



Neuroplasticity, Neuroregeneration, and Brain Repair

Day 1: Tuesday, June 13, 2017

8:00 AM Registration, Continental Breakfast, and Poster Session Setup

8:45 AM Opening Remarks

David Bleakman, PhD, Eli Lilly and Company
Alison Carley, PhD, The New York Academy of Sciences

9:00 AM Keynote Address

Astrocytes in Central Nervous System Repair and Regeneration
Michael V. Sofroniew, MD, PhD, David Geffen School of Medicine at the University of California, Los Angeles, Los Angeles, California, United States

Session I: Mechanisms of Neuroplasticity and the Role of Dendritic Spines, Axonal Growth, and Synaptic Plasticity

Session Chair: Mark P. Mattson, PhD, National Institute of Aging, National Institute of Health

9:45 AM

Regulation of Synapses and Synaptic Strength
Richard Tsien, DPhil, New York University School of Medicine, New York, New York, United States

10:15 AM

Striatal Plasticity in Parkinson's Disease
D. James Surmeier, PhD, Feinberg School of Medicine, Northwestern University, Chicago, Illinois, United States

10:45 AM Networking Coffee Break

11:15 AM

Novel Mechanisms of Immune-mediated Nervous System Regeneration
Roman J. Giger, PhD, University of Michigan School of Medicine, Ann Arbor, Michigan, United States

11:45 AM

Subtype-specific Local Growth Cone Control over Circuit Development, Regeneration, and Degeneration
Jeffrey D. Macklis, MD, DHST, Department of Stem Cell and Regenerative Biology, and Center for Brain Science, Harvard University, Cambridge, Massachusetts, United States

12:15 PM Networking Lunch



Session II: Mechanisms of Neuroplasticity and the Role of Inflammation, Oxidative Stress, Mitochondrial Function, and Autophagy

Session Chair: Clive Svendsen, PhD, Cedars-Sinai Medical Center

- 2:00 PM *Intermittent Bioenergetic Challenges Bolster Brain Resilience*
Mark P. Mattson, PhD, National Institute on Aging Intramural Research Program, Baltimore, Maryland, United States; and Johns Hopkins University School of Medicine, Baltimore, Maryland, United States
- 2:30 PM *Malfunctioning Autophagy and its Pathway to Neurodegeneration*
Ana Maria Cuervo, MD, PhD, Albert Einstein College of Medicine, Bronx, New York, United States
- 3:00 PM *Mitochondrial-linked Mechanisms and Therapeutic Opportunities*
Valina L. Dawson, PhD, Solomon H. Snyder Department of Neuroscience, Johns Hopkins University School of Medicine, Baltimore, Maryland, United States; and Adrienne Helis Malvin Medical Research Foundation, New Orleans, Louisiana, United States
- 3:30 PM Networking Coffee Break**

Session III: Glial Function in the Central Nervous System

Session Chair: Jeffrey Macklis, MD, DHST, Harvard University

- 4:00 PM *Human Glial Progenitor Cell-based Treatment and Modeling of Neurological Disease*
Steven A. Goldman, MD, PhD, University of Copenhagen Faculty of Medicine, Copenhagen, Denmark; and University of Rochester Medical Center, Rochester, New York, United States
- 4:30 PM *Stem Cell-derived Astrocytes for the Treatment Neurodegenerative Diseases*
Clive Svendsen, PhD, Cedars-Sinai Medical Center, Los Angeles, California, United States
- 5:00 PM *Development of Functionally Heterogeneous Astrocytes in Mammalian Central Nervous System*
David H Rowitch, MD, PhD, ScD, University of Cambridge, Cambridge, United Kingdom; and University of California, San Francisco, San Francisco, California, United States;
- 5:30 PM Networking Reception and Poster Session**
- 6:30 PM Day 1 Adjourns**



Day 2: Wednesday, June 14, 2017

8:00 AM Continental Breakfast

Session IV: Disease-modifying Therapies that Slow Disease Progression

Session Chair: **Michael J. O'Neill**, PhD, Eli Lilly and Company

8:50 AM **Industry Perspective Lecture**

Disease-modifying Drugs for Alzheimer's Disease — The Past and The Future

Eric Karran, BSc, PhD, AbbVie, Cambridge, Massachusetts, United States

Session V: Innovative Approaches to Modify Neurogenesis and to Promote Neuroregeneration

