It has been more than two decades since genes causing familial Alzheimer's disease, Parkinson's disease, Huntington's disease, motor neuron disease and other neurodegenerative disorders were identified. While numerous molecular and cellular events contributing to these devastating illnesses have been revealed, key pathological events and feasible targets for therapeutic intervention still elude us. Increasing evidence supports that mechanisms underlying neuronal demise may be shared among multiple neurodegenerative disorders. For example, compromised mitochondria function, although prominent in Parkinson's disease, is also shared in Alzheimer's and amyotrophic lateral sclerosis. Discussion topics will include:

- The negative influence of neurotoxic stress upon the epigenome and the beneficial effects of restoration of the epigenome;
- The role of DNA damage and repair in neuronal function, as elucidated by recent insights into the relationship between genome integrity and the aging brain;
- The beneficial and detrimental effects of protein misfolding and the self-propagation of misfolded proteins implicated in several neurodegenerative diseases;
- New tools for the study of neurodegenerative disorders including the use of human neurons derived from induced pluripotent stem cells (iPSCs);
- Advances in the field of biomarkers and functional imaging;
- Novel mechanisms and targets for therapeutic intervention.

Opportunities for interdisciplinary interactions will be significantly enhanced by the concurrent meeting on Neurogenesis, which will share two plenary sessions with this meeting.

Session Topics:

- Protein Aggregation and Propagation of Misfolded Proteins in the Brain
- Mechanisms of Early Disease Intervention and Biomarkers
- Molecular Mechanisms of Neuronal Vulnerability
- Novel Approaches for the Therapeutic Intervention of Neurodegenerative Disease
- Epigenetics and Genomics (Joint)
- Aging and Genome Integrity
- Neurobiology of Disease
- iPSC Modeling of Developmental and Degenerative Neurological Diseases (Joint)

Abstract & Scholarship Deadline: October 4, 2012
Late-Breaking Abstract Deadline: November 1, 2012
Early Registration Deadline: December 4, 2012

Note: Scholarships are available to students and postdoctoral fellows and require a brief application and submission of an abstract. Short talk speakers will also be selected from abstracts. Early registration saves US$150 on later fee. Information shown is subject to possible change. Please visit meeting website for the most up-to-date program information.
SUNDAY, FEBRUARY 3
Arrival and Registration

MONDAY, FEBRUARY 4
Welcome and Keynote Address (J7)
Fred H. Gage, The Salk Institute for Biological Studies, USA
Neurogenesis and Neurological Disorders: Lessons from Studies of Adult Neurogenesis and Patient-Derived iPSCs
Susan Lindquist, HHMI/Whitehead Institute for Biomedical Research, USA
Modeling Pathology in Simpler Cells

Neurogenesis and Gliogenesis (J7)
Gordon J. Fishell, New York University Medical Center, USA
The Role of Genetics and Activity in the Generation of Cortical Neuron Subtypes
Jonas Frisén, Karolinska Institutet, Sweden
Neurogenesis and Gliogenesis in the Adult CNS
Dwight E. Bergles, Johns Hopkins University School of Medicine, USA
NG2+ OPCs and Role in ALS
Patrik Ernfors, Karolinska Institutet, Sweden
Neurogenesis and Cell-Type Diversification in the Sympathetic Lineage

Short Talk Chosen from Abstracts
Protein Aggregation and Propagation of Misfolded Proteins in the Brain (J8)
Virginia M. Y. Lee, University of Pennsylvania School of Medicine, USA
Transmission of alpha-Synuclein in Parkinson’s Disease
John Collinge, Institute of Neurology, University College London, UK
Prion Disease
Mathias Jucker, Universität Tübingen, Germany
Propagation of Misfolded Proteins in the Brain
Jeffery W. Kelly, The Scripps Research Institute, USA
Strategies to Ameliorate Neurodegenerative Diseases by Adapting the Proteostasis Network

Short Talk Chosen from Abstracts
Mechanisms of Early Disease Intervention and Biomarkers (J8)
John Q. Trojanowski, University of Pennsylvania, USA
Alzheimer’s Biomarkers and Tau-Focused Therapies
Ronald B. DeMattos, Lilly Research Laboratories, USA
The Use of Biomarkers in the Development of AD Therapies

Rosa Rademakers, Mayo Clinic, USA
Non-Coding Repeat Expansions in C9ORF72 as a Novel cause of Frontotemporal Dementia and Amyotrophic Lateral Sclerosis
Short Talk Chosen from Abstracts

Model Systems (J7)
Tzumin Lee, HHMI/Janelia Farm Research Campus, USA
Origins of Neuron Diversity as revealed by cell lineage analysis of Drosophila brains
Arnold Kriegstein, University of California, San Francisco, USA
OSVZ Neurogenesis in the Developing Human Neocortex
Su-Chun Zhang, University of Wisconsin-Madison, USA
Generation of Diverse Neural Subtypes from Pluripotent Human Stem Cells

