



Neuroinflammation: Concepts, Characteristics, Consequences

June 19–23, 2017 | Keystone Conference Center | Keystone, Colorado | USA

Scientific Organizers:

Richard M. Ransohoff, Biogen, USA

Christopher K. Glass, University of California, San Diego, USA

V. Hugh Perry, University of Southampton, UK

Neuroinflammation involves the interaction of two formidably complex organ systems, the immune and neural systems. Therefore, the communities of neuroscientists and immunologists urgently need to formulate and deploy a joint set of concepts to promote mechanistic progress. In addition, neuroinflammation, broadly conceived, operates throughout life from embryogenesis through old age with consequences bearing on the most serious health concerns ranging from autism and schizophrenia to dementia. What's needed in this field (for example) is for immunologists to acquire a working knowledge of neuroscience (e.g., electrophysiology, neurotransmitters, behavior) and for neuroscientists to become comfortable with the cells, proteins and animating concepts of contemporary immunology. The optimal venue for such exchange lies in the presentation of compelling multidisciplinary research to a joint audience in the Keystone Symposia format. Thus, the meeting will integrate "immune" elements of the CNS (microglia, complement, certain chemokines) into a broader scheme of neurodevelopment and to indicate where aberrant function of these elements might conduce to neurodevelopmental disorders such as autism. The meeting will also characterize the neuroinflammatory processes which typify aging and integrate this temporal dynamic into the pathogenesis of neurodegenerative disease and highlight model systems and technical innovations which can be particularly powerful for generating mechanistic insights into neuroinflammatory processes.

Session Topics:

- Neuroinflammation and Ontogeny
- Workshop: Microglial Profiles: Time for Your Close Up!
- Glial Cells of the CNS: Glue No More
- Neuroinflammation: Phylogeny
- Transgressions: Immune Molecules in the CNS and Vice Versa
- Some Real Immunology for a Change: B Cells and the CNS
- Cool Stuff: New Techniques

Scholarship Application & Discounted Abstract Deadline: February 21, 2017

Abstract Deadline: March 21, 2017

Discounted Registration Deadline: April 19, 2017



Note: Scholarships and Underrepresented Trainee Scholarships are available for graduate students and postdoctoral fellows and are awarded based on the abstract submitted.

Upper image courtesy of: National Institute of Mental Health, National Institutes of Health

Meeting Hashtag: #KSneuroinflam

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KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

Neuroinflammation: Concepts, Characteristics, Consequences (E5)

June 19-23, 2017 • Keystone Resort • Keystone, Colorado, USA

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Sponsored by Biogen, BioLegend, Inc., Ionis Pharmaceuticals, Inc., Shire Human Genetic Therapies and Takeda Pharmaceutical Company Limited

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MONDAY, JUNE 19

Arrival and Registration

TUESDAY, JUNE 20

Welcome and Keynote Address

***Richard M. Ransohoff**, Third Rock Ventures, LLC, USA

Christopher K. Glass, University of California, San Diego, USA
Delineation of an Environment-Dependent Transcriptional Network Specifying Human Microglia Identity

Neuroinflammation and Ontogeny

Richard M. Ransohoff, Third Rock Ventures, LLC, USA
Neuroinflammation: Historical Perspective and Overview

Marco Prinz, University of Freiburg, Germany
Myeloid Cell Activation and Kinetics in the Brain

Xianhua Piao, Children's Hospital Boston, USA
A GPCR Signaling triad: How Microglia Regulate Myelin Development and Repair

Workshop: Microglial Profiles: Time for Your Close-Up!

***Akihiko Koyama**, Eisai Inc., USA

Stephen K. Amoah, University of New Mexico, USA
Effects of Maternal Immune Activation and Hypoxia on Schizophrenia-Related miRNA Expression

Clare Pridans, University of Edinburgh, UK
Csf1r Deficient Rats as a Model for Neurodegeneration

Stefka Gyoneva, Biogen, USA
Context-Dependent Effects of Cx3cr1 Deletion on Microglial Transcriptome

Vladimir Litvak, University of Massachusetts Medical School, USA
Systems Biology of Microglia Signaling in Neuroinflammation

Hansruedi Mathys, Massachusetts Institute of Technology, USA
Temporal Tracking of Microglia Activation in Neurodegeneration at Single-Cell Resolution

Christopher Bohlen, Stanford University School of Medicine, USA
Diverse Requirements for Microglial Survival, Specification, and Function Revealed by Defined-medium Cultures

Glial Cells of the CNS: Glue No More

***William S. Talbot**, Stanford University School of Medicine, USA

Richard Daneman, University of California, San Diego, USA
Blood-Brain, Endothelial Cells and Pericytes