Session Chair: David Bleakman, PhD, Eli Lilly and Company

9:30 AM *Is Alzheimer's Disease Caused by Long-term Depression Gone Awry?*
Graham Collingridge, FRS, FMedSci, FSB, FBPhS, Department of Physiology, University of Toronto, Toronto, Canada; Lunenfeld-Tanenbaum Research Institute, Mount Sinai Hospital, Toronto, Canada; and School of Physiology, Pharmacology & Neuroscience, University of Bristol, Bristol, United Kingdom

10:00 AM *Modeling Human Brain Development and Disorders using Human Induced Pluripotent Stem Cells (hiPSCs)*
Guo-li Ming, MD, PhD, Department of Neuroscience, University of Pennsylvania, Philadelphia, Pennsylvania

10:30 AM **Networking Coffee Break**

11:00 AM *Engineering of Neurogenesis via Lineage Reprogramming*
Benedikt Berninger, PhD, University Medical Center Mainz of the Johannes Gutenberg University Mainz, Mainz, Germany;

11:30 AM *Rejuvenating and Re-engineering Aging Memory Circuits*
Amar Sahay, PhD, Massachusetts General Hospital, Boston, Massachusetts, United States; Harvard Stem Cell Institute, Cambridge, Massachusetts, United States; and BROAD Institute of Harvard and MIT, Cambridge, Massachusetts, United States

12:00 PM **Networking Lunch**

Session VI: Hot Topic Talks from Submitted Abstracts

Session Chair: Alison Carley, PhD, The New York Academy of Sciences

1:30 PM *In Vivo Two-photon Imaging of the Effects of Tauopathy and Amyloidopathy on Synapse Dynamics*
Johanna Jackson, Lilly UK, Surrey, United Kingdom



- 1:50 PM *Integrative Bioinformatics Approach to Understand the Role of Plasticity in Neurodegenerative Disease*
Milo Robert Smith, Icahn School of Medicine at Mount Sinai, New York, New York, United States
- 2:10 PM *Testing Hereditary Spastic Paraplegia Genes for Roles in Modeling Axonal Endoplasmic Reticulum in Drosophila*
Eliška Zlámalová, University of Cambridge, Department of Genetics, Cambridge, United Kingdom

Session VII: Biomarkers and Imaging Modalities for Neuroregeneration

Session Chair: David Bleakman, PhD, Eli Lilly and Company

- 2:30 PM *Neuroimaging Studies for the Early Detection of Alzheimer's Disease*
Reisa Sperling, MD, MMSc, Center for Alzheimer Research and Treatment, Brigham and Women's Hospital, Harvard Medical School, Boston, Massachusetts, United States; and Harvard Aging Brain Study, Departments of Neurology and Radiology, Massachusetts General Hospital and Harvard Medical School, Boston, Massachusetts, United States
- 3:00 PM *Neuronal Dysfunction in Mouse Models of Alzheimer's Disease In Vivo*
Arthur Konnerth, PhD, Technical University of Munich, Munich, Germany
- 3:30 PM Networking Coffee Break

Session VIII: The Future of Research and Therapies in Neuroregeneration and Neurorestoration

Session Chair: Michael J. O'Neill, PhD, Eli Lilly and Company

- 4:00 PM *The Ups and Downs of Translational Research in Alzheimer's Disease*
Ralph A. Nixon, MD, PhD, Center of Dementia, Nathan S. Kline Institute, Orangeburg, New York, United States; and Departments of Psychiatry and Cell Biology, New York University Langone Medical Center, New York, New York, United States
- 4:15 PM *Interactive Panel Discussion with Audience Q&A*
Moderator:
Ralph A. Nixon, MD, PhD, New York University Langone Medical Center
- Panelists:*
Ana Maria Cuervo, MD, PhD, Albert Einstein College of Medicine
Mark P. Mattson, PhD, National Institute of Aging, National Institute of Health
Clive Svendsen, PhD, Cedars-Sinai Medical Center
Jeffrey Macklis, MD, DHST, Harvard University
- 5:05 PM **Closing Remarks**
Daniel Skovronsky, MD, PhD, Eli Lilly and Company
Alison Carley, PhD, The New York Academy of Sciences
- 5:15 PM **Conference Adjourns**