

KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

Neuro-Immune Interactions in the Central Nervous System (Z1)

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

Sponsored by Cell Research

Neurodegeneration: The Biological Pathways Driving the Future of Therapeutic Development (Z2)

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

June 5-9, 2022 • Keystone Resort • Keystone, CO, USA

Supported by the Directors' Fund

Global Health Travel Award Deadline: May 16, 2022 / Scholarship Deadline: February 22, 2022 / Abstract Deadline: March 1, 2022 / Discounted Registration Deadline: April 5, 2022

SUNDAY, JUNE 5

Arrival and Registration

MONDAY, JUNE 6

Welcome and Keynote Session (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
Synapse Biology in Alzheimer's Disease

Genetics of Neuro-Immune Interactions (Joint)

Speaker to be Announced

Speaker to be Announced

Alison Goate, Icahn School of Medicine at Mount Sinai, USA
Alzheimer's Disease Susceptibility Alleles Implicate Endolysosomal Function in Microglia

Short Talk(s) Chosen from Abstracts

Workshop 1: Imaging of the CNS in Health and Disease (Z1)

Short Talks Chosen from Abstracts

Understanding Immune Receptors in the CNS (Z1)

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

Shilpa Sambashivan, Nura Bio, USA

Intracellular Receptors for NAD in Neurodegeneration

Marco Colonna, Washington University School of Medicine, USA
ITAM Signaling in Neurodegeneration

Short Talks Chosen from Abstracts

Synaptic Mechanisms and Molecular Events (Z2)

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

Morgan H. Sheng, Broad Institute, USA

Mechanisms of Synapse Loss in Neurodegenerative Disease

Maria Grazia Spillantini, University of Cambridge, UK

Synaptic Dysfunction in Parkinson's Disease

Volker Haucke, Leibniz Forschungsinstitut für Molekulare Pharmakologie, Germany

Synaptic Vesicle Exo-Endocytosis and Reformation

Short Talk(s) Chosen from Abstracts

Poster Session 1

TUESDAY, JUNE 7

Microglia, Other Glial Cells and Macrophages in Neurodegenerative Diseases (Z1)

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

Rosa C. Paolicelli, University of Lausanne, Switzerland
Metabolic Control of Microglial Function

Marco Prinz, University of Freiburg, Germany

Brain Macrophages in Neurodegenerative Diseases

Dorothy Schafer, University of Massachusetts Chan Medical School, USA

Microglial Regulation of Synaptic Connectivity in Demyelinating Disease

Short Talks Chosen from Abstracts

Autophagy and Disease (Z2)

Ivan Dikic, Goethe University Medical School, Germany

ER-phagy: From Molecular Principles to Pathogenesis of Neuropathies

Xinnan Wang, Stanford University School of Medicine, USA

Redox Mechanisms in Aging and Neurodegeneration

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 Talk(s) Chosen from Abstracts

Poster Session 2

Workshop 2: iPSC and Organoids for the Study of Neurodegeneration (Z1)

Short Talks Chosen from Abstracts

The Role of Brain Immune System in Shaping the CNS Connectivity (Z1)

Jun R. Huh, Harvard Medical School, USA

Impact of Gut Bacteria in Neurodevelopmental Abnormalities

Katerina Akassoglou, University of California, San Francisco, USA
Microglia Regulation of Brain Network Hyperexcitability

Anne Schaefer, Icahn School of Medicine at Mount Sinai, USA

Control of Neuronal Activity by Microglia

Short Talks Chosen from Abstracts

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Endolysosomal Dysfunction in Neurodegeneration (Z2)

- 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 Talk(s) Chosen from Abstracts**

WEDNESDAY, JUNE 8

Application of Next Generation Technologies to Profile Neuro Immune Interactions (Z1)

- Frederic Geissmann**, Memorial Sloan Kettering Cancer Center, USA
Mosaicism in the Central Nervous System and Neurodegeneration
- 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
The Power of ONE: Immunology in the Age of Single Cell Genomics
- Christopher K. Glass**, University of California, San Diego, USA
Decoding Microglia Enhancers in Health and Disease
- Short Talks Chosen from Abstracts**

Mitochondrial Defects in Neurodegeneration (Z2)

- 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
Mitochondria-Lysosome Contact Sites: Roles and Regulation in Homeostasis and Neurodegenerative Diseases
- Short Talk(s) Chosen from Abstracts**

Workshop: Cellular Pathways Driving Disease (Z2)

Short Talks Chosen from Abstracts

Brain Immune System in Neuroinflammation (Z1)

- Menna Clatworthy**, University of Cambridge, UK
Plasma Cells in the Meninges
- Malu G. Tansey**, University of Florida, USA
Immune Function and Inflammation in Parkinson's Disease
- Francisco J. Quintana**, Harvard Medical School and the Broad Institute of MIT and Harvard, USA
Impact of Aryl Hydrocarbon Receptor in Multiple Sclerosis

Short Talks Chosen from Abstracts

Neuronal Pathways in Disease (Z2)

- David M. Holtzman**, Washington University, USA
Innate Immunity, ApoE, and Neurodegeneration
- Virginia M. Y. Lee**, University of Pennsylvania School of Medicine, USA
Pathogenic Neuronal Mechanisms in Parkinson's and Alzheimer's
- Martin Kampmann**, University of California, San Francisco, USA
CRISPR-based Functional Genomics for Neurological Disease
- Danielle Posthuma**, Vrije Universiteit Amsterdam, Netherlands
BrainScapes
- Short Talk(s) Chosen from Abstracts**

Poster Session 3

THURSDAY, JUNE 9

Blood Brain Barrier (BBB), Glymphatics and Lymphatics (Z1)

- Jonathan Kipnis**, Washington University School of Medicine, USA
Meningeal Sinuses and Lymphatics in the Epicenter of CNS Immune Surveillance
- Zsuzsanna Fabry**, University of Wisconsin, USA
How does the Meningeal Lymphatics Respond to Neuroinflammation in Autoimmunity, Infection, and Trauma?
- 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**

Translational Considerations in Neurodegenerative Research (Z2)

- Alfred W. Sandrock Jr.**, Biogen, Inc., USA
Introduction "Challenges of going from Bench to Bedside in Neurology"
- Richard Hargreaves**, Bristol-Myers Squibb, USA
Moving Drug Candidates from Drug Discovery into First-in-Human Studies
- Carole Ho**, Denali Therapeutics Inc., USA
Phase 2 Trial Design Considerations: How to Achieve Proof of Biology and Proof of Efficacy
- Short Talk(s) Chosen from Abstracts**

Workshop 3: Immunotherapy of Neurodegeneration (Z1)

Short Talks Chosen from Abstracts

Aging, Metabolism and Neurodegeneration (Z1)

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Katrin Andreasson, Stanford University, USA

Myeloid Cell Metabolism in Aging

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

Systemic Regulation of Brain Aging

Douglas R. Green, St. Jude Children's Research Hospital, USA

Autophagy in Alzheimer's Disease

Short Talks Chosen from Abstracts

Future Directions for Therapeutics (Z2)

Anabella Villalobos, Biogen, USA

Therapeutic Modalities for CNS

C. Frank Bennett, Ionis Pharmaceuticals, Inc., USA

Oligonucleotide-based Therapeutic Approaches

Jana Mitchell[†], Insitro, USA

Talk Title to be Announced

Short Talk(s) Chosen from Abstracts

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

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

FRIDAY, JUNE 10

Departure