIN1

<b>Christopher S. Colwell, Ph.D.</b>	Professor of Psychiatry and Biobehavioral Sciences	Circadian rhythms and sleep
<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>	Joanne and George Miller and Family Endowed Chair in Depression Research; Associate Professor of Psychiatry and Biobehavioral Sciences	Neural systems approach in mood and cognitive disorders, and translational work on biomarkers of treatment response in depression
<b>Edwin L. Cooper, Ph.D., Sc.D.</b>	Distinguished Professor of Neurobiology	Neuroimmunology; complementary and alternative medicine
<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>	Associate Professor of Psychiatry and Biobehavioral Sciences	Neuroimaging of language, social cognition, and developmental disorders
<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>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	Neural and mechanical determinants of ocular movements and binocular alignment



<b>Joseph J. DiStefano, III, Ph.D.</b>	Distinguished Professor of Computer Science, Medicine, and Biomedical Engineering	Dynamic systems biology
<b>Bruce H. Dobkin, M.D.</b>	Professor of Neurology; Medical Director, Neurologic Rehabilitation and Research Unit	Functional imaging and outcome measures of motor recovery after stroke, spinal cord injury, multiple sclerosis, brain injury and peripheral neuropathy
<b>Hong-Wei Dong, M.D., Ph.D.</b>	Assistant Professor of Neurology	Functional neural circuits and genetic mechanisms underlying psychological stress
<b>Lars Dreier, Ph.D.</b>	Assistant Professor of Neurobiology	Molecular mechanisms of synapse formation and function in <i>C. elegans</i>
<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>	Associate Professor of Human Genetics	Molecular and cellular mechanisms underlying neural development
<b>Michael S. Fanselow, Ph.D.</b>	Professor of Psychology, and Psychiatry and Biobehavioral Sciences	Neurobiology of learning, memory, motivation 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	Mass spectrometry and the processes of cellular communication
<b>Jack L. Feldman, Ph.D.</b>	Distinguished Professor of Neurobiology	Neural control of movement
<b>Jamie D. Feusner, M.D.</b>	Assistant 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	Development of motor control systems and myelinogenesis
<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>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	Neural circuits and behavioral algorithms for sensory-motor integration and multisensory processing in <i>Drosophila</i>
<b>Denson G. Fujikawa, M.D.</b>	Clinical Professor of Neurology	Neuronal death
<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 treatment of ataxia-telangiectasia; the mechanisms and treatment of human sensitivity to ionizing radiation
<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	Neurogenetics: functional genomics, the genetic basis of human cognitive functioning, autism, and the neurodegenerative dementias
<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 <i>Aplysia</i>
<b>Vay Liang W. Go, M.D.</b>	Distinguished Professor of Medicine (Digestive Diseases)	Neuro-hormonal integration of metabolism
<b>Fernando Gómez-Pinilla, Ph.D.</b>	Professor of Neurosurgery, and Integrative Biology & Physiology	Mechanisms of brain plasticity and repair
<b>Michael B. Gorin, M.D., Ph.D.</b>	Harold and Pauline Price Professor of Ophthalmology; Professor of Human Genetics	Neural pathways and cellular targets related to light-associated allodynia (photophobia); molecular genetics of hereditary ocular 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	Behavioral neuroscience
<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. Gylys, Ph.D., R.N.</b>	Associate Professor, School of Nursing	Mechanisms underlying synapse loss in Alzheimer's disease
<b>Ronald M. Harper, Ph.D.</b>	Distinguished Professor of Neurobiology	Neural mechanisms underlying cardiovascular and respiratory control during sleep and waking states
<b>Neil G. Harris, Ph.D.</b>	Associate Professor of Neurosurgery	Traumatic brain injury and mechanisms of neural plasticity/recovery of function including neurogenesis
<b>Volker Hartenstein, M.D., Ph.D.</b>	Professor of Molecular, Cell & Developmental Biology	<i>Drosophila</i> brain development and digital reconstruction; stem cells and their niches in invertebrate model systems
<b>Leif A. Havton, M.D., Ph.D.</b>	Associate Professor of Neurology	Neural repair after spinal cord injury
<b>Chih-Ming Ho, Ph.D.</b>	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
<b>Larry F. Hoffman, Ph.D.</b>	Adjunct Professor of Surgery (Head & Neck)	Sensory neuroscience, particularly in the inner ear vestibular system; systems and computational neuroscience; neural repair; sensory learning
<b>Joshua A. Hoffs, M.D.</b>	Associate Clinical Professor of Psychiatry and Biobehavioral Sciences	Mind-brain-integration
<b>Keith J. Holyoak, Ph.D.</b>	Distinguished Professor of Psychology	Cognitive science and neuroscience of reasoning

<b>Carolyn R. Houser, Ph.D.</b>	Professor of Neurobiology	GABA system, neuronal plasticity, and epilepsy
<b>David A. Hovda, Ph.D.</b>	Professor of Neurosurgery, and Molecular and Medical Pharmacology	Traumatic brain injury
<b>Sherrel Howard, Ph.D.</b>	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	Drug abuse treatment process and outcome; life course drug use
<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	Brain imaging; neural systems for social cognition
<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>Martin Y. Iguchi, Ph.D.</b>	Professor and Chair, Community Health Sciences, School of Public Health	HIV, drug abuse treatment and prevention
<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	Heritable 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 determinants of cognitive and executive functions; mechanisms of action of psychotherapeutic drugs; novel strategies for modulating cognitive deficits in schizophrenia, addiction, and AD/HD; animal models for psychiatric disorders
<b>Shafali Spurling Jeste, M.D.</b>	Assistant Professor of Psychiatry and Biobehavioral Sciences, and Neurology	Electrophysiological biomarkers in autism spectrum disorders

Jack W. Judy, Ph.D.	Associate Professor of Electrical Engineering	Neural prostheses and neural micro-instruments produced with microelectromechanical systems (MEMS) technologies
H. Ronald Kaback, M.D.	Professor of Physiology	Structure and function of lactose permease and other MFS transporters
Bruce L. Kagan, M.D., Ph.D.	Professor of Psychiatry and Biobehavioral Sciences	Neurotoxicity caused by channel forming toxins
Patricia A. Kapur, M.D.	Professor and Chair, Department of Anesthesiology; Ronald L. Katz Chair	Anesthesiology
Daniel L. Kaufman, Ph.D.	Professor of Molecular and Medical Pharmacology	Autoimmune disease, neurodevelopment
Baljit S. Khakh, Ph.D.	Associate Professor of Physiology, and Neurobiology	Astrocyte biology and biophysics as well as fast ATP signaling
Barbara J. Knowlton, Ph.D.	Professor and Vice Chair for Undergraduate Programs, Department of Psychology	Cognitive neuroscience
Carla M. Koehler, Ph.D.	Professor of Chemistry and Biochemistry	Molecular basis of mitochondrial diseases
Brian J. Koos, M.D., Ph.D.	Professor and Vice Chair (Academic Affairs) of Obstetrics and Gynecology	Fetal behavior and cardiovascular responses to hypoxia
Harley I. Kornblum, M.D., Ph.D.	Professor of Psychiatry & Biobehavioral Sciences, Molecular & Medical Pharmacology, and Pediatrics	Neural stem cells, development, repair and brain tumors
David E. Krantz, M.D., Ph.D.	Associate Professor of Psychiatry and Biobehavioral Sciences	Neurotransmitter transport in <i>Drosophila</i>
Carol A. Kruse, Ph.D.	Adjunct Professor of Neurosurgery	Immune and gene therapy for brain tumors
Ira Kurtz, M.D.	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
Jennifer S. Labus, Ph.D.	Adjunct Assistant Professor of Psychiatry and Biobehavioral Sciences	Dynamics of neural networks underlying functional pain disorders and stress neurobiology

<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	Molecular biology of adult human neural stem cells and therapeutic use for neurological 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. Liao, M.D., Ph.D.</b>	Professor of Neurosurgery	Brain tumor molecular biology, neuro-immunology and stem cells
<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	Brain imaging (PET, MRI) in studies of drug abuse
<b>Pedro R. Lowenstein, M.D., Ph.D.</b>	Professor of Medicine, and Molecular and Medical Pharmacology	Gene therapy
<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	Genetic dissection of complex traits
<b>Karen M. Lyons, Ph.D.</b>	Professor of Orthopaedic Surgery, and Molecular, Cell & Developmental Biology	Bone morphogenetic proteins (BMP); skeletal development
<b>Paul M. Macey, Ph.D.</b>	Assistant Professor, School of Nursing	Central control of sleep and breathing, and changes in CNS with sleep-disordered breathing
<b>Nigel T. Maidment, Ph.D.</b>	Professor of Psychiatry and Biobehavioral Sciences	Neurochemical basis of drug addiction; mechanisms of neurodegeneration in Parkinson's and Huntington's diseases
<b>Kelsey C. Martin, M.D., Ph.D.</b>	Professor and Chair of Biological Chemistry; Professor of Psychiatry and Biobehavioral Sciences	Cell biology of learning-related synaptic plasticity
<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>Gary W. Mathern, M.D.</b>	Professor of Neurosurgery	Microanatomic changes in hippocampal epilepsy
<b>Emeran A. Mayer, M.D.</b>	Professor of Medicine, Physiology, and Psychiatry and Biobehavioral Sciences; Director, Oppeneheimer Family Center for Neurobiology of Stress; Associate Director, CURE: Digestive Diseases Research Center	Interoception at the interface between stress, pain and emotions in health and disease
<b>John C. Mazziotta, M.D., Ph.D.</b>	Professor and Chair, Department of Neurology; Professor Molecular & Medical Pharmacology, and Radiological Sciences; Director, Brain Mapping Center	Brain Mapping: Develop, refine, validate and distribute tools and data to measure brain structure and function in both 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, genetics, and neurobiology of pediatric neuropsychiatric disorders
<b>Dennis J. McGinty, Ph.D.</b>	Adjunct Professor of Psychology; Chief, Neurophysiology Research, Sepulveda VAMC	Hypothalamic control of sleep; effects of sleep on brain function
<b>Mayank R. Mehta, Ph.D.</b>	Associate Professor of Physics & Astronomy, Neurology, and Neurobiology	Experimental and computational study of neural ensemble activity and learning and memory
<b>William P. Melega, Ph.D.</b>	Professor of Molecular and Medical Pharmacology	Neuroprotection and neurorestoration strategies for Parkinson's disease
<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 inhibition 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>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 physiology 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 pathways controlling neural stem cell and progenitor cell differentiation
<b>Marc R. Nuwer, M.D., Ph.D.</b>	Professor of Neurology; Department Head, Clinical Neurophysiology	Development of brain monitoring for surgery and critical care units; public policy in professional practice
<b>Mary-Frances O'Connor, Ph.D.</b>	Assistant Professor of Psychiatry & Biobehavioral Sciences	Affective neuroscience; psychoneuroimmunology
<b>Thomas J. O'Dell, Ph.D.</b>	Professor and Executive Vice Chair of Physiology	Synaptic plasticity, learning and memory
<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	Molecular physiology of ion channels and mechanisms of arrhythmias in heart failure

<b>Richard W. Olsen, Ph.D.</b>	Distinguished Professor of Molecular and Medical Pharmacology, and Anesthesiology	Structure and function of GABA-A receptors, role in epilepsy and alcoholism, and in the mechanism of action of CNS drugs including ethanol, anesthetics, anxiolytics, and anticonvulsants
<b>Thomas Otis, Ph.D.</b>	Professor and Vice Chair of Neurobiology	Optical methods to study synapse and circuit function; cellular neurophysiology of normal and diseased cerebellum
<b>Diane M. Papazian, Ph.D.</b>	Professor of Physiology	Research focus is on the voltage-gated ion channels that confer electrical excitability on neurons and the consequences of changes in channel activity for neuronal firing, circuit function, behavior and neuronal viability during development and aging
<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; Associate Director of Research, Director, Biobehavioral Core Facility, Department of Psychiatry, Cedars-Sinai Medical Center	Animal models of neuropsychiatric disorders
<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	Cell migration errors in developing <i>reeler</i> spinal cord cause nociceptive defects; axon regeneration following complete spinal cord transection and olfactory ensheathing glial transplantation
<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>	Assistant Professor of Neurology, and Neurobiology	The assembly and plasticity of cortical circuits in health and disease
<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	T lymphocyte-mediated immune surveillance for malignant 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)	Substance use disorder and evaluation; international training research
<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, pharmacology and neuroimaging methods
<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>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	Neuromuscular plasticity
<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	Phenomics
<b>Alvaro Sagasti, Ph.D.</b>	Assistant Professor of Molecular, Cell & Developmental Biology	Development, regeneration and function of peripheral sensory axons in zebrafish

<b>Albert Sattin, M.D.</b>	Associate Clinical Professor of Psychiatry and Biobehavioral Sciences; Chief, Antidepressant Neuropharmacology Laboratory, West Los Angeles VAMC	The roles of TRH and related peptides as potential treatments for major depression, PTSD and obesity
<b>Arnold B. Scheibel, M.D.</b>	Distinguished Professor of Neurobiology, and Psychiatry and Biobehavioral Sciences	Schizophrenia
<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	Avian behavioral neuroendocrinology, neural steroid synthesis and actions
<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 evolution and control, hypocretin (orexin) function in normal animals and in narcolepsy
<b>Alcino J. Silva, Ph.D.</b>	Professor of Neurobiology, Psychiatry & Biobehavioral Sciences, and Psychology	Molecular and cellular mechanisms of learning and memory
<b>Daniel H. Silverman, M.D., Ph.D.</b>	Assistant Professor of Molecular and Medical Pharmacology; Head Neuromuscular Imaging Section, Ahmanson Biological Imaging Division; Associate Director, Alzheimer's Disease Center Imaging Core	Neurological bases of memory, mood, and other aspects of cognitive function and behaviors

<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, Center on Aging; 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	Neurogenomics and neurogenetics
<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	Neural injury and repair
<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 alcoholism
<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	To visualize static and dynamic changes of macromolecular complexes regulating heart and vascular signaling in a pressure overload model of heart failure

<b>Catia Sternini, M.D.</b>	Professor of Medicine, and Neurobiology	Trafficking and signaling of G-protein coupled receptors in the enteric nervous system, “the brain in the gut,” 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>	Associate Professor of Psychiatry and Biobehavioral Sciences, and Molecular and Medical Pharmacology	Epigenetic regulation of stem cell differentiation and neuronal function
<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	Neurogastroenterology
<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	Biology and biochemistry of human neurodegenerative disorders
<b>Bruce Teter, Ph.D.</b>	Adjunct Associate Professor of Medicine	Genetic (apoE) mechanisms of neuroplasticity in the brain relevant to Alzheimer’s disease, and development of the drug therapy curcumin for AD and longevity
<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	Neuroplasticity after spinal cord injury and rehabilitation
<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 Center; Associate Dean, David Geffen School of Medicine; Associate Vice Provost of Informatics	Visualization of brain structure and function
<b>Ligia Toro, Ph.D.</b>	Professor of Anesthesiology, and Molecular and Medical Pharmacology	Elucidate K-channel signaling networks in the vascular and cardiac systems in health and disease
<b>Nim Tottenham, Ph.D.</b>	Assistant Professor of Psychology	Developmental affective neuroscience; human emotional development and associated neurobiology
<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 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	Genetics of sex 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	Neuropathologic studies of brain aging, vascular and parenchymal dementias; morphologic substrates of intractable epilepsy in children
<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 extrasynaptic GABA(A) receptors
<b>James A. Waschek, Ph.D.</b>	Professor of Psychiatry and Biobehavioral Sciences	Neuropeptide actions in development, injury, brain tumors, and neural systems
<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	Neurobiology and neurophysiology of mouse models for neurodegenerative diseases: Parkinson's disease and Alzheimer'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	Social influences on neural plasticity
<b>Julian P. Whitelegge, Ph.D.</b>	Adjunct Professor of Psychiatry and Biobehavioral Sciences	Biomedical mass spectrometry and proteomics of human health

<b>Peter C. Whybrow, M.D.</b>	Director, Semel Institute for Neuroscience and Human Behavior; Judson Braun Distinguished Professor and Executive Chair, Department of Psychiatry and Biobehavioral Sciences, David Geffen School of Medicine at UCLA; Physician-in-Chief, Resnick Neuropsychiatric Hospital	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	Research focuses on the evaluation of mouse models of dementia and amyotrophic lateral sclerosis
<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	Brain mapping and neuromodulation studies 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	Regulation of neural plasticity by aging and drug addiction
<b>Hong Yang, M.D., Ph.D.</b>	Research Physiologist, Department of Medicine (Digestive Diseases)	Brainstem autonomic regulation in endocrine diseases
<b>Xiangdong William Yang, M.D., Ph.D.</b>	Associate 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	Predicting therapy outcome in glioblastoma and stroke
<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	Hemispheric specialization in memory and facial asymmetry and beauty
<b>Eran Zaidel, Ph.D.</b>	Professor of Psychology (Behavioral Neuroscience and Cognition)	Cognitive neuroscience
<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 2010-2011 academic year, six new members joined the BRI:

Anne M. Andrews, Ph.D.	Professor of Psychiatry & Biobehavioral Sciences
Shafali Spurling Jeste, M.D.	Assistant Professor of Psychiatry & Biobehavioral Sciences, and Neurology
Carol A. Kruse, Ph.D.	Adjunct Professor of Neurosurgery
Nim Tottenham, Ph.D.	Assistant Professor of Psychology
Martin Wallner, Ph.D.	Assistant Professor of Molecular & Medical Pharmacology
David S. Williams, Ph.D.	Professor of Ophthalmology, and Neurobiology

## 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
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
Marcel Verzeano, M.D.	Emeritus Professor of Neurobiology and Behavior, University of California, Irvine

## 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. In collaboration with the UCLA Louise M. Darling Biomedical Library's History & Special Collections for the Sciences division, the NHA completed the initial processing of the 1000 linear foot ACNP (American College of Neuropsychopharmacology) History of Neuropsychopharmacology Archives, which were received in 2008 and have continued to grow. The collection consists of records of the ACNP, manuscript collections of 20 individual scientist and clinician members, and more than 200 videotaped oral history interviews. The NHA 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>).

