

# KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

## Neurodegenerative Diseases: New Insights and Therapeutic Opportunities (Z2)

Scientific Organizers: Valina L. Dawson, Joseph W. Lewcock and Fred H. Gage

Sponsored by BioLegend, Inc., Biogen, BlueRock Therapeutics, Genentech, Inc., Ionis Pharmaceuticals, Inc., Merck & Co., Inc., Roche and Takeda Pharmaceutical Company Limited

## Neural Environment in Disease: Glial Responses and Neuroinflammation (Z1)

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June 16-20, 2019 • Keystone Resort • Keystone, Colorado, USA

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Abstract & Scholarship Deadline: February 13, 2019 / Abstract Deadline: March 13, 2019 / Discounted Registration Deadline: April 16, 2019

### SUNDAY, JUNE 16

#### Arrival and Registration

### MONDAY, JUNE 17

#### Welcome and Keynote Address (Z2)

**Marc Tessier-Lavigne**, Stanford University, USA  
*Neural Circuits & Neuroregeneration*

#### Welcome and Keynote Address (Z1)

**Li-Huei Tsai**, Massachusetts Institute of Technology, USA  
*Neuron-Glia Interaction in Health and Disease*

#### Aggregation Mediated Toxicity (Z2)

**Rudolph E. Tanzi**, Massachusetts General Hospital, USA  
*Amyloid Beta Organoid Model*

**Valina L. Dawson**, Johns Hopkins University School of Medicine, USA  
*Alpha Synuclein Toxicity*

**Patrik Verstreken**, KU Leuven, Belgium  
*Tau Toxicity at the Synapse*

#### Short Talk(s) Chosen from Abstracts

#### Neuronal Response to Injury (Z1)

**David M. Holtzman**, Washington University, USA  
*Gial-Neuronal Interactions in Modulating Neurodegeneration in Alzheimer's Disease*

**Eric J. Huang**, University of California, San Francisco, USA  
*Germinal Matrix Hemorrhage*

**Marc R. Freeman**, Vollum Institute, Oregon Health & Science University, USA  
*Mechanisms of Axon Degeneration*

#### Short Talk(s) Chosen from Abstracts

#### Workshop 1 (Z2)

##### Short Talks Chosen from Abstracts

#### Workshop 1 (Z1)

##### Short Talks Chosen from Abstracts

#### Transmission and Spread of Disease Pathology (Z2)

**Xiaobo Mao**, Johns Hopkins University, USA  
*The Mechanism of Pathological alpha-synuclein Transmission*

**John Collinge**, Institute of Neurology, University College London, UK  
*Prion Neurodegeneration: Towards an Effective Treatment and its Relevance for Alzheimer's Disease*

**Karina Fog**, H. Lundbeck A/S, Denmark

*Alpha-synuclein Antibodies as Therapeutics in Aynucleinopathies – How Antibodies affect Cellular Handling of Misfolded alpha-synuclein*

#### Short Talk(s) Chosen from Abstracts

#### Astrocytes (Z1)

**Michael V. Sofroniew**, David Geffen School of Medicine at UCLA, USA

*Astrocyte Scars do not Prevent Axon Regeneration*

**Jin-Moo Lee**, Washington University, USA  
*Astrocytosis and Amyloid Plaque Pathogenesis*

**Cagla Eroglu**, Duke University Medical Center, USA

*How Do Astrocyte-Synapse Interactions Sculpt Neural Circuits?*

**Baljit S. Khakh**, David Geffen School of Medicine, UCLA, USA

*Astrocyte Regulation of Circuitry*

#### Short Talk(s) Chosen from Abstracts

#### Poster Session 1

### TUESDAY, JUNE 18

#### New Therapeutic Opportunities (Z2)

**Frank W. Rigo**, Ionis Pharmaceuticals, USA

*Antisense-based Strategies*

**Eric J. Huang**, University of California, San Francisco, USA

*Microglia and Neurologic Disease*

**Don W. Cleveland**, University of California, San Diego, USA

*Gene Silencing Therapy for Neurodegenerative Disease*

**Li Gan**, University of California, San Francisco, USA

*Talk Title to be Announced*

#### Short Talk(s) Chosen from Abstracts

#### Microglia and Innate Immunity (Z1)

**Dorothy Schafer**, University of Massachusetts Medical School, USA

*Microglia Dysregulation in Multiple Sclerosis*

**Kim N. Green**, University of California, Irvine, USA

*Microglial Regulation of Alzheimer's Disease*

**Anne Schaefer**, Mount Sinai School of Medicine, USA

*Talk Title to be Announced*

**Francisco J. Quintana**, Harvard Medical School, USA

*Environmental Control of Astrocyte Proinflammatory Activities*

#### Short Talk(s) Chosen from Abstracts

#### Workshop 2 (Z1)

##### Short Talks Chosen from Abstracts

#### Developing Effective Preclinical Disease Models (Z2)

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**Cathleen Lutz**, The Jackson Laboratory, USA  
*Preclinical Mouse Models of Neurodegenerative Diseases Spinal Muscular Atrophy (SMA), Friedreich's Ataxia, Amyotrophic Lateral Sclerosis (ALS) and Frontotemporal Lobe Dementia (FTD)*