Brian Popko, University of Chicago, USA
Oligodendrocytes in the Pathogenesis of Multiple Sclerosis

Ethan G. Hughes, University of Colorado Anschutz Medical Campus, USA
Dynamics of NG2+ Glial Cells in the Resting and Damaged Brain

Poster Session 1

WEDNESDAY, JUNE 21

Neuroinflammation: Phylogeny

Magdalena Götz, University of Munich, Germany
Mechanism of Scar-Formation – From Zebrafish to Mammals

William S. Talbot, Stanford University School of Medicine, USA
Genetic Control of Microglia Development and Function in Zebrafish

David A. Wassarman, University of Wisconsin, USA
Neurodegeneration and Innate Immunity in Drosophila

Mary A. Logan, Oregon Health & Science University, USA
Genetic Investigation of Innate Glial Immune Responses in Drosophila

Transgressions: Immune Molecules in the CNS and Vice Versa

***Angela Vincent**, University of Oxford, UK

Lisa M. Boulanger, Princeton University, USA
MHC Class I Immune Proteins in Neuronal Synaptic Transmission, Plasticity, and Disease

Wayne Drevets, Janssen R&D Pharmaceutical Companies of Johnson & Johnson, USA
IL6 and Treatment-Resistant Depression

Anzela Niraula, Ohio State University, USA
Short Talk: Corticosterone Mobilizes Monocytes into Circulation and Induces Endothelial Adhesion Molecule Expression to Cause Monocyte Recruitment to the Brain during Stress

David V. Hansen, Genentech, Inc., USA
Short Talk: Debunking the Myth of Pro-Inflammatory Cytokines in Alzheimer's Pathology, and Illuminating the Role of TREM2

Poster Session 2

THURSDAY, JUNE 22

Some Real Immunology for a Change: B Cells and the CNS

***Keiko Ozato**, NICHD, National Institutes of Health, USA

Vanda A. Lennon, Mayo Clinic, USA
Neuromyelitis Optica (NMO): An Autoimmune Astrocytopathy

Amit Bar-Or, University of Pennsylvania, USA
Is MS not a T Cell-Mediated Disease?

Angela Vincent, University of Oxford, UK
Antibodies to Neuronal Receptors and Associated Proteins: Roles, Mechanisms and Challenges

Sara C. Brass, Dartmouth College, USA
Short Talk: Regulatory B Cell Induction by a Human Gut Commensal Antigen Protects Against CNS Inflammation and Demyelination

Cool Stuff: New Techniques

***Magdalena Götz**, University of Munich, Germany

Knut Biber, Universitätsklinikum, Germany
Microglia-Replenished OHSC: A Culture System to Study in vivo-Like Adult Microglia

Milos Pekny, University of Gothenburg, Sweden
3D Cultures: Letting Neural Cells Stretch Out and Breathe

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Akihiko Koyama, Eisai Inc., USA

Immunodementia: A Multidisciplinary Approach

Carlo Condello, University of California, San Francisco, USA

Short Talk: Non-Invasive Bioluminescent Imaging of Astrocytic Gliosis Reveals Disease Progression and Drug Efficacy in Alzheimer's Mouse Models

Carleton Gould, Novartis Institutes of Biomedical Research, USA

Short Talk: Gene-Edited Human Stem Cell Models of Tuberosous Sclerosis Exhibit Treatable Disease Phenotypes upon 2D and 3D Neuronal Differentiation

Poster Session 3

FRIDAY, JUNE 23

It's About Time: Neuroinflammation Across the Lifespan

***Suman Jayadev**, University of Washington, USA

Staci Bilbo, Harvard Medical School/MGH, USA

Environmental Effects on Development Transduced through Neuroinflammation

David Edwards, King's College London, UK

Neuroanatomical Effects of Prematurity

Edith Hamel, McGill University, Canada

Inflammation and Vascular Factors in Dementia

Carina Block, Duke University, USA

Short Talk: Prenatal Air Pollution and Maternal Stress Alters Early Communication, Microglia and Synapse Number in Developing Offspring

Panel: Looking Backwards and Forwards: Lessons Learned and Suggestions for Improvement

***Richard M. Ransohoff**, Third Rock Ventures, LLC, USA

Type I Interferon in CNS Physiology and Pathophysiology

***Irene Knuesel**, Roche Innovation Center Basel, Switzerland

V. Hugh Perry, University of Southampton, UK

Microglia, the Cornerstone of Neuroinflammation

Marina Lynch, Trinity College Dublin, Ireland

TLR2 Activation and its Effects on Hippocampal Function

Marcus Kaul, Sanford-Burnham Medical Research Institute, USA

Short Talk: Neuroprotection by IFN β in a Murine Model of HIV-1 Associated Brain Injury

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

SATURDAY, JUNE 24

Departure