The NHA's archival website, "Transforming Tragedy," on the history of public mental health in California and Los Angeles County, has continued to develop (see it at <http://archive.semel.ucla.edu/DMH>). This year, the Los Angeles County Department of Mental Health approved a 2-year program of visits to clinics in each of the Service Areas of the County to collect documentary video footage of clinic programs and activities and interviews with clinicians and clients. Edited videos will be posted to the website, but all raw footage will be saved in the archive. In 2010-11, we visited Service Areas 1, 4, 5, and 7, and will visit 2, 3, 6, and 8 in 2011-12. The website is also adding 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; interpretive essays on the history of public mental health in California.

In conjunction with the Charles Drew School of Medicine Library and UCLA-Harbor, NHA received a two-year grant from the National Library of Medicine in April 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 will be digitized and presented on a project website which will feature personal stories and provide training tools for communities nationwide.

### **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), with the participation this year of Drs. Elizabeth Bromley and Marcia Meldrum. 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.



Health Sciences graduate student Sarah Starks will be completing her dissertation, “Cost and Effectiveness of Full Service Partnerships for Severe Mental Illness,” this year. Dr. Braslow is continuing to mentor the work of history graduate students Brad Fidler on the antipsychotic drug olanzapine, 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 2010-11, Dr. Braslow and Dr. Meldrum collected interview data on the implementation of “Prevention and Early Intervention” evidence-based practices in County mental health with the assistance of postdoctoral fellow Dr. Jack Friedman and on the use of consumer workers in County clinics, with the assistance of postdoctoral fellow Dr. Eri Nakagami. 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 will be participating in 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 will be invited to present their work-in-progress and initial drafts of conference presentations.

### **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. The NHA has submitted a grant to the NEH for further development of the LAC-DMH website.

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 \$215,000 in contracts with the Department of Mental Health. We have used these funds to develop the “Transforming Tragedy” website (described above).

Collaborations: Dr. Braslow and Russell Johnson will continue to collaborate with the ACNP, and are developing a long-term proposal for collaboration with LAC-DMH.

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 five hundred students. Through its continually growing list of course offerings, it now serves a total of over six hundred 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 95 students presented posters and nine 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. Additionally, the major requires a Neuroanatomy Laboratory, taught by the 1997 Luckman Distinguished Teaching Award winner and past BRI Director, Arnold Scheibel, M.D., of the Department of Neurobiology.

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, Physiology, 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 500 students enrolled in the program; 120 students earned their Bachelor of Science degree, and 15 students received a minor from the undergraduate neuroscience program in 2011; nearly 1450 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 297 graduate students engaged in Institute activities during 2010-2011. 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 2010-2011, 89 graduate students participated in the program, 16 of whom were new students selected from over 200 applicants. Since its inception, the Program has granted 281 degrees, of which 18 were awarded during the 2010-2011 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 2010-2011, sixteen students participated in this program.

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

In addition to the training programs described above, five 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).

### 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 2010-2011.

### 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 2010-2011.

### 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 2010-2011 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 2010-2011, 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 2010-2011, 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.

## Ph.D. Degrees Awarded

During the 2010-2011 academic year, eighteen students were granted Ph.D. degrees in neuroscience. Students receiving their degrees, their mentors, and the titles of their dissertations include:

Allen Ardestani

Mentor: Joaquin Fuster

“Electrophysiology and Hemodynamics of Memory Networks”

Joseph Cohen

Mentor: James Waschek

“Pituitary Adenylyl Cyclase Activating Polypeptide (PACAP), Protein Kinase A (PKA) and Sonic Hedgehog (Shh) Signaling Pathway Interactions in Cerebellar and Tumor Development and in Adult Neural Stem Cells”

Christopher Culbertson

Mentor: Arthur Brody

“Understanding and Treating Cue-Induced Drug Craving in Substance-Dependent Individuals”

Jesse Cushman

Mentor: Michael Fanselow

“The Role of the Dentate Gyrus in the Formation of Cognitive Maps: Insights from Pavlovian Fear Conditioning in Genetically Modified Mice”

Nathan Hageman

Mentor: Arthur Toga

“Diffusion Tensor Imaging Tractography: Methodology, Validation, and Clinical Applications”

Jason Hauptman

Mentor: Michael Levine

“mTOR Modulation of Cortical Excitability”

Dylan Hirsch-Shell

Mentor: Larry Hoffman

“Information Transmission in Primary Afferent Neurons of the Vestibular System”

April Ho

Mentor: Paul Thompson

“Effects of Cardiovascular Health Factors on Brain Structure”

Tim Indersmitten

Mentor: Thomas O’Dell

“N-Methyl-D-Aspartate Receptor Subunit NR2A and NR2B Signaling during Synaptic Plasticity”

Alexander Korb

Mentor: Andrew Leuchter

“Investigating Rostral Anterior Cingulate Cortex in Major Depression: An EEG Source Localization Approach”

John Kuo

Mentor: Paul Micevych

“Membrane Estrogen Receptor-Alpha Interacts with Metabotropic Glutamate Receptor 1a to Stimulate Intracellular Calcium Release and Progesterone Synthesis in Female Hypothalamic Astrocytes”

Jeremy Miller

Mentor: Daniel Geschwind

“Species-, Cell-Type-, and Region-Specific Transcriptional Changes Associated with Alzheimer's Disease Progression”

Justine Overman

Mentor: S. Thomas Carmichael

“A Novel Role for Ephrin-A5 in Axonal Sprouting, Recovery, and Activity-Dependent Plasticity After Stroke”

Angela Rizk-Jackson

Mentor: Russell Poldrack

“Developing Disease-State Biomarkers using Multivariate Pattern Analysis of Neuroimaging Data”

Ezra Rosen

Mentor: Daniel Geschwind

“Functional Genomic Studies of Progranulin Deficiency”

Tara Weitz

Mentor: William Yang

“Conditional BAC Transgenic Mouse Models of Human Alpha-Synuclein Multiplication to Dissect Pathogenic Mechanisms of Parkinson's Disease”

Kellen Winden

Mentor: Daniel Geschwind

“Systems Level Analysis of Neuronal Transcriptome Organization and Transcriptional Dysregulation in Epilepsy”

Ghiam Yamin

Mentor: David Teplow

“Characterization of Diagnostic Agents, Self-Assembly Inhibitors, and Hippocampal Transcriptional Changes Specific to Amyloid Beta-Protein Assemblies Linked to Alzheimer's Disease”



2010-2011 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  
Karen Gylys  
Frank Krasne  
Michael Levine, Chair  
Kelsey Martin  
Richard Olsen  
Thomas Otis  
Diane Papazian  
Alvaro Sagasti  
Suzie Vader (NSIDP Student Affairs Officer)  
Eric Vilain  
Jamee Bomar (Student Representative, year 2)  
Patrick Chen (Student Representative, year 1)

Graduate Neuroscience Interdepartmental Program Neuroadmissions Committee

James Bisley  
S. Thomas Carmichael  
David Glanzman, Chair  
Edythe London  
Mayank Mehta  
James Waschek  
Kelley O'Donnell (NSIDP Student Representative)  
Sam Torrisi (NSIDP Student Representative)

Graduate Neuroscience Interdepartmental Program Curriculum Committee

Aaron Blaisdell  
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Neil Harris  
Fred Sabb  
Florence Roussotte (Student Representative)

Graduate Neuroscience Interdepartmental Program Advising Committee

Susan Bookheimer  
David Hovda  
David Krantz, Chair

Graduate Neuroscience Interdepartmental Program Executive Committee

Chris Evans  
David Glanzman  
Karen Gylys  
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

Katherine Narr (Systems, year 1)  
Alvaro Sagasti (Molecular, year 2)  
Joshua Trachtenberg (Cellular, year 1)

Graduate Neuroscience Interdepartmental Program Student Retreat Committee

Andrew Brumm  
Erin Gray  
Anna Parievsky  
Chris Park  
Besim Uzgil

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
Daniel Aharoni	Mehta	Physics & Astronomy
Reem Ajaj	Chiappelli	Oral Biology
David Akhavan	Mischel	MSTP/School of Medicine
Lital Alder	Clarke	Biochemistry and Molecular Biology
Daya Alexander*	Krantz	Neuroscience
Qais Al-Hadid	Clarke	Biochemistry and Molecular Biology
Erik Anderson	Black	Biochemistry and Molecular Biology
Amber Ankowski	Blaisdell	Psychology
Jacob Aptekar*	Frye	Neuroscience/MSTP
Victoria Arch	Narins	Ecology and Evolutionary Biology
Allen Ardestani*	Fuster	Neuroscience/Neuroengineering
Scott Arno*	Mody	Neuroscience
James Ashenhurst*	Jentsch	Neuroscience
Hikmat Assi	Liau	Molecular & Medical Pharmacology
Aida Attar*	Bitan	Neuroscience
Meg Babakhanian	Grundfest	Biomedical Engineering
Guadalupe Bacio	Ray	Psychology (Clinical Area)
Kavitha Balaji	Colicelli	Biological Chemistry
Brandon Barakat	Shams	Psychology (Behavioral Neuroscience)
Andre Barkhordarian	Chiappelli	Oral Biology
Emily Barkley-Levenson	Galván	Psychology (Cognitive Area)
Vanessa Rodriguez Barrera	Fanselow	Psychology (Behavioral Neuroscience)
Julie Barske	Schlinger	Ecology and Evolutionary Biology

<u>Trainee</u>	<u>Sponsor</u>	<u>Department</u>
Stephanie Be	DiStefano	Biomedical Engineering
Neha Bejwa	Grundfest	Biomedical Engineering
David Bennett	Grundfest	Electrical Engineering
Sean Berquist	Metzner	Integrative Biology & Physiology
Chaitali Biswas	Giza	Biomedical Engineering
Jamee Bomar*	Geschwind	Neuroscience
Laurie Brenner	Bearden	Psychology (Clinical)
Lisa Brooks*	Krantz	Neuroscience
Jesse Brown*	Bookheimer	Neuroscience
Nik Brown	DiStefano	Computer Science
Andrew Brumm*	Carmichael	Neuroscience
Lauren Burakowski	Galván	Psychology (Developmental Area)
Zachary Burkett	White	Integrative Biology & Physiology
Kelly Cadenes	Yang, X.J.	Molecular Biology
Chaochao Cai	Geschwind	ACCESS
Jeffrey Cantle*	Yang, X. William	Neuroscience
Huan Cao	Andrews	Chemistry
Joana Capote	Vergara	Molecular, Cellular & Integrative Physiology
Kelley Cavanaugh	Minor	Psychology
Audrey Chen	Krantz	Neurobiology
Dawn Chen	Holyoak	Psychology
Patrick Chen*	Martin	Neuroscience
Weixiang Chen	Buonomano	ACCESS
Zhiping Chen	Mehta	Physics & Astronomy
Guo Cheng	Sun, H.	Molecular, Cellular & Integrative Physiology
Harry Ching	Liau	School of Medicine

<u>Trainee</u>	<u>Sponsor</u>	<u>Department</u>
Jaehoon Choe*	Edgerton	Neuroscience
David Chow	Trachtenberg	Neurobiology
Dawnis Chow	Frye	Molecular, Cellular & Integrative Physiology
Amy Christensen	Micevych	Neurobiology
Leo Christov Moore*	Bookheimer	Neuroscience
Joseph Cohen*	Waschek	Neuroscience
Michael Condro	White	Molecular, Cellular & Integrative Physiology
Kelly Courtney	Ray	Psychology (Clinical Area)
Kristen Coveleskie	Mayer	ACCESS
Cortney Crego*	Silva	Neuroscience
Katy Cross*	Iacoboni	Neuroscience/MSTP
Caroline Crump	Zaidel, E.	Psychology (Behavioral Neuroscience)
Louie Cruz	Guo, M.	Physiology
Chris Culbertson*	Brody	Neuroscience
Najwa Culver	Fanselow	Psychology (Clinical Area)
Jesse Cushman*	Fanselow	Neuroscience
Anthony Daggett*	Yang, X. W.	Neuroscience/MSTP
Jeff Dang	Iguchi	Community Health Sciences
Bo Deng	Tidball	Molecular, Cellular & Integrative Physiology
Jun Deng	Sun, H.	Molecular, Cellular & Integrative Physiology
Emily Dennis*	Krantz	Neuroscience
Martina DeSalvo*	Krantz	Neuroscience
Phillip Deutsch	DiStefano	Computer Science
Rhodri Dierst-Davies	Iguchi	Community Health Sciences

<u>Trainee</u>	<u>Sponsor</u>	<u>Department</u>
Colin Douglas	Koehler	Chemistry & Biochemistry
Pamela Douglas	Brody	Biomedical Engineering
Paul Duru	Edgerton/Tillakaratne	Integrative Biology & Physiology
Anita Dusyanth	Demer	Bioengineering
Maria Dzialo	Clarke	Biochemistry & Molecular Biology
Ayca Erbilgin	Lusis	Microbiology, Immunology & Molecular Genetics
Elizabeth Evans	Iguchi	Community Health Sciences
Oluwatoyin Fafowora	Gorin	Genetic Epidemiology
Richard Fan	Grundfest	Biomedical Engineering
Zhongnan Fang	Lee	Electrical Engineering
Cynthia Fast	Blaisdell	Psychology
Brian Fedor	Tidball	Integrative Biology & Physiology
Isabella Ferando	Mody	Molecular, Cellular & Integrative Physiology
Brad Fidler	Braslow	History of Medicine
Melissa Flesher	Fanselow	Psychology (Learning & Memory)
Brendan Fong	Liau	School of Medicine
Jennifer Forsyth	Cannon	Psychology (Clinical Area)
Adam Frank*	Silva	Neuroscience/MSTP
Elizabeth Fraley	White	Molecular, Cellular & Integrative Physiology
Zachary Gaber	Novitch	Neurobiology
Parag Gad	Edgerton	Bioengineering
Dana Gant	Jentsch	Psychology (Clinical Area)
Dylan Gee	Cannon	Psychology (Clinical Area)
Matt Gee	Harper	Psychology (Clinical Area)

<u>Trainee</u>	<u>Sponsor</u>	<u>Department</u>
Lauren Gehman	Black	Microbiology, Immunology & Molecular Genetics
Daniel Glenn	Minor	Psychology
Bianca Gonzalez	Gyls	Nursing
Erin Gray*	O'Dell	Neuroscience
Erin Rochelle Greiner	Yang, X. Willam	Chemistry & Biochemistry
Stephanie Groman	Jentsch	Psychology
Heather Guentzel	Iguchi	Community Health Sciences
Angel Gutierrez	Tidball	Molecular, Cellular & Integrative Physiology
Nathan Hageman*	Toga	Neuroscience/MSTP
Areum Han	Black	Biomedical Engineering
Yoon Han*	Novitch	Neuroscience/MSTP
Jason Hauptman*	Levine	Neuroscience
Kristen Henkins*	Gyls	Neuroscience
Sarah Hersman*	Krantz	Neuroscience
Jon Heston*	White	Neuroscience
Rachel Higier	Cannon	Psychology (Clinical Area)
Andrew Hill	Zaidel, E.	Psychology (Behavioral Neuroscience)
Austin Hilliard*	White	Neuroscience
Dylan Hirsch-Shell*	Hoffman/Narins	Neuroscience
April Ho*	Thompson	Neuroscience
David Ho*	Mehta	Neuroscience
Victoria Ho*	Martin	Neuroscience/MSTP
Bryant Horowitz	Jentsch	Psychology
Jui-Yi Hsieh	Papazian	Molecular, Cellular & Integrative Physiology
Jing Huo	Pope	Biomedical Engineering

