**MONDAY, JUNE 7**

**Welcoming Remarks and Keynote Session (Joint) (7am Denver/Mountain Time Start)**

*Eric J. Huang,* University of California, San Francisco, USA  
*Beth Stevens,* Boston Children's Hospital, Harvard Medical School, USA

**Neurodegenerative Diseases: Genes, Mechanisms and Therapeutics (EK48)**

Scientific Organizers: Eric J. Huang, Alison Goate and Richard M. Ransohoff  
Sponsored by BlueRock Therapeutics, Cell Research, Genentech, Ionis Pharmaceuticals, Inc. and Ultragenyx Pharmaceutical Inc.

**Neuroimmune Interactions in Health and Disease (EK49)**

Scientific Organizers: Beth Stevens, Jonathan Kipnis and Kate Monroe  
June 7-9, 2021 • Virtual at your computer  
Sponsored by Cell Research, Synthego, and Ultragenyx Pharmaceutical Inc.

**Disease Mechanisms and Therapeutic Targets (Joint) (8:10am Denver/Mountain Time Start)**

**Holly Kordasiewicz,** Ionis Pharmaceuticals, USA  
Antisense Oligonucleotides for the Treatment of Neurological Diseases

*Joseph W. Lewcock,* Denali Therapeutics, USA  
Therapeutic Strategies for the Treatment of Neurodegenerative Disease Based on Human Genetics

*Kate Monroe,* Denali Therapeutics, USA  
Enhancing Microglia Function with ATV:TREM2

Johan Luthman, Lundbeck, Denmark  
Neuroimmunological Target Considerations - To Be or Not To Be in the Brain

**Raz Dvir Szternfeld,** 150.00  
Short Talk: TREM2-Independent Neuroprotection Mediated by Monocyte-Derived Macrophages in a Mouse Model of Alzheimer’s Disease

**Christiane D. Wran,** Massachusetts General Hospital, USA  
Short Talk: Myokine Irisin Is a Critical Regulator of Cognitive Function

**Elise Marsan,** University of California, San Francisco, USA  
Short Talk: Highly Conserved Glial Pathology and Human-Specific Neuronal Pathology Promote Neurodegeneration in FTLD-GRN

**Mapping Immune Cell States in Health and Disease (11am Denver/Mountain Time Start) (EK49)**

*Francisco J. Quintana,* Harvard Medical School and the Broad Institute of MIT and Harvard, USA  
*Beth Stevens,* Boston Children's Hospital, Harvard Medical School, USA

**Kevin Guttenplan,** 150.00  
Short Talk: Identification of a Novel Astrocyte Toxic Factor

**Frederick Bennett,** 275.00  
Short Talk: Brain Macrophage Transplantation for Research and Therapy Development

**From Therapeutic Targets to Clinic (11am Denver/Mountain Time Start) (EK48)**

*Joseph W. Lewcock,* Denali Therapeutics, USA  
*Charlotte J. Sumner,* Johns Hopkins School of Medicine, USA  
The Evolving Challenges of Gene Targeted Therapeutics for SMA

Lorenz Studer, Memorial Sloan Kettering Cancer Center, USA  
IPSC-Derived Dopaminergic Neurons and Parkinson’s Disease Therapy

**Priyanka Narayan,** National Institute of Health, USA  
Short Talk: Discovering and Reversing the Metabolic Consequences of APOE4 in iPSC-Derived Glia

**Poster Session 1 (Joint) (1pm Denver/Mountain Time Start)**

**TUESDAY, JUNE 8**

**Genetic Contributions to Neurodegeneration (7am Denver/Mountain Time Start) (EK48)**

*Valina L. Dawson,* Johns Hopkins University School of Medicine, USA  
*Alison Goate,* Icahn School of Medicine at Mount Sinai, USA  
Human Genetics Implicates Microglial Function in Alzheimer’s Disease Risk

Jennifer Yokoyama, University of California, San Francisco, USA  
Immune Contributions to Early-Onset Neurodegenerative Disease

**Martine Therrien,** 275.00  
Short Talk: Modeling the Impact of AD Genetic Risk on Microglia States and Function

Andy P. Tsai, Indiana University School of Medicine, USA  
Short Talk: Impact of PLCG2 Alzheimer’s Disease Risk Variants on Microglia Biology and Disease Pathogenesis

**Neuroimmune Regulation of Sleep and Brain States (7am Denver/Mountain Time Start) (EK49)**

*Jonathan Kipnis,* Washington University School of Medicine, USA  
*Maria Lehtinen,* Harvard Medical School, USA  
Maiken Nedergaard, University of Rochester, USA  
Sleep Regulation and Disease Roles of the Glymphatic System

David M. Holtzman, Washington University, USA  
APOE, Innate Immunity, and Neurodegeneration

**Marco Colonna,** Washington University School of Medicine, USA  
ILCs and Sleep

* Session Chair ⊙ Invited but not yet accepted  
Program current as of September 24, 2021.  
For the most up-to-date details, visit [https://www.keystonesymposia.org](https://www.keystonesymposia.org)
Constance Martha Dopp, 150.00
[NOT AVAILABLE ON DEMAND] Short Talk: Aging-Associated Myelin Dysfunction Drives Amyloid Deposition in Alzheimer’s Disease

Cellular Pathways Targeted by Neurodegeneration (8:20am Denver/Mountain Time Start) (EK48)
* Alison Goate, Icahn School of Medicine at Mount Sinai, USA
* Valina L. Dawson, Johns Hopkins University School of Medicine, USA
Mechanism of A-Synuclein-Mediated Neurodegeneration
Christian Hoffmann, 275.00
Short Talk: Synapsin and Synaptic Vesicle Condensates Recruit alpha-Synuclein

