

KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

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

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

Supported by the Directors' Fund

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

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

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

Sponsored by Cell Research

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

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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

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

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

Poster Session 1

TUESDAY, JUNE 7

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

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 Plaques 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

Poster Session 2

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

Short Talks Chosen from Abstracts

Endolysosomal Dysfunction in Neurodegeneration (Z2)

Short Talks Chosen from Abstracts

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

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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

WEDNESDAY, JUNE 8

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

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

Workshop: Cellular Pathways Driving Disease (Z2)

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

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

Poster Session 3

THURSDAY, JUNE 9

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

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

Percytes 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 (Z1)

Short Talks Chosen from Abstracts

Future Directions for Therapeutics (Z2)

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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

Aging, Metabolism and Neurodegeneration (Z1)

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

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

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

FRIDAY, JUNE 10

Departure