<u>Trainee</u>	<u>Sponsor</u>	<u>Department</u>
Ben Huang*	Mody	Neuroscience
Kevin Huang	Fan	Molecular Biology
Charles Hummel	Wright	Molecular, Cellular & Integrative Physiology
Tim Indersmitten*	O'Dell	Neuroscience
Maria Jalbrzikowski	Bearden	Psychology (Clinical Area)
Alex James	Jentsch	Psychology (Behavioral Neuroscience)
Christine Janson	Colicelli	Biological Chemistry
Jiayan Jiang	Toga	Computer Science
Amy Jimenez	Cannon	Psychology (Clinical Area)
Meghan Johnson	Koehler	Chemistry & Biochemistry
David Johnston*	Portera-Cailliau	Neuroscience
Ryan Jones	Mody	Neurobiology
Michael (Selvan) Joseph	Edgerton/Tillakaratne	Integrative Biology & Physiology
Kristine Kaiser	Narins	Ecology and Evolutionary Biology
Ashley Kees*	Krantz	Neuroscience
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
Christina Kim	DiStefano	Biomedical Engineering
Sangmok Kim*	Martin	Neuroscience
Chamya Kincy	Phelps, P.	Integrative Biology & Physiology
Milky Kohno*	London	Neuroscience
Veerao Konkankit	Liau/Prins, R.	Integrative Biology & Physiology
Jennifer Kong*	Novitch	Neuroscience



<u>Trainee</u>	<u>Sponsor</u>	<u>Department</u>
Alex Korb*	Leuchter	Neuroscience
Will Kryder	Clarke	Molecular Biology
Dika Kuljis	Colwell	Neurobiology
John Kuo*	Micevych	Neuroscience
Mariel Kyger	Tottenham	Psychology
Daniel Laks	Kornblum	ACCESS
Maria Lazaro*	Krantz	Neuroscience
Carlos Lazo	Chesselet	Neurobiology
Nguyen Le	Lee	Electrical Engineering
Thuc Le*	Fan/Faull	Neuroscience
Kim LeBlanc*	Maidment	Neuroscience
Michael Lerch	Hubbell	Chemistry & Biochemistry
Lok Kwan Leung	Guo, M.	Molecular, Cellular & Integrative Physiology
Julia Li	Edgerton	Integrative Biology & Physiology
Wei Li*	Krantz	Neuroscience
Yuan Hang (Luke) Li	Tottenham/Zaidel, E.	Psychology (Behavioral Neuroscience)
Wei-Siang Liau	Koehler	Chemistry & Biochemistry
Anthony Linares	Black	Molecular Biology
Dominique Lisiero	Liau/Prins, R.	Molecular & Medical Pharmacology
Jia Liu*	Jin-Huang Lee	Neuroscience
Virginia Long	Fanselow	Psychology
Carlos Lopez	Hubbell	Chemistry & Biochemistry
Elizabeth Losin*	Dapretto	Neuroscience
Jennifer Louie	Tottenham	Psychology
Grace Lu	Tidball	Integrative Biology & Physiology
Ray Luo*	Otis	Neuroscience

<u>Trainee</u>	<u>Sponsor</u>	<u>Department</u>
Rui Luo	Geschwind	ACCESS
Evan Lutkenhoff*	Cannon	Neuroscience
Kennan MacKay	Clarke	Biochemistry & Molecular Biology
Sarah Madsen*	Thompson	Neuroscience
Jaione Maiz	Otis	Neurobiology
Matthew Maland	Koehler	Chemistry and Biochemistry
Seanna Martin	Mayer/Sagasti	Molecular, Cellular & Developmental Biology
Laurel Martin-Harris*	Bookheimer	Neuroscience
Michael Masterman-Smith	Kornblum	Molecular & Medical Pharmacology
John McCoy	Hubbell/Travis	Chemistry & Biochemistry
Whitney McDonald*	Krantz	Neuroscience
Kevin McEvoy*	Portera-Cailliau	Neuroscience/MSTP
Zach McKinney	Grundfest	Biomedical Engineering
Elliott Meer	Martin	Biological Chemistry
Nikki Meshkat	DiStefano	Mathematics
Edward Meyer	Spigelman	Oral Biology
Gretchen Miller*	Harris	Neuroscience
Jeremy Miller*	Geschwind	Neuroscience
Nathasha Moallem	Ray	Psychology (Clinical Area)
Destaye Moore	Novitch	Neurobiology
Jason Moore*	Mehta	Neuroscience
Lisa Moore*	Krantz	Neuroscience
David Moradi	Chiappelli	Oral Biology
Angelica Morales*	London	Neuroscience
Zach Moran	Cannon	Psychology (Clinical Area)
Amit Mulgoankar	Grundfest	Biomedical Engineering

<u>Trainee</u>	<u>Sponsor</u>	<u>Department</u>
Yatendra Mulpuri	Spigelman	Oral Biology
Rana Najir	Compton	Nursing
Artemio Navarro	Grundfest	Biomedical Engineering
Audrey Navarro	Chiappelli	Oral Biology
David Nathanson	Mischel	Molecular & Medical Pharmacology
Sonya Neal	Koehler	Molecular Biology
Hiroka Nobuta*	Waschek	Neuroscience
Nik Novak*	Krantz	Neuroscience
Georgeann O'Brien	Sagasti	Molecular, Cellular & Developmental Biology
Brian Odegaard	Shams	Psychology (Computational Neuroscience)
Kelley O'Donnell*	Sagasti	Neuroscience/MSTP
Jaison Omoto	Xie	ACCESS
Wei Song Ong*	Bisley	Neuroscience
Luz Orozco	Lusis	Human Genetics
Justine Overman*	Carmichael	Neuroscience
Ana Marie Palanca	Sagasti	Molecular, Cellular & Developmental Biology
Amy Pandya	Black	Microbiology, Immunology & Molecular Genetics
Eric Pang	Teplow	Chemistry & Biochemistry
Anna Parievsky*	Levine	Neuroscience
Neelroop Parikshak	Geschwind	Neuroscience/MSTP
Chang Sin (Chris) Park*	Yang, X.W.	Neuroscience
Alexander Patananan	Clarke	Biochemistry & Molecular Biology
Jennifer Perusini	Fanselow	Psychology (Behavioral Neuroscience)

<u>Trainee</u>	<u>Sponsor</u>	<u>Department</u>
Megan Peters	Shams	Psychology (Cognitive Neuroscience)
Traci Plumb	Minor	Psychology
Renee Polanco	Sininger	Education
Angela Pool	Brecha	Neurobiology
Gautam Prasad	Toga	Computer Science
Tage Rai	Holyoak	Psychology
Vidyun Ramaprasad	Grundfest	Biomedical Engineering
Manisha Ramchandani	Chiappelli	Oral Biology
Christoph Rau	Lusis	Human Genetics
Maxine Reger	Fanselow/Giza/Hovda	Psychology (Learning & Memory)
Ciara Remilard	Krantz	Molecular Toxicology
Esther Richler	Khakh	Molecular, Cellular & Integrative Physiology
Gina Rinetti	Schweizer	Molecular, Cellular & Integrative Physiology
Angela Rizk-Jackson*	Poldrack	Neuroscience
Chelsea Robertson	London	Molecular & Medical Pharmacology
Thomas Rogerson	Silva	Neurobiology
Ezra Rosen*	Geschwind	Neuroscience, MSTP
Florence Roussotte*	Sowell	Neuroscience
Jeff Rudie*	Dapretto	Neuroscience/MSTP
Majed Samad	Shams	Psychology
Naomi Santa Maria	Giza/Hovda	Neuroengineering
Ryan Schmidt*	Martin/Plath	Neuroscience/MSTP
Matthew Schreiner*	Krantz	Neuroscience
Analyne Schroeder	Colwell	Molecular, Cellular & Integrative Physiology
Shaishav Shah	Sokolow	Integrative Biology & Physiology

<u>Trainee</u>	<u>Sponsor</u>	<u>Department</u>
Renee Shimizu	Wu, A.	Psychology (Behavioral Neuroscience)
Andrew Shin	Demer	Mechanical Engineering
Liza Smirnoff	Sokolow	Integrative Biology & Physiology
Wes Smith*	Krantz	Neuroscience
Lin Song	Geschwind	ACCESS
Elif Sozmen*	Carmichael	Neuroscience/MSTP
Suzi Spear	Iguchi/Rawson	Community Health Sciences
Rory Spence	Schlinger/Voskuhl	Molecular, Cellular & Integrative Physiology
Sarah Starks	Braslow	Health Services, Public Health
Patricia St. Clair*	Freimer	Neuroscience
Jason Stein*	Thompson	Neuroscience
Sarah Sterlace	Fanselow/Minor	Psychology (Behavioral Neuroscience)
Christopher Sundberg	Guo, M.	Molecular, Cellular & Developmental Biology
Christine Tarleton	Braslow	History of Medicine
Molly Tartter	Ray	Psychology (Clinical Area)
Eva Telzer	Galván	Psychology (Developmental Area)
Priya Tewari	Grundfest	Biomedical Engineering
Yuan Tian	Geschwind	ACCESS
Jameson Tibbs*	Edgerton	Neuroscience
Pamela Ting	Colicelli	Biological Chemistry
Salvatore Torrisi*	Altshuler	Neuroscience
Kelly Tseng	Sokolow	Microbiology, Immunology & Molecular Genetics
Besim Uzgil*	Martin	Neuroscience/MSTP
Atila van Nas	Lusis	Human Genetics

<u>Trainee</u>	<u>Sponsor</u>	<u>Department</u>
Michael Vendetti	Holyoak	Psychology
Derek Verley*	Harris	Neuroscience
Andrew Vosko*	Colwell	Neuroscience
Tara Weitz*	Yang, X. William	Neuroscience
Adam Welday*	Blair	Neuroscience
Donna Marie Werling*	Geschwind	Neuroscience
Daniel Whitaker	Tidball	Integrative Biology & Physiology
Bernard Willers	Mehta	Physics & Astronomy
Rachel Willhite	Cannon	Psychology (Clinical Area)
Shayna Williams*	Arnold	Neuroscience
Kellen Winden*	Geschwind	Neuroscience/MSTP
Juwina Wijaya	Koehler	Chemistry & Biochemistry
Jared Wong	Blaisdell	Psychology (Behavioral Neuroscience)
Somsakul Wongpalee	Black	Molecular Biology
Chris Wottawa	Grundfest	Biomedical Engineering
Lisa Wu*	Havton	Neuroscience
Megan Wyeth	Houser	Neurobiology
Ghiam Yamin*	Teplow	Neuroscience/ MSTP
Xiaoyang Yang	Liu, Z.	Psychology
Jina Yun	Guo, M.	Molecular & Medical Pharmacology
Moriel Zelikowsky	Fanselow	Psychology (Learning & Memory)
Jingjing (Michele) Zhang	Alger	Biomedical Physics
Marina Ziehn*	Voskuhl	Neuroscience
Aleksey Zvinyatskov	Cannon	Psychology (Clinical Area)

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

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ARCS Foundation

Dean's Office Stipend, College of Letters and Science

Dean's Office Stipend, School of Medicine

Graduate Division Fellowship Program

NASA Fellowships

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 333 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 2010-2011. 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
Rahul Agrawal, Ph.D.	Gómez-Pinilla	Central Drug Research Institute, Lucknow, India
Naser Ahmadi, M.D.	Levey	Isfahan University of Medical Sciences, Iran
Ali Alktraifi, M.D.	Levey	University of Al-Mustansiriyah, Iran
Ariana Anderson, Ph.D.	Cohen	University of California, Los Angeles
Veronique André, Ph.D.	Levine	University Louis Pasteur, Strasbourg, France
Brigitte Angenieux, Ph.D.	Kornblum	University of Lausanne
Fabrice Arcizet, Ph.D.	Bisley	University Paul Sabatier, Toulouse, France
Donatello Arienzo, Ph.D.	Feusner	University of Chieti, Italy
Yossi Arzouan, Ph.D.	Zaidel, E.	Bar-Ilan University, Ramat-Gan, Israel
Ivan Babic, M.D.	Mischel	University of Calgary, Alberta, Canada
Khazai Bahram, M.D.	Levey	Mashhad University of Medical Sciences, Iran
Azza el Bakry, M.D.	Rawson	Cairo University, Egypt
Mohadmed Bardi, M.D.	Rawson	Riyadh Military Hospital, Saudi Arabia
Garni Barkhoudarian, M.D.	Giza	University of Michigan
Genaro Barrientos, Ph.D.	Vergara	University of Chile
Albert Barth, Ph.D.	Mody	Semmelweiss University, Hungary

<u>Trainee</u>	<u>Principal Investigator</u>	<u>Institution Awarding Degree</u>
Harsharan Bathia, Ph.D.	Gómez-Pinilla	University of California, Los Angeles
Brian Bennett, Ph.D.	Lusis	University of Washington, Seattle
Anjali Bhatara, Ph.D.	Sininger	McGill University, Montreal, Quebec, Canada
Shuguang Bi, Ph.D.	Liau	Georgetown University, Washington, D.C.
Brent Bill, Ph.D.	Geschwind	University of Minnesota, Twin Cities
Tina Bilousova, Ph.D.	Gyls	Karazin Karkiv National University, Karkiv, Ukraine
Stephanie Bissiere, Ph.D.	Fanselow	Friedrich Miescher Institute, University of Basel, Switzerland
David Black, Ph.D.	Irwin	University of Southern California, Los Angeles
Cara Bohon, Ph.D.	Feusner	University of Oregon
Jean Bopassa, Ph.D.	Stefani	Lyon University of France
Elia Botelho, Ph.D.	Levine	Federal University of Rio de Janeiro, Brazil
Matthew Brensilver, Ph.D.	Shoptaw	University of Southern California, Los Angeles
Michael Bridges, Ph.D.	Hubbell	University of California, Los Angeles
Jessica Bromhelhoff, M.D.	Small	University of California, Los Angeles
John Brooks, M.D., Ph.D.	Altschuler	Stanford University, California
Lisa Burklund, Ph.D.	Leuchter	University of California, Los Angeles
Sigrid Burruss, M.D.	Levey	University of California, San Francisco
Daniel Bush, Ph.D.	Mehta	Sussex University, United Kingdom
Denise Cai, Ph.D.	Silva	University of California, San Diego
Anna Caputo, Ph.D.	Schweizer	University of Rome, Italy
Luca Caracciolo, Ph.D.	Carmichael	University of Brescia, Italy
Judith Carroll, Ph.D.	Irwin/O'Connor	University of Pittsburgh, Pennsylvania
Rachel Casas, Ph.D.	Bilder	University of Iowa

<u>Trainee</u>	<u>Principal Investigator</u>	<u>Institution Awarding Degree</u>
Fabio Catao, M.D.	Irwin	Faculdade de Ciencias, Medicas de Minas Gerais (FEMMG) Belo Horizonte, Brazil
Catalinia Cervantes, Ph.D.	Jentsch	University of Texas at Austin
Vijayendran Chandran, Ph.D.	Geschwind	University of Bielefeld, Germany
Wenling Chen, Ph.D.	Marvizón	Tonji Medical College
Adrian Cheng, Ph.D.	Portera-Cailliau	University of California, Los Angeles
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
Gabriela Chytrova, Ph.D.	Cornford	Wake Forest University
Mete Civelek, Ph.D.	Lusis	University of Pennsylvania
Kristi Clark, Ph.D.	Toga	University of California, Los Angeles
Pablo Clemente, Ph.D.	Trachtenberg	University of Seville, Spain
Melissa Coates, Ph.D.	Narins	Stanford University, California
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Deepa Dabir, Ph.D.	Koehler	University of Pennsylvania
Audrey Damianov, Ph.D.	Black	Justus-Liebig University Geissen, Germany
Shahab Danesh, Ph.D.	Toro	University of Texas Southwestern Medical Center, Dallas
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Fnu Deepinder, M.D.	Levey	Dayanand Medical College and Hospital
Shlomo Dellal, Ph.D.	Otis	University of Michigan, Ann Arbor

<u>Trainee</u>	<u>Principal Investigator</u>	<u>Institution Awarding Degree</u>
Hansong Deng, Ph.D.	Guo, M.	National Institute of Biological Sciences, Beijing, China
Catherine Domier, Ph.D.	Rawson	University of California, Los Angeles
Andrew Dorsch, M.D.	Dobkin	University of Maryland
Pamela Douglas, Ph.D.	Cohen	University of California, Los Angeles
Brian Duistermars, Ph.D.	Frye	University of California, Los Angeles
Celine Duraffourd, Ph.D.	Sternini	University of Lyon, France
Tamar Dvash, Ph.D.	Fan	Hebrew University, Israel
Marissa Ericsson, Ph.D.	Bearden	University of Southern California, Los Angeles
Julian Esteve, Ph.D.	Williams	University of Alicante, Spain
Guido Faas, Ph.D.	Mody	University of Amsterdam, The Netherlands
Catherine Farrokhi, Ph.D.	Pechnick	University of Hawaii
Beatriz Campo Fernandez, Ph.D.	Andrews	Innsbruck Medical University, Tyrol, Austria
Mark Fleissner, Ph.D.	Hubbell	University of California, Los Angeles
Jessica Fox, Ph.D.	Frye	University of Washington
Nicholas Franich, Ph.D.	Chesselet	University of Auckland, New Zealand
William Frieje, M.D., Ph.D.	Levey	Tuffs University, Boston
Matthew Fuxjager, Ph.D.	Schweizer	University of Wisconsin
Michelle Gardner, Ph.D.	Levey	University of California, Davis
Dennis Garlick, Ph.D.	Blaisdell	University of Sydney, Australia
Amos Gdalyahu, Ph.D.	Trachtenberg	Weizmann Institute for Science
Chiara Ghezzi, Ph.D.	Wright	University of Zurich, Switzerland
Maryam Ghorvbani, Ph.D.	Mehta	University of Tehran, Iran
Saumya Gil, M.D.	Nuwer	Baylor College of Medicine, Houston, Texas
Beatrice Gini, Ph.D.	Mischel	University of Verona, Italy

<u>Trainee</u>	<u>Principal Investigator</u>	<u>Institution Awarding Degree</u>
David Gloss, M.D.	Nuwer	Tulane University, New Orleans, Louisiana
Mariam Goebel, M.D.	Taché	Humboldt University, Berlin, Germany
Anubhuthi Goel, Ph.D.	Buonomano	Bangalore University, India
Sherif Gohar, M.D.	Rawson	Cairo University, Egypt
Jose Tiago Goncalves, Ph.D.	Portera-Cailliau	Max Plank Institute, Germany
Jeffrey Goodenbour, Ph.D.	Geschwind	University of Chicago, Illinois
Edurne Gorraitz, Ph.D.	Wright	University of Navarra, Pamplona, Spain
Charles Griffis, Ph.D.	Compton	University of California, Los Angeles
Joshua Grill, Ph.D.	Levey	Wake Forest University School of Medicine, Winston-Salem, North Carolina
Anna Grygoruk, Ph.D.	Krantz	University of California, Los Angeles
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Deliang Guo, Ph.D.	Mischel	Beijing Normal University, China
Arpana Annie Gupta, Ph.D.	Leuchter/O'Connor	University of Tennessee, Knoxville
Mary Hamby, Ph.D.	Irwin/O'Connor/Sofroniew	University of Connecticut
Timothy Hall, M.D., Ph.D.	Shoptaw	University of California, Los Angeles
Delee Har, M.D.	Giza	University of California, Los Angeles
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Aileen Hartzell, Ph.D.	Bilder	Rosalind Franklin University, Chicago
Huma Hasnain, M.D.	Kurtz	St. George's University
Kristen Haut, Ph.D.	Cannon	University of Minnesota
Eric Hayden, Ph.D.	Teplow	Albert Einstein College of Medicine, New York
Michael Hickey, Ph.D.	Kruse	University of California, Irvine

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Houri Hintiryan, Ph.D.	Dong	University of Southern California, Los Angeles
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Hedieh Helen Honarpisheh, M.D.	Apostolova/Vinters	Shiraz University, Iraq
Jethro Hu, M.D.	Levey	University of California, San Francisco
Yu Huang, Ph.D.	Freimer	University of Southern California, Los Angeles
Christina Mow-Kay Hui, M.D.	Small	University of California, Los Angeles
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Li Jing, Ph.D.	Whitelegge	University of Georgia, Athens
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Atsushi Kasai, Ph.D.	Waschek	Osaka University, Japan
David Kaufman, Ph.D.	Leuchter	University of California, Los Angeles
Joanna Kaylor, Ph.D.	Travis	University of California, Santa Cruz
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Shilpi Khare, Ph.D.	Clarke	University of California, Los Angeles
Farshad Kheiri, Ph.D.	Bragin/Engel	University of Alabama, Huntsville
Cornelia Kiank, Ph.D.	Taché	Greifswald University, Germany
Miyeon Kim, Ph.D.	Hubbell	University of Virginia, Charlottesville
Yong Sung Kim, Ph.D.	Taché	Catholic University, Seoul, Korea
Genevieve Konopka, Ph.D.	Geschwind	Harvard University, Cambridge, Massachusetts
Sebastian Kracun, Ph.D.	Khakh	University College, London, United Kingdom
Partha Krishnan, Ph.D.	Frye	Texas A & M University, College Station
Takashi Kudo, Ph.D.	Colwell	Waseda University, Japan
Daisuke Kuga, M.D.	Mischel	University of Fukuoka, Japan
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Donald Lamkin, Ph.D.	Irwin/O'Connor	University of Iowa
Anthony Landreth, Ph.D.	Silva	University of Cincinnati, Ohio
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Tim Lebestky, Ph.D.	Krantz	University of California, Los Angeles
JiAnn Lee, Ph.D.	Martin	University of California, Los Angeles
Ka-Hung Lee, Ph.D.	Otis	University of Southern California, Los Angeles
Steven Lee, M.D.	Levey	University of California, Davis
Yong-Seok Lee, Ph.D.	Silva	Seoul National University, South Korea
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Rotem Leshem, Ph.D.	Zaidel, E.	Bar Ilan University, Ramat-Gan, Israel
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Sichen Li, Ph.D.	Lai	Beijing Normal University, China
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Xue Liu, Ph.D.	Brecha	Shanghai Jiao Tong University, China
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Xiao Hong Lu, M.D., Ph.D.	Yang, X.W.	Louisiana State University
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Rohit Marawar, M.D.	Nuwer	State University of New York- Albany
Jesus Marti, Ph.D.	Rawson	University of Valencia, Spain
Lisa Martin, Ph.D.	Lusis	University of California, Los Angeles
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Kenta Masui, M.D., Ph.D.	Mischel	Kyushu University, Japan
Tomoo Matsutani, M.D., Ph.D.	Mischel	Chiba University Graduate School of Medicine, Japan
Paul Matthews, Ph.D.	Otis	University of Texas
James McKinnell, M.D.	Levey	Columbia University, New York
Shauna McManus, Ph.D.	Bearden	Fuller Theological Seminary, Pasadena, California
Melvi Methippara, Ph.D.	McGinty	Mahatma Gandhi University, India
Yvette Milazzo, M.D.	Irwin	University of Nebraska
Julie Miller, Ph.D.	White	University of Arizona
Amaya Miquelajauregui, Ph.D.	Portera-Cailliau	Max Plank Institute, Germany

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Non Miyata, Ph.D.	Koehler	University of Fukuoka, Japan
Maha Mobasher, Ph.D.	Rawson	Cairo University, Egypt
Ricardo Mostany, Ph.D.	Portera-Cailliau	Universidad de Leon, Spain
Agatha Mulak, M.D., Ph.D.	Taché	Wroclaw Medical University
Luis Perez de Sevilla Müller, Ph.D.	Brecha	University Oldenberg, Germany
Imran Mungrue, Ph.D.	Lusis	University of Toronto, Canada
G. Ngarmchamnanrith, M.D.	Levey	Chulalongkorn University, Thailand
Bohdan Nosyk, Ph.D.	Rawson	University of British Columbia, Canada
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Jennifer Ogren, Ph.D.	Harper	University of California, Los Angeles
Asami Oguro, Ph.D.	Geschwind	University of Tokyo, Japan
Yavuz Oktay, Ph.D.	Koehler	University of Texas, Southwestern
Oluwadayo Oluwadara, D.D.S., Ph.D.	Chiappelli	University of California, Los Angeles
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Kenjiro Ono, M.D., Ph.D.	Teplow	Showa University School of Medicine, Tokyo, Japan
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<u>Trainee</u>	<u>Principal Investigator</u>	<u>Institution Awarding Degree</u>
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Olga Penagarikano, Ph.D.	Geschwind	University of Pais Vasco, Spain
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David Piccioni, M.D., Ph.D.	Lai/Levey/Mischel	State University of New York at Buffalo
Andrew Poulos, Ph.D.	Fanselow	University of Southern California, Los Angeles
Shubhangi Prabhudesai, Ph.D.	Bronstein	University of Idaho, Moscow
Amynah Pradhan, Ph.D.	Evans	McGill University, Montreal, Quebec, Canada
Serena Puga, M.D.	Altshuler	University of California, Los Angeles
Patricia (Yuki) Quinones, Ph.D.	Schweizer	University of California, Los Angeles
Elica Rahdar, Ph.D.	Galván	University of Texas, Dallas
Lehka Rao, M.D.	Nuwer	University of California, Los Angeles
Shilpa Rao, Ph.D.	Levine	Indian Institute of Sciences, Bangalore
Michelle Rensel, Ph.D.	Schlinger	University of Memphis, Tennessee
Pascal Revassard, Ph.D.	Mehta	CNRS, France
Kun Do Rhee, Ph.D.	Yang, X.J.	University of California, Los Angeles
Heidi Richardson, Ph.D.	Harper	Monash University, Victoria, Australia
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Chiara Rinaldi, Ph.D.	Tidball	University of Pavia, Italy
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David Rousso, Ph.D.	Novitch	University of California, Los Angeles
Robin Roychaudhuri, Ph.D.	Teplow	University of Nebraska, Lincoln
Agrani Rump, Ph.D.	Williams	Hannover Medical School, Germany
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Hossein Samadi, M.D.	Small	University of California, Los Angeles
Cataldo Schietroma, Ph.D.	Brecha	University of Rome, Italy
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Cristine Serway, Ph.D.	Krantz	University of Nevada, Las Vegas
Emanuele Seu, Ph.D.	Jentsch	University of Cagliari, Italy
David Shackelford, Ph.D.	Mischel	Brandeis University, Waltham, Massachusetts
Anuja Shah, M.D.	Levey	Northwestern University Feinberg School of Medicine, Chicago, Illinois
Prithvi Shah, Ph.D.	Edgerton	University of Florida
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David Shirinyan, Ph.D.	Bookheimer	University of California, Los Angeles
Justin Shobe, Ph.D.	Silva	University of California, Irvine
Daniel Shrey, M.D.	Giza	University of Cincinnati, Ohio
Denis Shub, M.D.	Small	University of California, Los Angeles
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Harpreet Singh, Ph.D.	Khakh	Edinburgh University, United Kingdom
Janos Steffen, Ph.D.	Koehler	University of Berlin Charite, Germany
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Andreas Stengel, M.D., Ph.D.	Taché	Humboldt University, Berlin, Germany
David Stigge-Kaufman	Bilder/Leuchter	University of Florida, Gainesville
Samuel Strom, Ph.D.	Gorin	University of California, Los Angeles
Sudhakar Subramaniam, Ph.D.	Chesselet	University of Strathclyde, Glasgow, United Kingdom
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<u>Trainee</u>	<u>Principal Investigator</u>	<u>Institution Awarding Degree</u>
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Nanthia Suthana, Ph.D.	Fried	University of California, Los Angeles
Shinya Takahashi, Ph.D.	Black	University of Tokyo, Japan
Kazuhiro Tanaka, M.D., Ph.D.	Mischel	Kobe University, Hyogo, Japan
Shabana Tariq, M.D.	Shoptaw	Foreign Medical Graduate School
Anna Taylor, Ph.D.	Evans	McGill University, Montreal, Canada
Zach Taylor, Ph.D.	Grundfest	University of California, Santa Barbara
Xiaoping Tong, Ph.D.	Khakh	Chinese Academy of Sciences
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Deepti Trivedi, Ph.D.	Williams	Cambridge University, United Kingdom
Mauricio Vargas, M.D., Ph.D.	Sagasti	Stanford University, California
Ernest Vasti, M.D.	Shoptaw	Medical College of Wisconsin
Gaia Vegezzi, Ph.D.	Sternini	University of Parma, Italy
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Irina Voineagu, Ph.D.	Geschwind	University of Illinois
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Fang Wang, Ph.D.	Sagasti	Fudan University, Shanghai, China
Geng Wang, Ph.D.	Koehler	University of Iowa
Jingtian Wang, M.D.	Nuwer	University of Southern California, Los Angeles
Nan Wang, Ph.D.	Yang, X. William	University of California, Berkeley

<u>Trainee</u>	<u>Principal Investigator</u>	<u>Institution Awarding Degree</u>
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Isaac Yang, M.D.	Liau	University of California, Los Angeles
Mingfeng Yang, Ph.D.	Teplow	Clark University, Massachusetts
Yaling Yang, Ph.D.	Narr	University of Southern California, Los Angeles
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Lawrence Yoo, Ph.D.	Demer	University of California, Los Angeles
Var Yossan-Tan, Ph.D.	Waschek	University of Paris, France
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Zhu Zhang, Ph.D.	Toro	Academy of Military Medical Sciences, Beijing, China
Jun Zhao, Ph.D.	Taché	Fudan University, Shanghai, China
Sika Zheng, Ph.D.	Black	Johns Hopkins University, Baltimore, Maryland
Jin Zhong, Ph.D.	Carmichael	Indiana University, Bloomington
Ming Zhong, Ph.D.	Sun, H.	University of British Columbia, Canada
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Cecilia Zurita-Lopez, Ph.D.	Clarke	University of California, Los Angeles





## 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 69 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>
Daniel Buendia Abaitua	University Pontificia Comillas, Madrid, Spain	Tidball
Momtaz Abdelwahab	Cairo University, Giza, Egypt	Rawson
Linda Adzovic	University of L'Aquila, Italy	Glanzman
Mushtaq Alhachami	Baghdad Teaching Hospital, Iraq	Rawson
Nesif Alhemiary	Baghdad Teaching Hospital, Iraq	Rawson
Abdullah Alsharqi	Specialized Psychiatric Clinics, Riyadh, Iraq	Rawson
Steve Barnes	Dalhousie University, Halifax, Nova Scotia, Canada	Brecha
Olivia Beloto da Silva	University of São Paulo, Brazil	Wright
Luis Beltran-Parrazal	University Veracruzana, Xalapa, Mexico	Vergara
Apisit Boongrid	University of Thailand, Bangkok	Nuwer
Claudia Brandt	Institute of Pharmacology, Toxicology, and Pharmacy, Hanover, Germany	Engel
Cathy Cahill	Queens University, Kingston, Canada	Evans
Matteo Caporrio	University Sapienza, Rome, Italy	Engel
Mei-Sha Chen	Tsinghua University, China	Teplow

<u>Name</u>	<u>Affiliation</u>	<u>Sponsor</u>
Mariawo Guardia Clausi	School of Pharmacy and Biochemistry, Buenos Aires, Argentina	Campagnoni
Davide Curzi	University of Urbino, Italy	Tidball
Clayton Dickson	University of Alberta, Canada	Engel
Tamer Emara	Ain Shams University, Cairo, Egypt	Dobkin
Araceli Espinosa-Jeffreys	University of California, Los Angeles	de Vellis
Daniel Cabrera Garcia	Catholic University of Chile, Santiago	Tidball
Tarek Gawad	Cairo University, Giza, Egypt	Rawson
Cristina Ghiani	University of Calgari, Italy	de Vellis
Le Minh Giang	Hanoi Medical University, Vietnam	Rawson
Juliana Gomez	Universidad de Antioquia, Medellin, Columbia	Freimer
David Healy	University of North Wales, Cardiff, United Kingdom	Braslow
Gilberto Hernandez	California Institute of Technology, Pasadena	Vergara
Elaine Hu	Tongji University, Shanghai, China	Fan
Iman Hussein	Baghdad Teaching Hospital, Iraq	Rawson
Yingli Jin	The First Hospital of Jilin University, Changchun, China	Kaufman
Linda Kelley	University of Utah, Salt Lake City	Lévesque
Dong Jin Kim	Korean Institute of Science and Technology, Seoul, Korea	Barrio
Kee-Pyo Kim	University of Nottingham, England	Fan
Anna Jun Kong	China Medical University, Shenyang, China	Fan
Shalini Kumar	University of California, Los Angeles	de Vellis
Rodrigo Laje	University of Buenos Aires, Argentina	Buonomano
Eun Lee	Yonsei University College of Medicine, Seoul, Korea	Irwin
Jean-Jacques Lemaire	Auvergne University, Clermont Ferrand, France	Grundfest
Jacob Loetermann	Vassar College, Poughkeepsie, New York	Kruger

<u>Name</u>	<u>Affiliation</u>	<u>Sponsor</u>
Maria Leonor Lopez-Meraz	Universidad Veracruzana, Mexico	Wasterlain
Pilar Lostao	University of Navarra, Pamplona, Spain	Wright
Jinan Mansoor	Baghdad Teaching Hospital, Iraq	Rawson
Ernesta Meintjies	University of Cape Town, South Africa	Narr
Leili Mirsadraei	University of Tehran, Iran	Yong
Gabriel Montes	University of Utrecht, The Netherlands	Geschwind
Seok Woo Moon	Konkuk University, Seoul, Korea	Toga
Consuelo Morgado-Valle	University Veracruzana, Xalapa, Mexico	Vergara
Nobuhiro Moro	Nihon University, Tokyo, Japan	Hovda
Andreas Mueller	Praxis fur Kind, Organisation und Entwicklung, Chure, Switzerland	Zaidel, E.
Masakazu Namihara	University of Japan, Tokyo	Fan
Takanobu Omata	University of Tokyo, Japan	Holyoak
Natalia Orlova	Jean Monet University, Saint-Etienne, France	Portera-Cailliau
Annika Pfeiffer	University of Duesseldorf, Germany	Wiedau-Pazos
Rajesh Kannan Rajaretinam	Manonmaniam Sundaranar University, Rajkkamangalam, India	Wayne
Ken Sato	Aichi Medical University, Japan	Taché
Ran Shi	Peking University, Beijing, China	Toga
Jonghan Shin	Gachon University of Medicine and Science, Incheon, Korea	Barrio/Small
Kyriaki Sidiropoulou	Institute of Molecular Biology and Biotechnology, Crete, Greece	Silva
Stephan Stevens	University of Muenster, Germany	Ray
Lukas van Oudenhove	University Leuven, The Netherlands	Mayer
Hoang Vu	Hanoi Medical University, Vietnam	Rawson
Susanna Walter	University Linkoeping, Sweden	Mayer
Jerry Wu	Tongji University, Shanghai, China	Fan

<u>Name</u>	<u>Affiliation</u>	<u>Sponsor</u>
Kazunari Yamada	Showa University School of Medicine, Tokyo, Japan	Tso
Ming Yan	Shanghai University, China	Wayne
Bruce Yazejian	Mount St. Mary's College, Los Angeles, California	Grinnell
Feu Ye	Tongji Medical College, Hubei Province, China	Liau
Hee Jeong Yoo	Seoul National University, Korea	Geschwind
Zhicao Yue	University of Southern California, Los Angeles	Fan
Jinhua (Polly) Zhang	Fujian Medical University, Fuzhou, China	Liau

## 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 2010-2011 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 four part-time positions:

### Personnel

Arielle Lin Chin	Clerk
Jodie Crites	Administrative Analyst
Weiss Hamid	Senior Clerk
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  
Debora 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  
Debora Farber  
Joaquin Fuster  
Ronald Harper, 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

Anne Andrews  
J. David Jentsch, Chair  
Lara Ray  
James Waschek

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)

Faculty Coordinator

Tom O'Dell

Clinical Pharmacology Training  
Program (T32)

Barbara Levey

Molecular and Cellular Neurobiology (T32) David Glanzman

Neural Repair (T32)

Marie-Françoise Chesselet

Neuroendocrinology, Sex Differences, and  
Reproduction (T32) Arthur P. Arnold

## 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  
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  
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.

