

# Mononuclear Phagocytes in Health, Immune Defense and Disease

April 30–May 4, 2017 | Hyatt Regency Austin | Austin, Texas | USA

## Scientific Organizers:

**Steffen Jung**, Weizmann Institute of Science, Israel

**Miriam Merad**, Mount Sinai School of Medicine, USA

*Mononuclear phagocytes (MNP) are immune cells that are uniquely equipped to sense and respond to environmental cues by promoting tissue homeostasis or initiating tissue repair and immunity. MNP also contribute significantly to tissue pathologies, and their manipulation holds considerable therapeutic potential. MNP display major functional specializations. Most macrophages are established before birth and perform tissue-specific functions in organ development and homeostasis. Short-lived classical dendritic cells (DC) are specialized in triggering adaptive T cell immunity. Monocytes complement macrophages and DC as highly plastic cells, in particular during inflammation. While MNP subsets have been identified, individual contributions to health and disease are not well-defined.*

*Breathtaking technological advance in genomic profiling of populations and single cells is revealing the breadth of MNP functions and identifying molecular checkpoints for targeted therapeutic intervention. These molecular efforts are paralleled by astounding progress in imaging capabilities, enabling the study of the cells in their physiological context. This meeting therefore aims to: 1) Cover recent progress in the field, revealing novel and differential contributions of MNP in physiological processes, and identify critical knowledge gaps; 2) Stimulate scientific exchange, in particular between clinicians and researchers, to better translate findings from animal models into human settings and brainstorm regarding novel therapeutic intervention; and 3) Develop novel conceptual frameworks for future studies of MNP in health and disease.*


## Session Topics:

- Mononuclear Phagocyte Development
- Workshop 1: Monocytes, DC and Macrophages
- Mononuclear Phagocyte Maintenance
- Mononuclear Phagocytes at the Tissue Site
- Mononuclear Phagocytes in Gut Homeostasis and Inflammation
- Mononuclear Phagocyte Interactions with the Central and Peripheral Nervous System
- Mononuclear Phagocytes, Inflammation and Therapy
- Workshop 2: Checkpoint Blockade and Vaccination Therapies
- Mononuclear Phagocytes and Cancer Progression
- Mononuclear Phagocytes and Cancer Treatment

**Scholarship Application & Discounted Abstract Deadline: January 9, 2017**

**Abstract Deadline: January 31, 2017**

**Discounted Registration Deadline: February 28, 2017**



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

Image courtesy of National Institute of Allergy and Infectious Diseases, NIH

Meeting Hashtag: #KSphagocyte

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# KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

## Mononuclear Phagocytes in Health, Immune Defense and Disease (D3)

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### SUNDAY, APRIL 30

#### Arrival and Registration

### MONDAY, MAY 1

#### Welcome and Keynote Address

\***Steffen Jung**, Weizmann Institute of Science, Israel

\***Miriam Merad**, Mount Sinai School of Medicine, USA

**Ruslan Medzhitov**, HHMI/Yale University School of Medicine, USA  
*Mononuclear Phagocytes in Homeostasis and Inflammation*

#### Mononuclear Phagocyte Development

\***Steffen Jung**, Weizmann Institute of Science, Israel

**Florent Ginhoux**, Singapore Immunology Network, Singapore  
*EMBO Young Investigator Lecture: Ontogeny of Mononuclear Phagocytes*

**Frederic Geissmann**, Memorial Sloan Kettering Cancer Center, USA  
*Monocytes (and Macrophages)*

**Ido Amit**, Weizmann Institute, Israel

*The Power of ONE: Immunology in the Age of Single Cell Genomics*

**Deborah R. Winter**, Northwestern University, USA  
*Short Talk: The Transcriptional Program of Synovial Macrophages in Rheumatoid Arthritis*

#### Workshop 1: Monocytes, DC and Macrophages

\***Chen Varol**, Sourasky Medical Center and Tel-Aviv University, Israel

**Helen S. Goodridge**, Cedars-Sinai Medical Center, USA  
*Independent Monocyte Production by Granulocyte-Monocyte Progenitors (GMPs) and Monocyte-Dendritic Cell Progenitors (MDPs)*

**Pierre Guermonprez**, Kings College London, UK  
*The Heterogeneity of Ly6Chi Monocytes Controls their Differentiation into iNOS+ Macrophages or Monocyte-Derived Dendritic Cells*

**Alexander Mildner**, Max-Delbrueck Center Berlin, Germany  
*Genomic Characterization of Murine Monocytes Reveals C/EBP-Beta Dependence of Ly6C-Cells*

**Stefan Uderhardt**, National Institutes of Health, USA  
*Tissue-Resident Macrophages Cloak Tissue Microlesions to Control Neutrophil-Driven Inflammatory Damage*

**Brian T. Edelson**, Washington University School of Medicine, USA  
*Regulation of Mononuclear Phagocyte IL-10 Production by Bhlhe40 Is Required to Resist Pulmonary Mtb Infection*

**Roxane Tussiwand**, University of Basel, Switzerland  
*The Expression of IRF8 Defines Plasmacytoid Dendritic Cell Commitment*

#### Mononuclear Phagocyte Maintenance

\***Deborah R. Winter**, Northwestern University, USA

**Christopher K. