



Join Keystone Symposia
for the 2016 conference on:

Microglia in the Brain

June 12–16, 2016

Keystone Resort | Keystone, Colorado | USA

Scientific Organizers:

Beth Stevens and Richard M. Ransohoff

*Joint with the conference on **Common Mechanisms of Neurodegeneration***

In the past five years, understanding of the origins and functions of microglia, the unique myeloid cells of the central nervous system (CNS) parenchyma, has proceeded at such a remarkable pace that it's as if an entirely new CNS cell type had been discovered. Since their discovery 100 years ago, it has been suspected that microglia are implicated in virtually all disorders of the nervous system. Associations of polymorphic variants of microglial genes have now proven this hypothesis. It is therefore rather urgent to engage investigators in developing a coherent account of the present status of microglial origins, physiological functions and aberrant properties in the diseased CNS. This meeting will further the objective of translating new information into research and treatment strategies. In many ways, the salient barriers in the field can be addressed by sharing fundamental understanding of complex organ systems among investigators. Microglial research is now conducted in parallel among three disciplines: leukocyte biology, neuroscience and immunology.

Session Topics:

- Genetics to Pathogenesis
- Microglia Surveillance in Real Time: Lessons from *in vivo* Imaging
- Synaptic Pruning and Plasticity
- Role in Neurodevelopmental and Neuropsychiatric Disorders
- Microglia in Aging and Neurodegenerative Disease
- Profiling Resident Microglia in Health and Disease
- Microglial Regulation of Pain
- Special Lectures



Submitting an abstract is a great way of participating in the conference through poster presentation and possible selection for a short talk.

Scholarship & Discounted Abstract Deadline: Feb 11, 2016

Abstract Deadline: Mar 10, 2016

Discounted Registration Deadline: Apr 12, 2016

For additional details, visit www.keystonesymposia.org/16Z4.

KEYSTONE SYMPOSIA™
on Molecular and Cellular Biology

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KEYSTONE SYMPOSIA

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Microglia in the Brain (Z4)

Scientific Organizers: Beth Stevens and Richard M. Ransohoff

Sponsored by BioLegend, Inc. and Isis Pharmaceuticals, Inc.

Common Mechanisms of Neurodegeneration (Z3)

Scientific Organizers: Bradley T. Hyman, Adriano M. Aguzzi and Ricardo E. Dolmetsch

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SUNDAY, JUNE 12

Arrival and Registration

MONDAY, JUNE 13

Welcome and Keynote Address (Z4)

Christopher K. Glass, University of California, San Diego, USA
Genetic Control of Microglia Gene Expression in Health and Disease

Welcome and Keynote Address (Z3)

Speaker to be Announced

Genetics to Pathogenesis (Z4)

Zbigniew K. Wszolek, Mayo Clinic College of Medicine, USA
Adult-Onset Leukoencephalopathy with Axonal Spheroids and Pigmented Glia due to CSF1R Gene Mutations: Clinical, Radiological, Pathological, and Genetic Correlations

Steven G. Younkin, Mayo Clinic Jacksonville, USA
Association of Variants in Microglial Genes with Neurodegenerative Disease

Karel Otero Gutierrez, Biogen Idec, USA
Investigating the Functions of TREM2 in Neurodegeneration

Richard M. Ransohoff, Biogen Idec, USA
The Fractalkine Story: An Update

Short Talk(s) Chosen from Abstracts

Prions and "Prionoid" Molecules (Z3)

Beat H. Meier, ETH Zürich, Switzerland
Atomic Resolution Structures of HET-s and Amyloid Beta: What Can We Learn?

Adriano M. Aguzzi, University Hospital of Zürich, Switzerland
Prion Toxicity

Speaker to be Announced

Short Talk(s) Chosen from Abstracts

Microglia Surveillance in Real Time: Lessons from in vivo Imaging (Z4)

David Attwell, University College London, UK
An Ion Channel Regulating Microglial Surveillance of the Brain Parenchyma

Dimitrios Davalos, University of California, San Francisco, USA
Microglia Response to BBB Breakdown

Francesca Peri, European Molecular Biology Laboratory, Germany
Microglia Go Live: How They Find and Remove Dying Neurons

Short Talk Chosen from Abstracts

Protein Templating and Spread of Neuropathology (Z3)

Mathias Jucker, Hertie Institute for Clinical Brain Research, University of Tübingen, Germany
Amyloid beta as a Prion

Bradley T. Hyman, Massachusetts General Hospital, USA
Neuroanatomy and Consequences of Pathological Propagation in Neurodegeneration

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

Short Talk Chosen from Abstracts

Poster Session 1

TUESDAY, JUNE 14

Synaptic Pruning and Plasticity (Z4)

Dorothy Schafer, University of Massachusetts Medical School, USA
Microglia: Dynamic Sensors of Neural Activity and Regulators of Brain Plasticity

Rosa C. Paolicelli, University of Zurich, Switzerland
Microglia Control of Synaptic Maturation in Hippocampus

Brian MacVicar, University of British Columbia, Canada
Synaptic Sensing and Modulation by Microglia

Short Talk(s) Chosen from Abstracts

New Treatment Modalities (Z3)

Christer Nordstedt, Eli Lilly and Company, USA
Future Alzheimer's Therapeutics

Beverly L. Davidson, Children's Hospital of Philadelphia and Spark Therapeutics, USA
Using Gene Therapy to Treat Neurological Diseases

Nathalie Isabelle Cartier-Lacave, CEA MIRCen, France
Peripheral Gene Therapy to Treat CNS Disease

Fyodor D. Urnov, University of California, Berkeley / Sangamo Biosciences, USA
Targeted Genome Regulation and Control for Neurodegenerative Disease Therapy

Short Talk(s) Chosen from Abstracts

Poster Session 2

Workshop (Z3)

Short Talks Chosen from Abstracts

Role in Neurodevelopmental and Neuropsychiatric Disorders (Z4)

Staci Bilbo, Duke Institute for Brain Sciences, USA
Modulation of Microglia by Early-Life Infection

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Cornelius Gross, EMBL, Italy

Role of Microglia in Functional Brain Connectivity and Social Behavior

Mario R. Capecchi, University of Utah, USA

Hematopoietic Origin of Pathological Grooming and OCD Like Behaviors

Beth Stevens, Children's Hospital Boston, USA

Microglia Function and Dysfunction During Brain Wiring

Short Talk Chosen from Abstracts

Role of Glia (Z3)

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

Mechanism and Therapy in ALS and Beyond

Ben A. Barres, Stanford University, USA

A Novel Allele-Dependent Role for ApoE

Serge Przedborski, Columbia University, USA

Parkinson's Disease and Glia

Short Talk Chosen from Abstracts

WEDNESDAY, JUNE 15

Microglia in Aging and Neurodegenerative Disease (Z4)

Adriano M. Aguzzi, University Hospital of Zürich, Switzerland

Immunological Aspects of Prion Diseases

Marie-Ève Tremblay, Laval University, Canada

Effects of Aging and Neurodegenerative Disease on

Microglia-Synapse Interactions

Frank Heppner, Charité - Universitätsmedizin Berlin, Germany

Microglia in Alzheimer's Disease

Gary E. Landreth, Case Western Reserve University, USA

How Do Microglia Clear Abeta?

Short Talk(s) Chosen from Abstracts

RNA and New Mechanisms of Toxicity (Z3)

J. Paul Taylor, St. Jude Children's Research Hospital, USA

RNA Granule Dynamics in Neurodegenerative Disease

Speaker to be Announced

Maurice S. Swanson, University of Florida, USA

Noncoding RNA Induced Toxicity in Myotonic Dystrophy

Magdalini Polymenidou, University of Zürich, Switzerland

Mechanisms and Targets in TDP43 Pathologies

Short Talk(s) Chosen from Abstracts

Profiling Resident Microglia in Health and Disease (Z4)

Ben A. Barres, Stanford University, USA

Identification of Novel Microglia-Specific Markers in Healthy Mouse Brain

Joseph El Khoury, Massachusetts General Hospital, USA

Deep Sequencing Brain Microglia Reveals Unique Molecular Fingerprints

Erik H.W.G.M. Boddeke, University of Groningen, Netherlands

Isolating and Profiling Microglia from Postmortem Human Brain

Short Talk Chosen from Abstracts

Inflammatory Mechanisms (Z3)

Bernardo S. Franklin, University of Bonn, Germany

Prionoid Behavior of Inflammasomes

Michael T. Heneka, German Center for Neurodegenerative Diseases, Germany

Innate Immune Activation in Alzheimer's Disease

Richard M. Ransohoff, Biogen Idec, USA

Neuroinflammatory Mechanisms in Neurodegeneration

Short Talk Chosen from Abstracts

Poster Session 3

THURSDAY, JUNE 16

Microglial Regulation of Pain (Z4)

Michael W. Salter, Hospital for Sick Children and University of Toronto, Canada

Microglia-Neuron Signaling in Pain Neuroplasticity

Makoto Tsuda, Kyushu University, Japan

Spinal Microglia Activated by Purinergic Signaling and Neuropathic Pain

Speaker to be Announced

Marzia Malcangio, King's College London, UK

Neural-Immune Interactions in Chronic Pain Mechanisms

Short Talk(s) Chosen from Abstracts

Unfolded Proteins (Z3)

Richard I. Morimoto, Northwestern University, USA

Proteostasis Disruptions in Aging and Neurodegenerative Disease

Christopher M. Dobson, University of Cambridge, UK

The Generic Nature of the Amyloid Phenomenon and its Significance for Understanding the Molecular Origins of Neurodegenerative Disease

David Eisenberg, University of California, Los Angeles, USA

Toxic Protein Conformations

Speaker to be Announced

Short Talk(s) Chosen from Abstracts

Special Lectures (Z4)

Speaker to be Announced

Thomas Möller, Lundbeck Research USA, USA

Translating Microglial Biology: Promise and Problems

Synaptic Dysfunction in AD, Neurodegenerative Disease, and Developmental Disorders (Z3)

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Tara L. Spires-Jones, University of Edinburgh, UK

Dynamic Synaptic Alterations due to Amyloid beta and tau

Ricardo E. Dolmetsch, Novartis Institutes for BioMedical Research,
USA

Synaptic Alterations as a Drug Target

Closing Keynote Address (Z3)

Susan Lindquist, HHMI/Whitehead Institute for Biomedical Research,
USA

Therapeutics Across Neurodegenerative Diseases

Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (Z4)

Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (Z3)

FRIDAY, JUNE 17

Departure