### **Electron Microscopy Services Center**

The Electron Microscopy Services Center, located in room 63-377 CHS, is run by Sirius Kohan, Ph.D. and houses a JEOL 100CX transmission electron microscope. A Reichert Ultracut ultramicrotome and Balzers vacuum evaporator are 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 2010

**Carl W. Lejuez, Ph.D.**, Professor of Psychology; Director, Center for Addictions, Personality, and Emotion Research (CAPER), University of Maryland, College Park

***"Measuring Positive and Negative Reinforcement Processes Underlying Risk-Taking Behavior"***

**Gary J. Bassell, Ph.D.**, Professor of Cell Biology and Neurology, Emory University School of Medicine, Atlanta, Georgia

***"mRNA Transport, Local Translation and Fragile X Syndrome"***

**Jaideep S. Bains, Ph.D.**, Associate Professor of Physiology and Pharmacology, Hotchkiss Brain Institute, University of Calgary, Canada

***"The Role of Astrocytes in Regulating the Strength of Glutamate Synapses"***

**Rodolfo R. Llinas, M.D., Ph.D.**, Thomas and Suzanne Murphy Professor of Neuroscience, Chairman, Department of Physiology and Neuroscience, New York University School of Medicine, New York

***"On the Objectivization of Subjectivity"***

**Venkatesh N. Murthy, Ph.D.**, Department of Molecular & Cellular Biology, and Center for Brain Science, Harvard University, Cambridge, Massachusetts

***"Synaptic Circuits and Odor Processing in the Rodent Olfactory System"***

**Takao K. Hensch, Ph.D.**, Professor of Molecular and Cellular Biology, and Neurology, Harvard University, Cambridge, Massachusetts

***"Shaping Brain Function by Early Experience"***

**Michael P. Coleman, Ph.D.**, The Babraham Institute, Cambridge, United Kingdom

***"Molecular Mechanisms of Axon Degeneration in Injury and Disease"***

**Eiji Shigetomi, Ph.D.**, Laboratory of Baljit Khakh, Department of Physiology, UCLA

***"Astrocyte Calcium Dynamics Revealed by a Refined Genetically Encoded Calcium Indicator"***

**Connie L. Cepko, Ph.D.**, Howard Hughes Medical Institute, and Department of Genetics, Harvard Medical School, Boston, Massachusetts

***"Cell Fate Determination in the Vertebrate Retina"***

Winter 2011

Paul A. Garrity, Ph.D., Department of Biology, Brandeis University, Waltham, Massachusetts  
***“From the Pre-Cambrian to the Sushi Bar: TRP Channels and the Evolution of Thermal and Chemical Detection”***

Teresa A. Nick, Ph.D., Department of Neuroscience, Center for Neurobehavioral Development, Center for Neuroengineering, University of Minnesota Academic Health Center, Minneapolis  
***“Control of Vocal Plasticity in the Songbird: Neurons, Networks, and the Space Between”***

Gina Turrigiano, Ph.D., Department of Biology, Brandeis University, Waltham, Massachusetts  
***“The Self-Tuning Neuron: Synaptic Scaling and the Development of Visual Cortical Circuits”***

A. Kimberley McAllister, Ph.D., Center for Neuroscience, University of California, Davis  
***“Novel Roles for Immune Molecules in Regulating the Initial Establishment of Cortical Connections”***

Robert W. Burgess, Ph.D., The Jackson Laboratory, Bar Harbor, Maine  
***“Dscams in Mouse Retinal Development”***

Marc Freeman, Ph.D., Department of Neurobiology, Howard Hughes Medical Institute, University of Massachusetts Medical School, Worcester  
***“Molecular Mechanisms of Axon Degeneration”***

Don W. Cleveland, Ph.D., The Ludwig Institute for Cancer Research; Departments of Neuroscience, and Cellular & Molecular Medicine, University of California, San Diego  
***“From Charcot to Lou Gehrig: Mechanisms and Treatment of ALS”***

Richard Ivry, Ph.D., Department of Psychology and Neuroscience, University of California, Berkeley  
***“Competitive and Inhibitory Processes During Action Selection”***

John Lisman, Ph.D., Department of Biology, Volen Center for Complex Systems, Brandeis University, Waltham, Massachusetts  
***“Mechanisms of Short-term and Long-term Memory”***

Kelsey C. Martin, M.D., Ph.D., Professor and Chair of Biological Chemistry, Professor of Psychiatry & Biobehavioral Sciences, Eleanor Leslie Term Chair in Innovative Brain Research, Brain Research Institute, University of California, Los Angeles  
***“Signaling Between Synapse and Nucleus During Neuronal Plasticity”***

Spring 2011

Darcy B. Kelley, Ph.D., Harold Weintraub and HHMI Professor of Biological Science; Co-Director, Doctoral Program in Neurobiology and Behavior, Columbia University, New York  
***“Neuroendocrine Decoding of Vocal Communication Signals”***

Kimberly M. Huber, Ph.D., Department of Neuroscience, University of Texas Southwestern Medical Center, Dallas, Texas  
***“Regulation of Synaptic Plasticity and Development by Fragile X Mental Retardation Protein”***

Robert Desimone, Ph.D., Professor, Department of Brain and Cognitive Sciences; Director, McGovern Institute for Brain Research, Massachusetts Institute of Technology, Cambridge  
*“Neural Synchrony and Selective Attention”*

Kamran Khodakhah, Ph.D., Professor, Dominick P. Purpura Department of Neuroscience, Albert Einstein College of Medicine, Bronx, New York  
*“Neural Substrates of Rapid-Onset Dystonia Parkinsonism”*

David W. Tank, Ph.D., Princeton Neuroscience Institute, Princeton University, Princeton, New Jersey  
*“Neural Circuit Dynamics in Mice Navigating in Virtual Reality”*

Michael Graziano, Ph.D., Department of Psychology, Princeton University, Princeton, New Jersey  
*“The Organization of Behavioral Repertoire in the Motor Cortex”*

Eve E. Marder, Ph.D., Head, Division of Science, Victor and Gwendolyn Professor of Neuroscience, Volen Center and Biology Department, Brandeis University, Waltham, Massachusetts  
*“Beyond the Mean to the Individual: Variability, Compensation, and Homeostasis in Neuronal Circuits”*

Jason Stein, Ph.D., Interdepartmental Ph.D. Program for Neuroscience, University of California, Los Angeles  
*“Searching for Genetic Influences on Brain Structure”*

Todd C. Holmes, Ph.D., Professor and Vice-Chair of Physiology & Biophysics, School of Medicine, University of California, Irvine  
*“Out of the Blue: Cryptochrome is a Blue-Light Sensor that Regulates Firing Rate in Drosophila Central Brain Arousal Neurons”*

Paul G. Mermelstein, Ph.D., Department of Neuroscience, University of Minnesota, Minneapolis  
*“Membrane Estrogen Receptors Activate Metabotropic Glutamate Receptors to Affect Nervous System Function”*

## THE TWENTY-SECOND 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 twenty-second annual neuroscience poster session was held on November 30, 2010. 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 40th Annual Meeting of the Society for Neuroscience. The guest speaker this year was Connie L. Cepko, Ph.D., from the Howard Hughes Medical Institute and Department of Genetics at Harvard Medical School in Boston, Massachusetts. She presented, “Cell Fate Determination in the Vertebrate Retina” 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.

Kelsey C. Martin, M.D., Ph.D., Professor and Chair of Biological Chemistry, Professor of Psychiatry & Biobehavioral Sciences, and Eleanor Leslie Term Chair in Innovative Brain Research, Brain Research Institute, the David Geffen School of Medicine at UCLA, presented the Twenty-Second Annual H.W. Magoun Lecture. Dr. Martin's lecture was titled, "Signaling Between Synapse and Nucleus During Neuronal Plasticity," and was presented to the neuroscience community on March 8, 2011.

Dr. Martin was selected as this year's Magoun lecture for her extensive contributions to understanding the molecular basis of learning and memory. Kelsey's discovery that synapse formation in aplysia is critically dependent upon the translation of specific messages at synapses is among the most important findings in the cell biology of learning and memory. In Lyles et al (2006), Kelsey's group demonstrated that the small neuropeptide transmitter called sensorin is translated locally at synapses and plays a crucial role in synapse formation itself. The specificity of synapse formation is remarkable. While a given sensory neuron forms fascicles with processes of two different identified motor neurons, L7 and L10, it only forms synapses with L7. Accordingly, sensorin is only expressed in processes making synapses, arguing for the importance of specific synaptogenic signals in regulating sensorin expression. Kelsey and her colleagues showed that translation of sensorin occurred at synapses and that synapse-specific translation was essential for synapse formation. Remarkably, synapse formation is crucially dependent, not on sensorin protein per se, but upon newly synthesized sensorin. These studies argue that understanding the regulation of sensorin in more detail will provide fundamental insights into how messages are localized and translated selectively within synapses. Indeed, in work published in *Science* (Wang et al, 2009), Kelsey and her colleagues demonstrated different functions for the 5' and 3' regions of sensorin RNA, with the latter regulating localization to distal neuronal processes and the former conferring synapse-specific translation. Her studies demonstrate cell-type and neurotransmitter selective activation of translation at specific synapses. This is a truly exceptional contribution to the field. 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.

#### **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, Erin Gray was selected as the thirteenth recipient of the Kavan Prize for her research on the cellular and molecular mechanisms underlying the ability of synapses to undergo long-lasting increases in function in response to different patterns of synaptic activity. This phenomenon, known as longterm potentiation or LTP, is thought to play an important role in the storage of new information in the brain during memory formation.

Not long after joining the O'Dell laboratory Erin began a series of experiments that played a pivotal role in a collaborative study looking at the role of a novel phosphorylation site in AMPA type glutamate receptors in LTP. She was co-author on the initial publication describing the identification of this site (threonine 840 in AMPA receptor GluR1 subunits) published in 2007 in the *Journal of Neuroscience* and has continued to study the role of T840 phosphorylation in plasticity as part of her dissertation project. During this time Erin also initiated a series of experiments to examine whether the subunit composition of AMPA receptors changes following the induction of LTP and found, in contrast to some earlier reports, that the subunit composition of AMPA receptors is conserved following the induction of LTP. Erin published her findings (as first author) in the *Journal of Neurophysiology* in 2007. Finally, Erin has also studied the role of AMPA receptors in synaptic plasticity by investigating how LTP is altered in mice with a forebrain-specific knockout of GluR2 subunits. Surprisingly, Erin found that LTP is enhanced in these mice while behavioral experiments done in Michael Fanselow's laboratory at UCLA found that these mutants exhibit profound learning deficits. Together, these findings suggest that the inappropriate or abnormal induction of LTP degrades the ability of circuits in the hippocampus to appropriately encode new information needed for learning. A manuscript describing these results was published in *Plos One*. Although Erin's work in the laboratory is mainly focused on how modulation of AMPA receptors alters synaptic strength, she has also been involved in other projects. For instance, in 2007 Erin was a co-author on a manuscript in the *Journal of Neurophysiology* describing activity-dependent changes in transmission at recurrent, excitatory synaptic connections between hippocampal CA1 pyramidal cells. Erin also co-authored a manuscript that appeared last year in the *Journal of Neuroscience Research* describing the results of experiments investigating the role of the Ras effector Rin1 in extinction learning and synaptic plasticity.

The results from her most recent experiments are probably her most interesting. Here, Erin has been investigating the upstream signals regulating GluR1 phosphorylation at S845 and the novel phosphorylation site at T840. Erin has found that neuronal depolarization induces a rapid and calcium-dependent dephosphorylation of these both of these sites. Remarkably, in her experiments, Erin found that while calcium influx via NMDA type glutamate receptors drives dephosphorylation of S845, activation of voltage-activated calcium channels provides the signal responsible for T840 dephosphorylation. Thus, despite the fact that these two residues on GluR1 are both dephosphorylated in an activity-dependent manner it appears that these sites are regulated by highly localized and specific calcium-dependent signaling pathways. Moreover, Erin has found that phosphorylation of S845 dramatically inhibits the ability of protein kinase C to phosphorylate GluR1 subunits at T840 and that prior phosphorylation of T840 inhibits PKA-dependent phosphorylation of GluR1 at S845. This suggests that interactions between these two phosphorylation sites may provide a mechanism for integrating the effects of numerous upstream signaling pathways that regulate AMPA receptor function. A manuscript describing the results from these and other experiments should be submitted in the next few months.

Erin's accomplishments are not only evident from her publications but also from the awards and recognition she has received over the last few years. In 2008 Erin was appointed to the NIMH-funded Molecular and Cellular Neurobiology training grant here at UCLA, received her own NRSA fellowship in 2009, and in 2009 was awarded a Graduate Student Travel Award from the Society for Neuroscience to attend the Society's annual meeting. Moreover, in 2010 Erin was one of just 200 graduate students selected to attend the Graduate Student Research Festival at NIH. She is a gifted experimentalist with strong skills in molecular biology, biochemistry, and electrophysiology. Erin is clearly at the start of an extremely promising career, and is highly deserving of the Eva Mary Kavan Award for Excellence in Neuroscience Research.

Previous Eva Kavan Prize Recipients		
Year	Student	Mentor and Research Project
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

Previous Eva Kavan Prize Recipients		
Year	Student	Mentor and Research Project
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
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.

## 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 Nineteenth Samuel Eiduson Student Lecture, "Searching for Genetic Influences on Brain Structure," was presented May 17, 2011, by Jason Stein. Jason is currently a senior student in the Interdepartmental Ph.D. Program for Neuroscience. Jason develops methods for handling imaging and genetic data to tackle basic questions in neuroscience, about risk for disease and mechanisms of neurodegeneration. He has analyzed over a thousand brain images using a genome-wide image-wide search to find a genetic polymorphism that affect brain structure and risk for Alzheimer's disease. His discovery of GRIN2b, a glutamate receptor gene, as a candidate risk gene for brain degeneration was hailed as a very significant discovery by the Alzheimer's forum. He has also collaborated in studies showing that the obesity risk gene, FTO, affects brain atrophy in the elderly.

Jason has excelled during his graduate career. He has 4 first-authored publications including one in PNAS. One of his first-authored papers published in 2007 has been cited 66 times. He currently has two more publications in review at the journals Molecular Psychiatry and Journal of Neuroscience; one reviewer of his paper currently at Molecular Psychiatry said about Jason's work, "In many important ways the current study could represent a benchmark against which future imaging GWA studies will be evaluated." Jason excels at understanding both the underlying biology and the complicated statistical problems in neuroimaging. He has worked to develop novel computational tools that deal with high dimensional data and is currently working to expand genetics methods. He seeks out the help of experts in other fields such as neurodevelopment, and classical geneticists, and comes up with experiments to test hypotheses created by the genetic searches he has performed.

Jason is a truly remarkable student, demonstrating creativity, intelligence, and highly innovative research in his graduate student career. He was chosen by the department and Chancellor's office as one of only 2 graduate students nominated by UCLA for the NIH Director's Award. This is a new type of R01 where a finishing PhD student can be the PI, and can use the money to start up their own independent lab at UCLA.

Jason is a person with outstanding academic ability, and has developed his thesis work with remarkable original thinking and a strong command of genetics, statistics, and neuroscience. He is brimming with new ideas for experiments and methods, and he has the ability and the excitement to use them to benefit medical research. Quite clearly, he will be a leader in the burgeoning field of neuroimaging genetics.

Previous Samuel Eiduson Student Lecturers		
Year	Student	Lecture Title
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”

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

## DISTINGUISHED POSTDOCTORAL FELLOW IN NEUROSCIENCE LECTURE

In 2004 the Brain Research Institute initiated the 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 Eight Annual Distinguished Postdoctoral Lecturer was Eiji Shigetomi, Ph.D., a postdoctoral fellow working in the laboratory of Dr. Baljit Khakh in the Department of Physiology. His lecture, "Astrocyte Calcium Dynamics Revealed by a Refined Genetically Encoded Calcium Indicator," was presented to the neuroscience community on November 23, 2010.

Bingbing Song, M.D., Ph.D., presented the First Annual Distinguished Postdoctoral Research Lecture, "Release of Endogenous Opioids in the Spinal Cord Measured Through Mu-opioid Receptor Internalization," on March 9, 2004. The Second Annual Distinguished Postdoctoral Research Lecturer was Sheila Fleming, Ph.D., who presented "Behavioral Phenotyping of Genetic Mouse Models of Parkinson's Disease," on February 22, 2005. Catalina Abad, Ph.D., presented the Third Annual Distinguished Postdoctoral Research Lecture, "VIP and PACAP: Two Neuropeptides with Therapeutic Prospects," on June 6, 2006. The Fourth Annual Distinguished Postdoctoral Lecture was presented by Bruno Bianchi, Ph.D., "Deciphering Neurological Disorder Mechanisms Using Genetically Modified Human Neurons Derived from Human Embryonic Stem Cells," on June 5, 2007. The Fifth Annual Distinguished Postdoctoral Lecturer was Grégoire Courtine, Ph.D., who presented, "Regaining Stepping Capacities Following a Severe Spinal Cord Injury," to the neuroscience community on June 3, 2008. The Sixth Annual Distinguished Lecturer was Arne Ekstrom, Ph.D., who presented, "Correlation Between Navigational Performance and Place Cell Recruitment in the Human Hippocampal Area" to the neuroscience community on November 25, 2008. The Seventh Annual Distinguished Postdoctoral Lecturer was Dan Ohtan Wang, Ph.D., who presented, "Visualizing New Protein Synthesis at Synapses During Neuronal Plasticity," to the neuroscience community on November 24, 2009.

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

### Neurogenetics Affinity Group & Consortium for Neuropsychiatric Phenomics Lectures

Fall 2010

**Mayank R. Mehta, Ph.D.**, Associate Professor, Departments of Physics & Astronomy, Neurology, and Neurobiology, UCLA

***"Space, Oscillations and Memory"***

**Ahmad R. Hariri, Ph.D.**, Professor of Psychology and Neuroscience, Investigator, Institute for Genome Sciences & Policy, Duke University

***"Mapping Biological Pathways of Individual Differences in Behavior"***

**Arthur P. Arnold, Ph.D.**, Editor-in-Chief, Biology of Sex Differences; Distinguished Professor, Department of Integrative Biology & Physiology, UCLA

***"Mouse Models for Understanding Sex Differences Caused by Sex Chromosome Complement"***

**Steven Paul Reise, Ph.D.**, Department of Psychology, UCLA

***"A Structural View of Impulse Control and its Implications for Defining Phenotypes"***

Giovanni Coppola, M.D., Assistant Professor, Department of Neurology, UCLA  
*"Genetic and Genomic Studies in Neurodegeneration"*

Jeremiah M. Scharf, M.D., Ph.D., Departments of Neurology and Psychiatry; Director of Tic Disorders Clinic, Massachusetts General Hospital  
*"Genetics of Tourette Syndrome"*

Winter 2011

Jeanette A. Mumford, Ph.D., Department of Psychology, University of Texas at Austin  
*"Weighed Voxel Coexpression Network Analysis For Resting State fMRI"*

Katherine Pollard, Ph.D., Associate Professor, Division of Biostatistics, Gladstone Institutes, University of California, San Francisco  
*What Made Us Human?*

Lauren Weiss, Ph.D., Department of Psychiatry, School of Medicine, University of California, San Francisco  
*"The World According to GARP: the Genetics of Autism Research Program"*

Jonathan Sebat, Ph.D., Associate Professor of Psychiatry, and Cellular and Molecular Medicine; Chief, Beyster Center for Molecular Genomics of Neuropsychiatric Diseases, University of California, San Diego  
*"Copy Number Variants (CNVs): New Insights into the Genetic and Neurobiological Basis of Schizophrenia"*

David Jentsch, Ph.D., Professor, Departments of Psychology, and Psychiatry & Biobehavioral Sciences, University of California, Los Angeles  
*"Genetic and Neurochemical Influences on Cognitive Control in Laboratory Animals"*

Shamil Sunyaev, Ph.D., Associate Professor, Division of Genetics, Department of Medicine, Brigham and Women's Hospital, Harvard Medical School, Boston, Massachusetts  
*"Promise of Exome Sequencing: Evolutionary and Statistical Genetics of Rare Variants"*

Carlos Portera-Cailliau, M.D., Ph.D., Assistant Professor, Departments of Neurology, and Neurobiology, University of California, Los Angeles  
*"Making Sense of Dendritic Spine Defects in Fragile X Syndrome"*

Spring 2011

Gary W. Small, M.D., Parlow-Solomon Professor on Aging; Professor of Psychiatry & Biobehavioral Sciences; Director, Center on Aging; Director, Memory & Aging Research Center; Director, Geriatric Psychiatry Division, University of California, Los Angeles  
*"Detection and Prevention of Age-Related Cognitive Decline"*

Albert La Spada, M.D., Ph.D., FACMG, Professor of Pediatrics, and Cellular & Molecular Medicine; Vice Chair and Division Head of Genetics, Department of Pediatrics & Rady Children's Hospital-San Diego; Associate Director, Institute for Genomic Medicine, University of California, San Diego  
*"Deconstructing Spinocerebellar Ataxia Type 7 Neurodegeneration: An Epigenetics Odyssey"*

Lisa M. Ellerby, Ph.D., Associate Professor, Buck Institute for Research on Aging  
***“Huntington's Disease: Targets and Therapeutics”***

Ying-Hui Fu, Ph.D., Professor, Department of Neurology, University of California, San Francisco  
***“Molecular Characterization of Human Sleep Variants”***

Edythe London, Ph.D., Professor of Psychiatry & Biobehavioral Sciences; Director, Center for Addictive Behaviors, University of California, Los Angeles  
***“Smoking, Brain Imaging and Nicotinic Receptor Genes”***

Hugh Garavan, Ph.D., Associate Professor, Departments of Psychiatry, and Psychology, University of Vermont  
***“The Neurobiology of Cognitive Control and its Role in Addiction”***

#### Synapse to Circuit Club Affinity Group

Fall 2010

Hong-Wei Dong, M.D., Ph.D., Department of Neurology, UCLA  
***“The Mouse Connectome Project at UCLA”***

Andy Huberman, Ph.D., Section of Neurobiology/Neurosciences, University of California, San Diego  
***“Genetic Approaches to Understanding Mammalian Visual System Structure, Function and Assembly”***

Larry Zipursky, Ph.D., Department of Biological Chemistry, UCLA  
***“Wiring the Fly Visual System (Overview)”***

Laboratory Presentations

Orkun Akin - “Live Imaging of Drosophila Photoreceptor Targeting”

Yi Chen - “Developing Tools to Study Synaptic Specificity in the Drosophila Visual System”

Jason McEwen - “RNA Profiling Synaptic Development”

Winter 2011

Josh Trachtenberg, Ph.D., Department of Neurobiology, UCLA  
***“Maturation of Cortical Inhibition”***

Laboratory Presentation

David Chow - “Protein Translation, Autism and Cortical Function”

Kelsey C. Martin, M.D., Ph.D., Department of Biological Chemistry, UCLA  
***“Spatial Regulation of Gene Expression in Neurons”***

Laboratory Presentations

Toh Hean Ch'ng - “Synapse to Nuclear Trafficking of the Transcriptional Regulator CRTCl”

Patrick Chen - “Identifying Localized mRNAs in Mature Hippocampal”

Sreekanth Chalasani, Ph.D., Helen McLoraine Developmental Chair in Neurobiology; Assistant Professor, Molecular Neurobiology Laboratory, Salk Institute for Biological Studies, La Jolla, California  
***“Dissecting Neural Circuits in C. elegans”***



Doug Black, Ph.D., Department of Microbiology, Immunology & Molecular Genetics  
***“Alternative pre-mRNA Splicing as a Mechanism for Controlling Neuronal Maturation and Neuronal Function”***

Laboratory Presentations by Qin Li, Lauren Gehman, Andrey Damianov

Jin Hyung Lee, Ph.D., Department of Electrical Engineering, and Psychiatry & Biobehavioral Sciences, UCLA  
***“Optogenetics”***

David Prober, Ph.D., Division of Biology, California Institute of Technology, Pasadena, California  
***“Genes, Drugs and Neurons that Regulate Zebrafish Sleep”***

William Yang, M.D., Ph.D., Department of Psychiatry & Biobehavioral Sciences, UCLA  
***“Mouse Genetic Dissection of Basal Ganglia Function, Dysfunction and Degeneration”.***

Laboratory Presentations

Xiaofeng Gu - “Genetic Analyses of Huntingtin N-terminus 17 Amino Acid Domain (NT17) in HD Pathogenesis”

Xiao-Hong Lu - “Novel Genes Involved in HD Pathogenesis and BG Development”

Yijun Cui - “A Conditional BAC Rescue Strategy to Dissect Circuitry Basis of Opiate Drug Reward”

Daniel Geschwind, M.D., Ph.D., Departments of Human Genetics, Neurology, and Psychiatry & Biobehavioral Sciences, UCLA

***“How ASD Genetics Informs Neurobiology”***

Laboratory Presentations

Olga Penagarikano - “What an Autistic Mouse Looks Like: CNTNAP2”

Irina Voineagu - “The Molecular Neuropathology of Autism: Gene Expression Profiling Reveals Common Pathways in ASD”

Spring 2011

David Krantz, M.D., Ph.D., Department of Psychiatry & Biobehavioral Sciences, UCLA  
***“Vesicular Transporters as Genetic Probes of Synaptic Function”***

Quan Lin, Ph.D., Yi Sun Laboratory, Departments of Psychiatry & Biobehavioral Sciences, and Molecular & Medical Pharmacology, UCLA

***“Micro RNA Regulation of Dendritic Morphogenesis Influences Fear-Related Learning”***

Alvaro Sagasti, Ph.D., Department of Molecular, Cell & Developmental Biology, UCLA  
***“Interactions between Skin and Axons during Development and Regeneration”***

Yimin Zou, Ph.D., Section of Neurobiology, Division of Biological Sciences, University of California, San Diego

***“Wnt/Planar Cell Polarity Signaling in Growth Cone Guidance”***

Matt Pecot, Ph.D. and Satoru Miura, Larry Zipursky Laboratory, Department of Biological Chemistry, UCLA

***“Visualizing Dscam1 Splicing In Vivo”***

Kelsey C. Martin, M.D., Ph.D., Department of Biological Chemistry, UCLA  
***“Spatial Regulation of Gene Expression in Neurons by Local Translation”***

Laboratory Presentation

Ji-Ann Lee – “Cytoplasmic Functions of Rb-Fox1 in Neurons”

Jack Feldman, Ph.D., Department of Neurobiology, UCLA

***“The Neural Basis for Respiration”***

Bennett Novitch, Ph.D., Department of Neurobiology, UCLA

***“Regulation of Stem and Progenitor Cell Specification and Differentiation in the Vertebrate Central Nervous System”***

**Training Program in Neural Repair**

(and seminars co-sponsored by the Immunology in Neuroscience Affinity Group )

Fall 2010

Seema Tiwari-Woodruff, Ph.D., Department of Neurology, University of California, Los Angeles

***“Stimulating Endogenous Myelination and Inhibiting Neurodegeneration”***

Oswald Steward, Ph.D., Professor, Neurobiology and Behavior, School of Biological Sciences;  
Director, Reeve-Irvine Research Center, Anatomy & Neurobiology, School of Medicine, University of California, Irvine

***“Promoting Regeneration of Corticospinal Axons after Spinal Cord Injury”***

Hal Nguyen, Ph.D., Physical Medicine & Rehabilitation, University of California, Irvine

***“Quantitative Analysis of Cellular Inflammation after Traumatic Spinal Cord Injury: Evidence for a Multiphasic Inflammatory Response in the Acute to Chronic Environment”***

Dorothy Kozlowski Ph.D., Department of Biological Sciences, DePaul University, Chicago, Illinois

***“Neurorehabilitation and Neuroplasticity in a Rodent Model of Traumatic Brain Injury”***

Carolyne Yi, Ph.D., TPNR trainee, Zipursky laboratory, Department of Biological Chemistry, University of California, Los Angeles

***“Molecular Mechanisms of Dendrite Targeting”***

David Krantz, M.D., Ph.D., Department of Psychiatry & Biobehavioral Sciences, University of California, Los Angeles

***“Using Drosophila to Study Gene-Environment Interactions in Parkinson's Disease”***

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

***“Signalling between Synapse and Nucleus during Neuronal Plasticity”***

Claudio Grassi, M.D., Ph.D., Departments of Medicine, and Surgery; Director, Institute of Human Physiology, Faculty of Medicine, Catholic University, Rome, Italy

***“The Dual role of Intracellular Ca<sup>2+</sup> Signals in Neurogenesis and Neurodegeneration”***

Axel Metner, M.D., Associate Professor of Neurology; Principal Investigator, Heinrich-Heine University of Dusseldorf, Germany

***“Molecular Mechanisms of Resistance Against Oxidative Stress in Neurodegenerative Disorders”***

Eric Hayden, Ph.D., TPNR trainee, Teplow laboratory, Department of Neurology, University of California, Los Angeles

***“Structure-Neurotoxicity Relationships of Amyloid-Beta Oligomers: A Continuous Flow Reactor”***

Karen T. Chang, Ph.D., Zilkha Neurogenetic Institute, and Department of Cell & Neurobiology, University of Southern California, Los Angeles

***“Roles of Nebula/DSCR1 in Alzheimer's Disease, in Down Syndrome, and Mitochondrial Dynamics”***

Winter 2011

Sandra Rieger, Ph.D., Department of Molecular, Cell, and Developmental Biology, University of California, Los Angeles

***“Hydrogen Peroxide Promotes Peripheral Sensory Axon Growth Following Fin Amputation and Epidermal Injury”***

Reggie Edgerton, Ph.D., Departments of Integrative Biology & Physiology, and Neurobiology, University of California, Los Angeles

***“Strategies to Recover Movement after Complete Paralysis in Rats and Humans”***

Justine Overman, Ph.D., Department of Neurology, University of California, Los Angeles

***“A Novel Role for Ephrin-A5 in Axonal Sprouting, Functional Recovery, and Activity Dependent Plasticity after Stroke”***

Paul Mischel, M.D., Department of Pathology & Laboratory Medicine, University of California, Los Angeles

***“Targeting EGFR Signaling in Glioblastoma”***

Cristina Ghiani, Ph.D., Intellectual and Developmental Disability Research Center, University of California, Los Angeles

***“Environment and Genetics: Risk Factors for Neurodevelopmental Disabilities”***

David Teplow, Ph.D., Department of Neurology, University of California, Los Angeles

***“The Oligomer Cascade Hypothesis of Alzheimer's Disease: New Hope or New Hype?”***

Ellen Carpenter, Ph.D., Department of Psychiatry & Biobehavioral Science, University of California, Los Angeles

***“Genetics and the Environment: A Mouse Model for Autism”***

Michael Sofroniew, M.D., Ph.D., Department of Neurobiology, University of California, Los Angeles

***“Dissecting the Biology of Reactive Astrogliosis and Glial Scar Formation”***

Spring 2011

Ina Wanner, Ph.D., Semel Institute for Neuroscience & Human Behavior/ IDDRC, University of California, Los Angeles

***“Reactive Astrocyte Signaling, Damage and Death: Mining the Astrocyte Traumatome for Biomarkers of CNS Injury”***

David Chan, Ph.D., Investigator, Howard Hughes Medical Institute; Associate Professor of Biology, California Institute of Technology, Pasadena, California

***“Mitochondrial Dynamics and Links to Neurodegenerative Disease”***

Carlos Portera-Cailliau, M.D., Ph.D., Department of Neurology, University of California, Los Angeles

***“Chronic In Vivo Imaging of Structural and Functional Neuronal Plasticity after Stroke”***

Baljit Khakh, Ph.D., Department of Physiology, University of California, Los Angeles

***“Astrocyte Calcium Signaling”***

Joshua Grill, Ph.D., Department of Neurology, University of California, Los Angeles

***“Nerve Growth Factor Gene Transfer as a Potential Therapy for Alzheimer's Disease”***

Ming Guo, M.D., Ph.D., Department of Neurology, University of California, Los Angeles

***“A Molecular Pathway Mediating Neural Plasticity, Development and Repair”***

Naomi Santa Maria, Predoc Trainee, Biomedical Engineering, Giza laboratory, Department of Neurosurgery, University of California, Los Angeles

***“D-Cycloserine Restores Impaired Glutamatergic-Mediated Plasticity after Developmental Brain Injury”***

Nanthia Suthana, Ph.D., Postdoc Trainee, Fried laboratory, Department of Neurosurgery, University of California, Los Angeles

***“Deep Brain Stimulation of Human Entorhinal Area Enhances Memory”***

DeAnna Adkins, Ph.D., Department of Psychology, University of Texas at Austin

***“Cortical Stimulation: Enhancing Learning-Induced Functional Recovery and Neural Plasticity after Stroke and TBI”***

David Rowitch, M.D., Ph.D., Professor of Pediatrics and Neurological Surgery, Chief of Neonatology, Howard Hughes Medical Institute Investigator, University of California, San Francisco

***“New Clinical-Translational Approaches in Cerebral Palsy”***

(Sponsored by the Immunology in Neuroscience Affinity Group)

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

Fall 2010

Connie Kasari, Ph.D., Professor of Psychological Studies in Education and Psychiatry; CART Principal Investigator, University of California, Los Angeles  
***“Early Intervention for Autism Spectrum Disorders: Research Evidence and Promising New Trends”***

Heather Volk, Ph.D., MPH, Assistant Professor, Division of Environmental Health; Department of Preventive Medicine, University of Southern California  
***“Genes, the Environment, and Autism Risk”***

Karen Dobkins, Ph.D., Professor of Psychology; Director of Infant Vision Lab, University of California, San Diego  
***“Atypical Visual Development in Infants at Risk of Autism Spectrum Disorders”***

Winter 2011

Kevin A. Pelphrey, Ph.D., Harris Associate Professor of Child Psychiatry & Psychology, Yale Child Study Center and Department of Psychology, Yale University  
***“Neural Signatures of Autism”***

The UCLA Center for Autism Research and Treatment (CART) 3rd Annual Autism Symposium  
***Autism 2011 - Autism Spectrum Disorders: Research Update and Evidence-Based Treatment Models***

David Skuse, M.D., Professor of Behavioural Sciences, Head of Behavioural Sciences Unit, Institute of Child Health; University College London  
***“Parsing the Autism Spectrum for Genetic Analysis, by Fine-Grain Phenotyping”***

Spring 2011

David Mandell, Sc.D., Associate Professor, Psychiatry and Pediatrics; Associate Director, Center for Autism Research, University of Pennsylvania School of Medicine; The Children's Hospital of Philadelphia  
***“The Philadelphia Autism Instructional Methods Study: Moving Evidence-Based Practice into Community Settings”***

Shafali Jeste, M.D., Assistant Professor in Psychiatry, and Neurology, University of California, Los Angeles  
***“Investigating the Pathway to Autism in the Tuberous Sclerosis Complex”***

Ellen Carpenter, Ph.D., CART Pilot Principal Investigator, Professor, Department of Psychiatry, University of California, Los Angeles  
***“Genetic and Environmental Interactions in a Mouse Model of Autism”***

UCLA Center for the Study of Parkinson's Disease (CSPD)-Undergraduate Researchers in Parkinson's Disease Affinity Group

As an ARRA Supplement to the CGEP (Center for Gene Environment in Parkinson's) component of the CSPD, 3 undergraduate and 5 high school interns were awarded stipends for summer research opportunities in CSPD laboratories (in addition to the regular number of summer interns at the Center).

The students participated in all laboratory and Center activities, including the “Forum for Undergraduate Scholars in PD” and the “CSPD Undergraduate Poster Session”.

Topics covered over the academic year and the summer “Forum for Undergraduate Scholars in PD” include the following:

- Marie-Françoise Chesselet, M.D., Ph.D., Director, CSPD; Chair, Neurobiology; Markham Professor of Neurology  
“Modeling Parkinson’s Disease – What We Expect to Learn”
- Beate Ritz, M.D., Ph.D., Vice-Chair, Epidemiology, Professor of Epidemiology, EHS, and Neurology  
“Genes, Environment, and Parkinson’s Disease”
- Joseph Watson, Ph.D., Vice-Chair, Neuroscience Undergraduate Program; Professor of Psychiatry and Biobehavioral Sciences  
“The Role of Oxidative Stress in PD and Neurodegeneration”
- Nigel Maidment, Ph.D., Professor of Psychiatry and Biobehavioral Sciences  
“Neurotransmitter Dysfunction in PD”
- James Waschek, Ph.D., Professor of Psychiatry and Biobehavioral Sciences  
“The Role of Immunology in Neurodegenerative Disorders”
- Jeff Bronstein, M.D., Ph.D., Professor of Neurology  
“A Zebrafish Model of Parkinson’s Disease”
- Jeff Bronstein, M.D., Ph.D., Professor of Neurology  
“A Clinical Overview of PD”
- Gal Bitan, Ph.D., Assistant Professor of Neurology  
“From Basic to Translational Research – Developing Novel Therapies for PD”
- David Krantz, M.D., Ph.D., Associate Professor of Psychiatry and Biobehavioral Sciences  
“Drosophila Models in PD”

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

**Dolores Bozovic, Ph.D.**, Department of Physics & Astronomy, University of California, Los Angeles  
**“Biophysics of Hair Cells”**

(Special Lecture Sponsored by the Inner Ear Affinity Group)

**Miguel Eckstein, Ph.D.**, Department of Psychological and Brain Sciences, University of California, Santa Barbara

**“Visual Attention and Optimal Bayesian Decisions”**

(Special Lecture Sponsored by the Computational Neuroscience Affinity Group)

**Hans Forssberg, M.D., Ph.D.**, Professor in Basic and Clinical Neuroscience at Karolinska Institute; Consultant in Neuropaediatrics, Astrid Lindgren Children’s Hospital, Stockholm, Sweden; Director, Stockholm Brain Institute – a Centre for Cognitive and Computational Neuroscience

**“Cognitive Training and Dopamine Transmission in Attention Deficit Hyperactivity Disorder (ADHD)”**

(Special Seminar Sponsored by the Departments of Neurobiology, and Psychology, and the UCLA Brain Research Institute)

**Julietta U. Frey, Ph.D.**, Center for Learning and Memory Research, Leibniz Institute for Neurobiology, Magdeburg, Germany

**“How Dopamine and Other Neuromodulators Affect LTP and Learning: Spaced-Associative Properties and Their Consequences”**

(Special Lecture Sponsored by the Learning and Memory Affinity Group)

Vicente Honrubia, M.D., Department of Head and Neck Surgery, University of California, Los Angeles  
***“Role of Type I and Type II Hair Cells of the Chinchilla Horizontal Semicircular Canal in the Production of the Horizontal Vestibulo-Ocular Reflex (VOR)”***

(Special Lecture Sponsored by the Inner Ear Affinity Group)

James Hurford, Ph.D., Language Evolution and Computation Research Unit, Edinburgh University  
***“Reconciling Linguistic Jerks and Biological Creeps: How the Fastest Ever Evolutionary Change Happened Gradually”***

(Special Lecture Sponsored by the Songbird Affinity Group)

Darcy B. Kelley, Ph.D., Harold Weintraub and HHMI Professor of Biological Science; Co-Director, Doctoral Program in Neurobiology and Behavior, Columbia University, New York

***“Neuroendocrine Decoding of Vocal Communication Signals”***

(The Charles H. [Tom] Sawyer Distinguished Lecture sponsored by the Laboratory of Neuroendocrinology, Brain Research Institute)

Vanda A. Lennon, M.D., Ph.D., Professor of Immunology, and Neurology, Mayo Clinic, Rochester Minnesota

***“Neuromyelitis Optica and the Spectrum of CNS AQP4 Autoimmune Channelopathies”***

(Special Seminar Co-Sponsored by the Brain Research Institute Training Program in Neural Repair and the Brain Research Institute Immunology in Neuroscience Affinity Group, and the Department of Neurology)

Sebaastian Meenderink, Ph.D., Department of Neuroscience, Erasmus Medical Center, Rotterdam, The Netherlands

***“Comparative Approaches Towards Peripheral Auditory Function”***

(Special Lecture Sponsored by the Inner Ear Affinity Group)

Gregory Quirk, Ph.D., Department of Psychology, and Anatomy & Neurobiology, University of Puerto Rico School of Medicine

***“Prefrontal Control of Fear and Extinction”***

(The 2011 Annual Learning & Memory Distinguished Lecture)

Nicolas Schweighofer, Ph.D., Department of Biokinesiology and Physical Therapy, University of Southern California, Los Angeles

***“Dual Adaptation Supports a Parallel Architecture of Motor Memory”***

(Special Lecture Sponsored by the Computational Neuroscience Affinity Group)

Ladan Shams, Ph.D., Department of Psychology, University of California, Los Angeles

***“Computational Mechanisms of Sensory Recalibration and Perceptual Decision-Making”***

(Special Lecture Sponsored by the Computational Neuroscience Affinity Group)

Alan Stocker, Ph.D., Department of Psychology, University of Pennsylvania

***“Computational Mechanisms Underlying Perceptual Adaptation”***

(Special Lecture Sponsored by the Computational Neuroscience Affinity Group)

Ed Vul, Ph.D., Department of Psychology, University of California, San Diego  
***“Cognitive Processing Constraints and Probabilistic Models of Cognition”***  
(Special Lecture Sponsored by the Computational Neuroscience Affinity Group)

Juli Wade, Ph.D., Professor and Chair, Department of Psychology, Michigan State University  
***“Sculpting Reproductive Circuits: Relationships Among Hormones, Brain and Behavior in Anole Lizards”***

(Special Seminar Sponsored by the Laboratory of Neuroendocrinology, Brain Research Institute)

Ed Wagner, Ph.D., Associate Professor of Physiology, Department of Basic Medical Sciences, College of Osteopathic Medicine of the Pacific, Western University of Health Sciences

***“Sex Differences in, and Estrogenic Influences on, the Cannabinoid Regulation of Energy Homeostasis”***

(Special Seminar Sponsored by the Laboratory of Neuroendocrinology, Brain Research Institute)

Timothy Wright, Ph.D., Department of Biology, New Mexico State University, Las Cruces, New Mexico

***“Babel’s Birds: Vocal Learning in Wild and Captive Parrots”***

(Special Lecture Sponsored by the Songbird Affinity Group)

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

### Neural Circuits Symposium

The Neural Circuits Symposium was held on October 7, 2010. This day-long symposium aimed to highlight cutting edge developments in understanding neural circuits. Preventing or ameliorating diseases of the brain will rely on a detailed understanding of basic mechanisms underlying circuit assembly, function and maintenance, and thus this symposium had an appeal beyond basic scientists to clinical scientists interested in the etiology of diseases affecting the brain and translational scientists eager to apply basic knowledge to therapeutic approaches. The Neural Circuits Symposium was organized by Drs. Jack Feldman, Kelsey Martin, and Larry Zipursky, and was made possible with generous support from the UCLA Chancellor's Office, Brain Research Institute, David Geffen School of Medicine Dean's Office, UCLA NIH Training Grant in Neural Microcircuits, Semel Institute for Neuroscience and Human Behavior, UCLA Departments of Biological Chemistry, Neurobiology and Neurology, the UCLA Center for Neurobehavioral Genetics, and the UCLA-ACNP Center for the Study of the History of Neuropsychopharmacology.

#### Symposium Schedule

Welcome and Introduction, Gene Block, Chancellor, UCLA and Jack Feldman, UCLA

Session One Chair: Jack Feldman, UCLA

Thomas Jessell, Columbia University

"The Neurons and Networks of Spinal Motor Control"

Sten Grillner, Karolinska Institute

"The Computational Logic of Networks in Motion - from Ion Channels to Action"

Bert Sakmann, Max Planck Institute, Martinsried

"Digital Neuroanatomy - 3D Reconstruction of Anatomically Realistic Neuronal Networks"

May-Britt Moser, Kavli Institute

"Organization of the Entorhinal Spatial Map"

Session Two Chair: Kelsey Martin, UCLA

Richard Axel, Columbia University

"Representations of Odor in Higher Olfactory Centers"



Josh Sanes, Harvard University

"Visualizing Circuits in the Visual System"

Session Three Chair: Larry Zipursky, UCLA

David Anderson, California Institute of Technology

"The Neurobiology of Aggression in Flies and Mice"

Catherine Dulac, Harvard University

"Sex Battles in the Mammalian Brain"

### **UCLA – Oxford Summit on Parkinson's Disease**

The UCLA Center for the Study of Parkinson's Disease hosted a full day symposium, the "UCLA-Oxford Summit on Parkinson's Disease" on November 11, 2010. The speaker presentations were followed by a poster session.

#### Symposium Schedule

Welcome and Opening Remarks - Marie-Françoise Chesselet (UCLA) and Richard Wade-Martins (Oxford)

Session One

Kevin Talbot (Oxford) "Biomarker and Imaging Studies in PD"

Beate Ritz (UCLA) "Epidemiological Studies of PD"

Jeff Bronstein (UCLA) "In Vitro Models of PD"

Session Two

David Krantz (UCLA) "Neuroprotective Mechanisms: Studies in Drosophila"

Felix Schweizer (UCLA) "Parkin Interactions in Cell Models of PD"

Javier Alegre-Abarrategui (Oxford) "Novel Transgenic Mouse Models of PD"

William Yang (UCLA) "Novel Transgenic Mouse Models of PD"

Session Three

Michael Levine (UCLA) "Dysfunction of Circuitry in PD Mouse Models"

Nigel Maidment (UCLA) "Neurotransmitter Dysfunction in PD Mouse Models"

Marie-Françoise Chesselet (UCLA) "Testing New Therapies for PD in Mice"

Rebecca Pruss (Trophos) "New Therapeutic Approaches in PD"

Session Four

Matthew Wood (Oxford) "MicroRNAs and RNA Delivery in PD"

Richard Wade-Martins (Oxford) "Stem Cell-Derived Cell Culture Models of PD"

Clive Svendsen (Cedars Sinai/UCLA) "Stem Cell Therapies in PD"

Poster Session

### **Center for Neurobiology of Stress (CNS) Basic and Translational Science Symposium**

The Center for Neurobiology of Stress held a "Basic and Translational Science Symposium," on February 17, 2011. This NIH-funded Center for Neurobiology of Stress is dedicated to support and foster synergistic interdisciplinary basic and translational research programs in the area of mind/brain/body interactions in health and disease. The interdisciplinary and translational focus of the Center follows the guidelines established by the NIH Roadmap Initiative. The main Center theme is the interface between stress, pain and emotion, with a particular emphasis on sex-based differences in these interactions. Ultimately, the Center aims to contribute to a better understanding of the greater vulnerability of women to develop common affective, chronic pain and stress-related disorders. Additional information about the Center can be found on the Center's website: [www.uclacns.org](http://www.uclacns.org).

#### Symposium Schedule

Introduction- Yvette Taché, Ph.D., Co-Director, UCLA Center for Neurobiology of Stress; Associate Director, CURE: Digestive Diseases Research Center, VA Greater Los Angeles Healthcare System

Eugene Washington, M.D., M.Sc., Vice Chancellor, UCLA Health Sciences; Dean, David Geffen School of Medicine at UCLA

State of The CNS Center- Emeran Mayer, M.D., Director, UCLA Center for Neurobiology of Stress; Co-Director, CURE: Digestive Diseases Research Center

The UCLA SCOR: Specialized Center for Neurovisceral Interactions and Women's Health  
The SCOR Program

Vivian Pinn, M.D., Director, Office of Research in Women's Health, NIH

SCOR Project I: Sex Related Differences in Brain Circuit Activation by Stress

Chairs: M. Catherine Bushnell, Ph.D. (Harold Griffith Professor of Anesthesia, Professor in Dentistry and Neurology, McGill University) & Susan Bookheimer, Ph.D., (Professor, Semel Institute for Neuroscience and Human Behavior, UCLA)

Overview of Project 1 Progress: Emeran Mayer, M.D.