Kathryn M. Hixson, UNC Chapel Hill, USA
Short Talk: Cerebellar Degeneration in ARSACS Disease Linked to Tau Hyperphosphorylation and Membrane-Protein Disruption
Noah Johnson, University of Colorado Anschutz Medical Campus, USA
Short Talk: Identification of Small Molecule Drugs that Target Apolipoprotein E4-Catalyzed Amyloid-β Fibrillization: A New Therapeutic Approach to Alzheimer’s Disease

NeuroImmune Crosstalk at Brain Borders (8:30am Denver/Mountain Time Start) (EK49)
* Jonathan Kipnis, Washington University School of Medicine, USA
Lymphatic System Function and Dysfunction
Michal Schwartz, Weizmann Institute of Science, Israel
Boosting Immunity to Combat Alzheimer’s Disease
* Maria Lehtinen, Harvard Medical School, USA
Imaging and Probing Choroid Plexus Influence on Brain Development and Function
Richard Daneman, University of California, San Diego, USA
Control of Blood Brain Barrier Development, Function and Dysfunction
Alec Walker, 150.00
Short Talk: The Meninges Function as a Niche for B Lymphopoiesis in Early Life
Justin Rustenhoven, 275.00
Short Talk: Skull and Vertebral Bone Marrow Are Myeloid Cell Reservoirs for the Meninges and CNS Parenchyma

Glial Contributions to Neurodegeneration (10:05am Denver/Mountain Time Start) (EK48)
* Mathew M. Blarton-Jones, University of California, Irvine, USA
Marco Prinz, University of Freiburg, Germany
Novel Genetic Tools for Studying Myeloid Cells in the CNS
Ádám Dénès, Hungarian Academy of Sciences, Hungary
Microglia Shape Neuronal and Vascular Responses via Compartment-Specific Purinergic Mechanisms

Anne Schaefer, Icahn School of Medicine at Mount Sinai, USA
Control of Neuron Activity by Microglia
* Michael T. Heneka, German Center for Neurodegenerative Diseases, Germany
Inflammasome Activation in Alzheimer’s Disease

Swati Mishra, University of Washington, USA
Short Talk: Depletion of AD Risk Gene Sortilin-Related Receptor (SORL1) Causes Cell-Type Specific Dysfunction of the Endo-Lysosomal Pathway in Human Neurons and Microglia – Implications in Alzheimer’s Disease (AD)

Patrick W. Sheehan, 150.00
Short Talk: Astrocytic BMAL1 Regulates Protein Aggregation in Mouse Models of Alpha-Synuclein and Tau Pathology
Sabina Tahirovic, 275.00
Short Talk: Loss of NPC1 Enhances Phagocytic Uptake and Impairs Lipid Trafficking in Microglia

Immune Mechanisms of Synapse Function and Dysfunction (11:10am Denver/Mountain Time Start) (EK49)
* Beth Stevens, Boston Children’s Hospital, Harvard Medical School, USA
* Jonathan Kipnis, Washington University School of Medicine, USA
Dorothy Schafer, University of Massachusetts Medical School, USA
Autoimmune Mechanisms of Cognitive Dysfunction
Betty Diamond, Feinstein Institute for Medical Research, USA
Autoimmune Mechanisms of Cognitive Dysfunction

Borislav Dejanovic, Broad Institute, USA
Short Talk: Synaptic Proteomics in an AD Mouse Model Reveals Complement-Dependent Synapse Elimination by Astrocytes

Susanna Rosi, 275.00
Short Talk: Novel Microglia-Mediated Mechanisms Underlying Synaptic Loss and Cognitive Impairment after Traumatic Brain Injury

Meet the Editors (Joint) (1:30pm Denver/Mountain Time Start)
Swapnika Ramu, Cell Press, USA
Gabriel A. Gasque, PLOS Biology, USA
Sophie Morgan, Nature Communications, UK
Tim Spencer, Journal of Cell Biology, USA

Networking Lounge (Joint) (2:30pm Denver/Mountain Time Start)

WEDNESDAY, JUNE 9

Phase Separation, Protein Aggregation and Transmission (7am Denver/Mountain Time Start) (EK48)
* Eric J. Huang, University of California, San Francisco, USA
J. Paul Taylor, St. Jude Children's Research Hospital, USA
Phase Separation of RNA Binding Proteins in Neurodegeneration

Sjors Scheres, MRC Laboratory of Molecular Biology, UK
Cryo-EM Structures of Amyloid Filaments from Human Brain

* Session Chair † Invited but not yet accepted Program current as of September 24, 2021.
For the most up-to-date details, visit https://www.keystonesymposia.org.
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Francisco J. Quintana, Harvard Medical School and the Broad Institute of MIT and Harvard, USA
Microbial Regulation of Astrocyte Responses

Charlotte R. Wayne, Short Talk: Mechanisms of Th17 Cell-Mediated Microglial Activation and BBB Dysfunction in Post-Infectious Basal Ganglia Encephalitis

Malu G. Tansey, Short Talk: Colitis Disrupts Inflammatory Gene Networks and Nigrostriatal Integrity in the Brain and LRRK2 G2019S Mutant Mice Display Enhanced Vulnerability

**Poster Session 2 (Joint) (1:30pm Denver/Mountain Time Start)**

Holly Kordasiewicz, Ionis Pharmaceuticals, USA
**Career Roundtable (Joint) (2:30pm Denver/Mountain Time Start)**

Philip L. De Jager, Columbia University Medical Center, USA
Lorenz Studer, Memorial Sloan Kettering Cancer Center, USA