

KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

Neurodegeneration: The Biological Pathways Driving the Future of Therapeutic Development (Z6)

Scientific Organizers: Dimitri Krainc and Alfred W. Sandrock Jr.

Sponsored by BioLegend, Inc., Roche and Ionis Pharmaceuticals, Inc.

Neuro-Immune Interactions in the Central Nervous System (Z5)

Scientific Organizers: Marco Colonna, Shilpa Sambashivan and Michael T. Heneka

June 19-23, 2020 • Keystone Resort • Keystone, CO, USA

Sponsored by BioLegend, Inc., BlueRock Therapeutics and Ionis Pharmaceuticals, Inc.

Discounted Abstract & Scholarship Deadline: February 18, 2020 / Abstract Deadline: March 17, 2020 / Discounted Registration Deadline: April 21, 2020

FRIDAY, JUNE 19

Arrival and Registration

SATURDAY, JUNE 20

Welcome and Keynote Address (Joint)

Rudolph E. Tanzi, Massachusetts General Hospital, USA
New Insights into Pathogenesis and Therapeutics Options in Alzheimer's Disease

Thomas C. Südhof, Stanford School of Medicine, USA
Synapses and Synaptic Communication

Genetics of Neuro-Immune Interactions (Joint)

John Hardy, University College London, Institute of Neurology, UK
Identifying Genetic Variants Contributing to Neurodegenerative Diseases

David Sulzer, Columbia University, USA
Inflammation and Immunity in Parkinson's Disease

Alison Goate, Icahn School of Medicine at Mount Sinai, USA
Alzheimer's Disease Susceptibility Alleles

Short Talks Chosen from Abstracts

Workshop 1: Imaging of the CNS in Health and Disease (Z5)

Short Talks Chosen from Abstracts

Synaptic Mechanisms and Molecular Events (Z6)

Pietro V. De Camilli, Yale University School of Medicine, USA
Synaptic Membrane Endocytosis

Volker Haucke, Leibniz Forschungsinstitut für Molekulare Pharmakologie, Germany
Synaptic Vesicle Exo-Endocytosis and Reformation

Maria Grazia Spillantini, University of Cambridge, UK
Synaptic Dysfunction in Parkinson's Disease

Short Talks Chosen from Abstracts

Understanding Immune Receptors in the CNS (Z5)

Marco Colonna, Washington University School of Medicine, USA
Beneficial Effects of Microglia and TREM2 in Neurodegenerative Diseases

Beth Stevens, Boston Children's Hospital, Harvard Medical School, USA
Synapse Pruning in Health and Disease: The Role of Complement and CD47

Greg E. Lemke, The Salk Institute for Biological Studies, USA
TAM Receptor Regulation of Neurodegenerative Disease

Short Talks Chosen from Abstracts

Poster Session 1

SUNDAY, JUNE 21

Autophagy and Disease (Z6)

Ivan Dikic, Goethe University Medical School, Germany
Targeting TBK1/OPTN and Autophagy Networks in ALS

Xinnan Wang, Stanford University School of Medicine, USA
A Miro1-Based Individual-Tailored Treatment Strategy for Parkinson's Patients

Myriam Heiman, Massachusetts Institute of Technology, USA
Genome-wide in vivo CNS Screening Identifies Genes that Modify CNS Neuronal Survival and Mutant Huntingtin Toxicity

Ai Yamamoto, Columbia University, USA
Selective Autophagy in the CNS

Short Talks Chosen from Abstracts

Microglia in Neurodegeneration and Synaptic Diseases (Z5)

Frederic Geissmann, Memorial Sloan Kettering Cancer Center, USA
Mosaicism in the Central Nervous System and Neurodegeneration

Michael T. Heneka, German Center for Neurodegenerative Diseases, Germany
Detrimental Effects of Inflammasome Activation and ASC-Spec as a Plaque-Nucleating Event in Alzheimer's Disease

Anna Victoria Molofsky, University of California, San Francisco, USA
Innate Immune Mechanisms of Synapse Remodeling during Development and Learning

Rosa C. Paolicelli, University of Lausanne, Switzerland
The Role of TDP-43 in Microglia Phagocytosis of Synapses and beta Amyloid

Short Talks Chosen from Abstracts

Endolysosomal Dysfunction in Neurodegeneration (Z6)

Dimitri Krainc, Northwestern University, USA
Convergence of Mitochondrial and Lysosomal Dysfunction

Ralph A. Nixon, New York University, Langone Medical Center, USA
Defective Endolysosomal Function in Disease

Roberto Zoncu, University of California, Berkeley, USA
mTOR and Lysosomes in Nutrient Sensing and Growth Control

Short Talks Chosen from Abstracts

The Role of the Microbiome in Shaping the CNS in Health and Disease (Z5)

Gloria Choi, Massachusetts Institute of Technology, USA
Maternal Immune Activation and Cortical Dysfunction