Discussion

SCOR Sponsored Junior Investigators (10 min presentation + 5 min discussion each)

Kirsten Tillisch, M.D., UCLA Center for Neurobiology of Stress

“DTI and Resting State”

Lisa Kilpatrick, Ph.D., UCLA Center for Neurobiology of Stress

“Imaging Genetics”

Lynn Shapiro, M.D., UCLA Center for Neurobiology of Stress, CURE: Digestive Diseases Research Center

“Central Control of Food Intake”

Zhou Wang, Ph.D., University of Southern California

“Brain Imaging in Rodents”

State of the Art Lecture

“The LONI Experience in Large Multi-Site Imaging Projects”

Arthur Toga, Ph.D., Director, UCLA Laboratory of Neuroimaging

SCOR Project 2: Sex Related Differences in Neuroendocrine Immune Interactions

Chairs: John Sheridan, Ph.D. (Associate Dean for Research, The Ohio State University College of Dentistry) & Margaret Heitkemper, RN, Ph.D. (Chair, Biobehavioral Nursing and Health Systems; Director, Center for Women's Health; Elizabeth Sterling Soule Endowed Chair, University of Washington)

Overview of Project 2 Progress: Lin Chang, M.D.

Discussion

Wendy Shih, B.S., UCLA Center for Neurobiology of Stress

“Gene Expression Profiling of Colonic Mucosal Tissue in IBS”

Poster Session

State of the Art Lecture

“Parkinson's Disease: Modeling the Non-Motor Symptoms in Animals”

Marie Françoise Chesselet, Chair, UCLA Department of Neurobiology

SCOR Project 3: Sex Related Differences in CRF Signaling in Brain Gut Interactions

Chairs: Jeffrey Mogil, Ph.D. (Canada Research Chair in Genetics of Pain Tier I, E. P. Taylor Chair in Pain Studies, McGill University) & Arthur Arnold, Ph.D., Distinguished Professor, Department of Integrative Biology & Physiology, UCLA)

Overview of Project 3 Progress: Yvette Taché, Ph.D.

Discussion

Muriel Larauche, Ph.D., UCLA Center for Neurobiology of Stress, CURE: Digestive Diseases Research Center, VA Greater Los Angeles Healthcare System

“New Insight in Stress-Related Modulation of Visceral Pain in Rodents”

Agata Mulak, M.D., Ph.D., UCLA Center for Neurobiology of Stress, CURE: Digestive Diseases Research Center, VA Greater Los Angeles Healthcare System

“Sex Differences in Stress-Induced Visceral Analgesia vs. Hyperalgesia as Unraveled by a Novel Non-Invasive Manometric Method in Rats”

SCOR Project 4: Urothelial Signaling in Animal Models of Interstitial Cystitis

Chairs: Larissa Rodriguez, M.D. (Director of Female Urology Research, UCLA) and William (Chet) de Groat, Ph.D. (Distinguished Professor, University of Pittsburgh)

Overview of Project 4 Progress: Lori Birder, Ph.D., University of Pittsburgh

Discussion

Ann Hanna-Mitchell, Ph.D., Department of Medicine, University of Pittsburgh

“CRF Signaling the Urothelium”

Lin Chang, M.D.

Poster Award/Wrap Up/Closing Comments

### **Synaptic Biophysics and Excitable Cell Physiology, A Symposium in Honor of Yoshi Kidokoro**

A full-day symposium, "Synaptic Biophysics and Excitable Cell Physiology," was held on February 25, in honor of Yoshi Kidokoro. Dr Kidokoro was a long-time collaborator with a number of UCLA faculty over many years. His scientific contributions were numerous and invaluable. The symposium was co-sponsored by the David Geffen School of Medicine Departments of Neurobiology, and Physiology, and the Brain Research Institute at UCLA, and the Semel Institute for Neuroscience & Human Behavior.

#### Symposium Schedule

Welcome and Opening Remarks: Alan Grinnell, Ph.D., Department Physiology, UCLA and Yuki Kidokoro

Session 1: Chair, Cameron Gundersen, Department of Molecular & Medical Pharmacology, UCLA

“The Development of Electrical Excitability—30 Years On”

Nick Spitzer, Division of Biological Sciences, UCSD

“Pacemakers for Spontaneous Waves of Electrical Activity in the Developing Mouse Cerebral Cortex”

William Moody, Department of Biology, University of Washington

“Control of Synaptic Efficacy by Noradrenergic Modulation of Auditory Synapses”

Larry Trussell, Vollum Institute, Oregon Health Sciences University

“From Fruit Flies to Human Stem Cells: Yoshi's Influence on Studies of the Neuromuscular Junction”

Joy Umbach, Department of Molecular & Medical Pharmacology, UCLA

Session 2: Chair, Elaine Yeh, Department of Biology, University of North Carolina

“Synaptotagmin: Then and Now”

Noreen Reist, Biomedical Sciences, Colorado State University

“The Role of Synaptotagmin Isoforms in Transmitter Release”

Paul Brehm, Vollum Institute, Oregon Health Sciences University

“Probing Synaptic Vesicle Dynamics in a Drosophila Vesicular Monoamine Transporter (dVMAT) Trafficking Mutant”

Audrey Chen, Department of Neurobiology, and Psychiatry & Biobehavioral Sciences, UCLA

Session 3: Chair, Felix Schweizer, Department of Neurobiology, UCLA

“Why Do Plants Need Ion Channels Anyway? CO<sub>2</sub> Sensing and Drought Stress Signaling”

Julian Schroeder, Division of Biological Sciences, UCSD

“Yoshi's Contribution to Understanding the Electrophysiology of Endocrine Cells”

Olav Sand, Department of Molecular Biosciences, University of Oslo

“Learning About the Signaling Pathways Underlying Neuronal Development by Studying Ion Channel Regulation in Rat Pituitary Tumor Cell Lines”

David Armstrong, National Institute of Environmental Health Sciences, National Institutes of Health

“Regulation of ENaC in the Lung: Why We Don't Drown Every Day”

Douglas C. Eaton, Department of Physiology, Emory University School of Medicine

Session 4: Chair, Tom Otis, Department of Neurobiology, UCLA

“Remodeling the Molecular Makeup of Adult Triads in Mammalian Skeletal Muscle Fibers”

Marino Di Franco and Julio Vergara, Department of Physiology, UCLA

“Synapse Loss in Spinal Muscular Atrophy”

Chien-Ping Ko, Section of Neurobiology, Department of Biological Sciences, USC

“Looking at Glioma from a Neuroscience Perspective”

Michael Barish, Beckman Research Institute for Neurosciences, City of Hope

Closing Remarks: Alan Grinnell, Ph.D., Department Physiology, UCLA

**The UCLA Brain Research Institute Integrative Center for Learning and Memory**

**Tenth Annual Southern California Learning & Memory Symposium**

The Tenth Annual Southern California Learning & Memory Symposium was held on June 1, 2011. This symposium is a yearly meeting primarily for Southern California laboratories interested in plasticity and learning. This annual symposium was supported by the Departments of Integrative Biology & Physiology, Neurobiology, Neurology, Physiology, Psychology, the Semel Institute and the Brain Research Institute at UCLA.

#### Symposium Schedule

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

*Investigations of Human Episodic Memory Using High Resolution Functional MRI*

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

*Roles of DSCR1 in Learning & Memory and Neurodegeneration: Implications for Down Syndrome and Alzheimer's Disease*

Karen T. Chang, Ph.D., Zilkha Neurogenetic Institute, and Department of Cell & Neurobiology, University of Southern California, Los Angeles

*Neural Mechanisms for Vocal Recognition Learning in Songbirds*

Timothy Q. Gentner, Ph.D., Department of Psychology, University of California, San Diego

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

*Imaging Neuronal Ensembles in Mice During Learning*

Takaki Komiyama, Ph.D., Section of Neurobiology and Department of Neurosciences, University of California, San Diego

*Optogenetic Functional Magnetic Resonance Imaging*

Jin Hyung Lee, Ph.D., Departments of Electrical Engineering, and Psychiatry & Biobehavioral Sciences, University of California, Los Angeles

*The Aware Mind in the Motionless Body: Neuroimaging in Disorders of Consciousness*

Martin M. Monti, Ph.D., Department of Psychology, University of California, Los Angeles

Session 3 Chair: Alcino J. Silva, Ph.D., Departments of Neurobiology, Psychiatry & Biobehavioral Sciences, and Psychology, University of California, Los Angeles

*Spaces within Spaces: The Parietal Cortex Simultaneously Maps Position within Multiple Reference Frames*

Douglas A. Nitz, Ph.D., Department of Cognitive Science, University of California, San Diego

*Decoding Distributed Cortical Signatures of Memory Retrieval with fMRI*

Jesse Rissman, Ph.D., Department of Psychology, University of California, Los Angeles

*Cortical Sensory Processing: The Impact of Specific Neurons and Individual Layers*

Massimo Scanziani, Ph.D., Howard Hughes Medical Institute, Section of Neurobiology, Division of Biological Sciences, University of California, San Diego

Session 4 Chair: Barbara Knowlton, Ph.D, Department of Psychology, University of California, Los Angeles

*Cell-Type Specific Regulation of Hippocampal Interneuronal Microcircuits*

Ivan Soltesz, Ph.D., Department of Anatomy & Neurobiology, University of California, Irvine

*New Ways to Image Neuronal Activity and Synaptic Protein Turnover*

Roger Tsien, Ph.D., 2008 Nobel Laureate (Chemistry), Howard Hughes Medical Institute, and Department of Pharmacology, University of California, San Diego

*Genetic Dissection of Mammalian Basal Ganglia Circuit: Insights into Pathological Behaviors*

William Yang, M.D., Ph.D., Department of Psychiatry & Biobehavioral Sciences, University of California, Los Angeles

### **18th 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 and USC. This year, the 18<sup>th</sup> Annual Joint Symposium on Neural Computation was held at UCSD on June 4, 2011.

#### Symposium Schedule

Session 1: Vision

Chair: Charles Chubb, UCI

“Discriminant Saliency Networks”

Nuno Vasconcelos, UCSD

“Functional Plasticity in Human Parietal Cortex: Adapting to Reversed Visual Input”

Alyssa Brewer, UCI

Session 2: Sensorimotor Control

Chair: Bosco Tjan, USC

“Path Integral Reinforcement Learning for Motor Skills”

Stefan Schaal, USC

“Closed Loop Sensorimotor Computation for Haptic Object Localization”

Tansu Celikel, USC

Keynote Lecture

Chair: Gert Cauwenberghs, UCSD

“Emulating a Million Neurons in the Cortex”

Kwabena Boahen, Stanford

Poster Session

Session 3: Neural Dynamics

Chair: Tanya Sharpee, Salk

“Telling Time with Neural Dynamics”

Dean Buonomano, UCLA

“Neural Mechanisms Underlying FM Sweep Selectivity in the Auditory Cortex”

Khaleel Razak, UCR

Session 4: Neural Systems

Chair: Thanos Siapas, Caltech

“Minimal Models of Multidimensional Neural Computations”

Tanya Sharpee, Salk

“The Multidimensional Wisdom of Crowds”

Pietro Perona, Caltech

#### Keynote Lecture

Chair: Terry Sejnowski

“Neurons as Finite-State Channels with Feedback”

Toby Berger, University of Virginia

#### Closing Remarks

Terry Sejnowski, Salk Institute and INC, UCSD

### **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. 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 3-5) how to use the joined facility's confocal microscopes. 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. Laurent Bentolila is the scientific director of the facility.

Dr. Schibler has been a member of UCLA's Laser Safety committee responsible for reviewing and setting laser safety policy at UCLA.

The combined facility in conjunction with Leica Microsystems hosted one distinguished lecture on light microscopy research during the past year; Dr. Jeff Lichtman from Harvard, presented "The Future of Connectomics" on December 15, 2010.

The combined facility hosted the following tours of the facility during the current period: 30 undergraduate researchers from California State University Los Angeles on August 4, 2010; The President and CEO of the US Russia Foundation for Economic Advancement and the Rule of Law (USRF), October 11, 2010; Director of Korea Photonics Technology Institute and 2 additional guests. October 27, 2010; Delegation from RUSNANO, the non-profit state run organization for Nanotechnology in Russia November 18, 2010; Attendees of the CNSI 10th Anniversary Celebration including former governor Gray Davis, December 7, 2010; 15 students from the UCLA class in Molecular Pharmacology, February 10, 2011; 50 Emerson Middle School students as an extension of Brain Awareness Week March 17, 2011; Several first year Ph.D. students from Bristol University, United Kingdom, April 5, 2011; Professor M.-K. Wu, Director General of the Taiwan National Nanoscience & Nanotechnology Program, May 20, 2011; and Mr. Dick Neily, Gooch & Housego (California) LLC, an industrial glass polishing firm, one of our industry users.

The Facility also acts as a bridge between UCLA researchers and the vendors of imaging technologies. In this capacity during the 2010-2011 academic year, the Facility hosted demonstrations and workshops along with vendors that were open to all UCLA researchers: VisualSonics Inc., “Cell Vizio” In Vivo Fiberoptic Fluorescence Microscopy for Small Animal Research Demonstration, September 1, 2010; The

Cooke Corporation scientific CMOS camera, "PCO Edge Camera," September 29, 2011; Leica Microsystems "New Developments in Confocal Imaging California NanoSystems Institute," October 7, 2010; INDEC Systems FluorVivo imager, "In Vivo Small Animal Fluorescence Imaging," October 14, 2010; Leica Microsystems "High-Speed Live Imaging!" October 19-22, 2010; Olympus Seminar & Workshop, November 2-5, 2010, Seminar: "Advanced Fluorescence & Live Cell Imaging;" Workshop: "Advanced Fluorescence Spectroscopy and Microscopy: From Cells to Single Molecules;" A joint workshop between PicoQuant GmbH, the Department of Chemistry & Biochemistry at UCLA and the Advanced Light Microscopy Facility on January 20, 2011; Andor Technology's Revolution® DSD & Bitplane's Imaris 7.2 Image Analysis Software demonstration on February 16, 2011; CNSI-Renishaw Workshop on Confocal Raman Spectroscopy and Imaging (in conjunction with CNSI Nano-Pic Characterization Lab) March 30, 2011, and April 5-6, 2011; Leica Microsystems "Laser Microdissection Presentation and Workshop," presentation April 7, demonstration April 12-14, 2011; Hamamatsu Camera and Dector Seminar, "A Technology Review of Hamamatsu's Detectors and Cameras, May 3, 2011; Olympus "Deep Tissue Imaging: Olympus Product Demonstration," featuring FluoView® FV1000MPE Exclusive, Dedicated Multiphoton Laser-Scanning Microscope, seminar June 7, 2011, and demonstrations through June 24, 2011.

## 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
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
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 2011

(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 LAUSD 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, Sarah Madsen 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 Associate Vice Chancellor’s Student Activities Fund, and the UCLA Brain Research Institute (BRI) Project Brainstorm Fund.

In addition to the visits from students during Brain Awareness Week, the Twenty-Second Annual H.W. Magoun Lecture was presented on Tuesday, March 8, 2011. This annual lectureship honors the founder of the Brain Research Institute, Horace “Tid” Magoun, and a distinguished BRI member. This year, Dr. Kelsey C. Martin, M.D., Ph.D., Professor and Chair of Biological Chemistry, Professor of Psychiatry & Biobehavioral Sciences, and Eleanor Leslie Term Chair in Innovative Brain Research in the Brain Research Institute, was selected by the committee and honored for her research contributions to understanding the molecular basis of learning and memory. Dr. Martin’s discovery that synapse formation in aplysia is critically dependent upon the translation of specific messages at synapses is among the most important findings in the cell biology of learning and memory. Dr. Martin’s lecture, “Signaling Between Synapse and Nucleus During Neuronal Plasticity,” was presented to the neuroscience community and a reception in honor of Dr. Martin was held after the lecture.

## **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 2010-2011 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 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	5
(2)	Interdepartmental Ph.D. Program in Neuroscience (including fellowships from ARCS)	
	Candidates for Ph.D.	89
	Candidates for M.D.-Ph.D.	16
(c)	Total number of graduate and postdoctoral students under supervision of BRI members	
(1)	Predoctoral	297
(2)	Postdoctoral	333
2.	Number of Faculty Members Actively Engaged in BRI's Research or Its Supervision	
	Total number of members	340
	Regular members	274
	Emeritus members	56
	Corresponding members	10
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	4.23
(3)	Total	4.44

5. List of Publications Issued by the BRI
  - (a) Publications of individual members and BRI affiliates and programs (###)
  - (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 2010 #13-21; 2011 #1-12  
(E-mail distribution only)
  - (e) Neuroscience News Vol. 19, # 3; Vol. 20, # 1-2  
(E-mail distribution only)
  - (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 2010-2011

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	\$261,756	A. Arnold (Life Sciences)
National Institute of Neurological Disorders & Stroke NS07449	Training Program in Neural Repair	\$155,284	M. Chesselet (Neurology)
NS-07101	Cellular Neurobiology Training Program	\$190,408	T. O'Dell (Physiology)
National Institute of Mental Health			
MH 19384	Training Program in Molecular and Cellular Neurobiology	\$119,496	D. Glanzman (Integrative Biology & Physiology)
National Institute of General Medical Sciences			
GM 75776	Clinical Pharmacology Training	\$241,672	B. Levey (Pharmacology)
Federal		\$968,616	
Total Funding Administered Through BRI		\$968,616	

## PUBLICATIONS

BRI Members' Total Number of Peer Reviewed Publications: 1,433.

Total Number of Collaborative Publications with one or more BRI Member: 607.

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