Short Talk Chosen from Abstracts
Poster Session 1

TUESDAY, FEBRUARY 5
Neurogenesis and Development: Molecular Mechanisms (J7)
Yukiko Gotoh, University of Tokyo, Japan
Regulation of Neural Precursor Cell Fate in the Developing Mouse Neocortex
Soo-Kyung Lee, Oregon Health & Science University, USA
Gene Regulatory Networks in Spinal Cord Neurogenesis
Francois Guillemot, National Institute for Medical Research, UK
Regulation of Stem Cell Divisions in the Adult Brain
Jenny Hsieh, University of Texas Southwestern Medical Center at Dallas, USA
Activity-Dependent Gene Transcription in Adult Neurogenesis

Short Talk(s) Chosen from Abstracts
Molecular Mechanisms of Neuronal Vulnerability (J8)
Myriam Heiman, Massachusetts Institute of Technology, USA
TRAPping Parkinson’s and Huntington’s Diseases
Michael R. Hayden, Xenon Pharmaceuticals Inc., Canada
Huntington’s Disease
Valina L. Dawson, Johns Hopkins University School of Medicine, USA
Mechanisms of Cell Death in Neurodegeneration
Steven M. Paul, Weill Cornell Medical College, USA
ApoE, Amyloid Deposition and Abeta Clearance

Short Talk(s) Chosen from Abstracts

Stem Cell Niches in the Developing and Adult Brain (J7)
Christopher A. Walsh, Children's Hospital Boston, USA
Intrinsic and Extrinsic Control of Neurogenesis in the Cerebral Cortex

Andrea Brand, University of Cambridge, UK
Nutrient Control of Neural Stem Cells

Chay T. Kuo, Duke University School of Medicine
Sustaining New Neuron Production in the SVZ Niche

Short Talk Chosen from Abstracts

Novel Approaches for the Therapeutic Intervention of Neurodegenerative Disease (J8)

Anders Bjorklund, Lund University, Sweden
Nurr1 and TFEB as Targets for Therapeutic Intervention in Parkinson’s Disease

Michael Hutton, Lilly UK, UK
Clearance of Tau

Short Talk Chosen from Abstracts

WEDNESDAY, FEBRUARY 6

Epigenetics and Genomics (Joint)

Yi Eve Sun, University of California, Los Angeles, USA
DNA Methylation during Developmental Neurogenesis

André Fischer, German Center for Neurodegenerative Diseases, Germany
Epigenetic Mechanisms in Dementia

Daniel H. Geschwind, University of California, Los Angeles, USA
Functional Genomic Analyses of Pathways Dysregulated in Frontal Temporal Dementia

Hongjun Song, Johns Hopkins University School of Medicine, USA
Neuronal Activity-Induced Changes of DNA Methylation Landscape in the Adult Brain

Short Talk(s) Chosen from Abstracts

Adult Neurogenesis: Regulation and Functions (J7)

Gerd Kempermann, Technische Universität Dresden
Benefits from Newborn Neurons in the Adult Hippocampus

Pierre-Marie Lledo, Pasteur Institute, France
The Flexible Olfactory Brain

Shaoyu Ge, SUNY Stony Brook, USA
Optogenetic Probing for the Development and Function of Adult-Born Neurons

Short Talk Chosen from Abstracts

Aging and Genome Integrity (J8)

Bruce A. Yankner, Harvard Medical School, USA
Modeling the Role of Genomic Instability in Aging and Alzheimer’s Disease

Peter J. McKinnon, St. Jude Children’s Research Hospital, USA
DNA Damage Signaling and Neurogenesis

Li-Huei Tsai, Massachusetts Institute of Technology, USA
Genome Integrity, Chromatin Remodeling and Neurodegenerative Disorders

Short Talk Chosen from Abstracts

THURSDAY, FEBRUARY 7

Adult Neurogenesis under Pathological Conditions (J7)

Xinyu Zhao, University of Wisconsin, USA
Adult Neurogenesis and Neurodevelopmental Disorders

Heather A. Cameron, NIMH, National Institutes of Health, USA
Adult Neurogenesis, Stress and Depression

Randall Reed, Johns Hopkins University, USA
Olfactory Epithelium Neurogenesis after Injury

Jack M. Parent, University of Michigan, USA
Adult Neurogenesis and Epilepsy

Short Talk(s) Chosen from Abstracts

Neurobiology of Disease (J8)

David M. Holtzman, Washington University, USA
Regulation of beta-Amyloid by Neuronal Activity

Ted M. Dawson, Johns Hopkins School of Medicine, USA
Understanding Molecular Mechanisms of Neurodegeneration in Parkinson’s Disease

Li Gan, University of California, San Francisco, USA
Pathogenic Events Triggered by Tau Acetylation in Neurodegeneration

Marc Tessier-Lavigne, Rockefeller University, USA
Axon Degeneration in Development and Disease

Ryan J. Watts, Genentech, Inc., USA
Targeting Neurodegeneration by Boosting Antibody Uptake in Brain

IPSC Modeling of Developmental and Degenerative Neurological Diseases (Joint)

Guo-li Ming, Johns Hopkins University, USA
Understanding Functions of Schizophrenia Susceptibility Genes using Pluripotent Human Stem Cells

Anirvan Ghosh, Hoffmann-La Roche, Switzerland
Small Molecule Screen of hESCs and Patient-Derived iPSCs

Kevin C. Eggan, Harvard University, USA
Modeling ALS Using iPSCs

Short Talk Chosen from Abstracts

FRIDAY, FEBRUARY 8

Departure