Sarkis K. Mazmanian, California Institute of Technology, USA
The Microbiome Modulates Parkinson's Disease Pathology in Mice

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Rachel R. Caspi, NEI, National Institutes of Health, USA
Autoimmune Uveitis and Microbiota

Short Talks Chosen from Abstracts

Poster Session 2

MONDAY, JUNE 22

Mitochondrial Defects in Neurodegeneration (Z6)

Dalton James Surmeier, Northwestern University, USA
Bioenergetic Determinants of Selective Neuronal Vulnerability in Parkinson's Disease

Richard J. Youle, NINDS, National Institutes of Health, USA
Neuroinflammation Stemming from Mitochondrial DAMPs Linked to Parkinson's Disease Genes and Mitophagy Defects

Yvette C. Wong, Northwestern University, USA
New Pathways for Mitochondrial and Lysosomal Crosstalk at Mitochondria-Lysosome Contact Sites

Short Talks Chosen from Abstracts

Transcriptomics, Proteomics and Modeling of Neuro-Immune Interactions (Z5)

Morgan H. Sheng, Broad Institute, USA
Microglia-Neuron Interactions in CNS Disease

Li-Huei Tsai, Massachusetts Institute of Technology, USA
The Use of Induced Pluripotent Stem Cells to Model Alzheimer's Disease

Ido Amit, Weizmann Institute, Israel
Single Cell Analysis of Microglia in Neurodegenerative Diseases

Christopher K. Glass, University of California, San Diego, USA
Environmental Shaping of Microglial Epigenetics and Identity

Short Talks Chosen from Abstracts

Workshop: Cellular Pathways Driving Disease (Z6)

Short Talks Chosen from Abstracts

Workshop 2: iPSC and Organoids for the Study of Neurodegeneration (Z5)

Short Talks Chosen from Abstracts

Neuronal Pathways in Disease (Z6)

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

Hugo J. Bellen, Baylor College of Medicine, USA
Pathways to Neuronal Loss

Heather Rice, University of Oklahoma Health Sciences Center, USA
The Role of APP in GABA Receptor Signaling

Virginia M. Y. Lee, University of Pennsylvania School of Medicine, USA

Pathogenic Neuronal Mechanisms in Parkinson's and Alzheimer's

Short Talks Chosen from Abstracts

PAMP, DAMP and Other Triggers in Neuroinflammation (Z5)

Oleg Butovsky, Harvard Medical School, USA
Restoration of Homeostatic Microglia in Neuroinflammation

Francisco J. Quintana, Harvard Medical School, USA
Impact of Aryl Hydrocarbon Receptor in Multiple Sclerosis

Speaker to be Announced

Short Talks Chosen from Abstracts

Poster Session 3

TUESDAY, JUNE 23

Translational Considerations in Neurodegenerative Research (Z6)

Alfred W. Sandrock Jr., Biogen Idec, Inc., USA
Introduction "Challenges of going from Bench to Bedside in Neurology"

Carole Ho, Denali Therapeutics Inc., USA
Phase 2 Trial Design Considerations: How to Achieve Proof of Biology and Proof of Efficacy

Richard Hargreaves, Celgene, USA
Restoring Protein Homeostasis to Treat Neurodegeneration

Jan Stöhr, Abbvie, USA
PET Imaging Biomarkers for Synucleinopathies

Short Talks Chosen from Abstracts

Blood Brain Barrier (BBB), Glymphatics and Lymphatics (Z5)

Jonathan Kipnis, University of Virginia, USA
The Glymphatic/Lymphatic System in Regulation of CNS Immune Surveillance

Speaker to be Announced

Berislav Zlokovic, University of Southern California, USA
Pericytes Play an Important Role in Maintaining the BBB

Chenghua Gu, Harvard Medical School, USA
Lipid Transport-Dependent Suppression of Caveolae-Mediated Transcytosis in BBB

Short Talks Chosen from Abstracts

Workshop 3: Immunotherapy of Neurodegeneration (Z5)

Short Talks Chosen from Abstracts

Future Directions for Therapeutics (Z6)

Peter T. Lansbury, Harvard Medical School / Lysosomal Therapeutics, Inc, USA

Development of Targeted Therapies for PD

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Richard M. Ransohoff, Third Rock Ventures, USA

Where Microglia Fit into the Neurodegenerative Process

Bernard Ravina, Praxis Precision Medicines, USA

Gene Therapy: Current State and Future Directions

Short Talk Chosen from Abstracts

Aging, Senescence and Neurodegeneration (Z5)

Elizabeth M. Bradshaw, Columbia University Medical Center, USA

Innate Immunity, Genetics and Neurodegenerative Disease

Tony Wyss-Coray, Stanford University School of Medicine, USA

Systemic Regulation of Brain Aging

Li Gan, Weill Cornell Medicine, USA

How Microglial Dysfunction Contributes to Neurodegeneration?

Short Talk Chosen from Abstracts

Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (Z6)

Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (Z5)

WEDNESDAY, JUNE 24

Departure