**Elena Cattaneo**, University of Milano, Italy  
*Organiod Models of Triple Repeat Diseases*

**Fred (Rusty) H. Gage**, The Salk Institute for Biological Studies, USA  
*iPSC to Study Repair and Neurodegeneration*

**Short Talk(s) Chosen from Abstracts**

### Blood Brain Barrier (Z1)

**Richard Daneman**, University of California, San Diego, USA  
*Regulation of the Blood-Brain Barrier in Health and Disease*

**Alexandre Prat**, Montreal Neurological Institute, Canada  
*Talk Title to be Announced*

**Eric V. Shusta**, University of Wisconsin, Madison, USA  
*Modeling the BBB in iPSCs*

**Short Talk(s) Chosen from Abstracts**

### Poster Session 2

## WEDNESDAY, JUNE 19

### Translating Therapeutics for Neurodegeneration to the Clinic (Z2)

**Joseph W. Lewcock**, Denali Therapeutics, USA  
*Therapeutic Strategies based on Human Genetics*

**Christopher E. Henderson**, Biogen Inc., USA  
*Novel Therapeutics for Neurodegenerative Disease*

**Matthew Kennedy**, Merck Research Labs, USA  
*Discovery and Development of LRRK2 Inhibitors*

**David V. Hansen**, Genentech, Inc., USA  
*Microglial Activation States in Alzheimer's Disease*

**Short Talk(s) Chosen from Abstracts**

### Glymphatics, Lymphatics and Wound Healing (Z1)

**Kari K. Alitalo**, University of Helsinki, Finland  
*CNS Lymphatics*

**Iben Lundgaard**, University of Lund, Sweden  
*Glymphatics*

**Maria Lehtinen**, Boston Children's Hospital, Harvard Medical School, USA  
*CSF Regulation*

**Julie Siegenthaler**, University of Colorado Denver, USA  
*Meningeal Fibroblast Identity and Function: New Insights from scRNA-Sequencing*

**Short Talk(s) Chosen from Abstracts**

### Round Table Discussion from Industry, Government and Academia – Challenges and Opportunities (Z2)

### Molecular Mechanisms of ALS/FTD (Z2)

**Aaron D. Gitler**, Stanford University School of Medicine, USA  
*Expanding Mechanisms and Therapeutic Targets for Neurodegenerative Disease*

**Clotilde Lagier-Tourenne**, Massachusetts General Hospital, USA  
*Molecular Mechanisms of Disease in ALS and FTD*

**Gene W. Yeo**, University of California, San Diego, USA  
*Protein-RNA and Stress Granules Dysregulation in ALS*

**Short Talk(s) Chosen from Abstracts**

### Adaptive Immune Responses (Z1)

**Vanda A. Lennon**, Mayo Clinic, USA  
*Astrocytic and Oligodendroglial Autoimmunity*

**Daniel S. Reich**, NIH/NINDS, USA  
*Imaging lesion repair in multiple sclerosis*

**Jorge I. Alvarez**, University of Pennsylvania, USA  
*Talk Title to be Announced*

**Short Talk(s) Chosen from Abstracts**

### Poster Session 3

## THURSDAY, JUNE 20

### Drivers of Synaptic Loss in Disease (Z2)

**Paul F. Worley**, Johns Hopkins School of Medicine, USA  
*NPTX2, Synaptotoxicity and Cognitive Dysfunction in AD*

**Beth Stevens**, Children's Hospital Boston, USA  
*How Microglia Prune Synapses*

**Karen Hsiao Ashe**, University of Minnesota, USA  
*Synaptic and Cognitive Dysfunction from Non-fibrillar Tau*

**Shanthini Sockanathan**, Johns Hopkins University School of Medicine, USA  
*Control of ADAM10  $\alpha$ -Secretase Cleavage of Amyloid Precursor Protein by GDE2-RECK*

**Short Talk(s) Chosen from Abstracts**

### Oligodendrocytes (Z1)

**David H. Rowitch**, University of Cambridge, UK  
*Functional Diversity of Astrocytes*

**Kelly Monk**, Oregon Health & Science University, USA  
*Molecular and Genetic Mechanisms of Myelin Formation and Repair*

**Rita Balice-Gordon**, Sanofi, Inc., USA  
*Talk Title to be Announced*

**Short Talk(s) Chosen from Abstracts**

### Workshop 2 (Z2)

**Short Talks Chosen from Abstracts**

### Workshop 3 (Z1)

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#### Glial Contributors to Neurodegeneration (Z2)

**Mathew M. Blurton-Jones**, University of California, Irvine, USA

*Generation and Use of iPSC-derived Microglia to Study Neurodegenerative Diseases*

**Katerina Akassoglou**, Gladstone Institutes & University of California, San Francisco, USA

*Neurovascular Interactions: Mechanisms, Imaging, Therapeutics*

**Sandeep Robert Datta**, Harvard Medical School, USA

*The MS4A Gene Family in Alzheimer's Disease*

#### Short Talk Chosen from Abstracts

#### Hot Topics (Z1)

Speaker to be Announced

Speaker to be Announced

Speaker to be Announced

#### Short Talk Chosen from Abstracts

#### Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (Z2)

#### Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (Z1)

### FRIDAY, JUNE 21

#### Departure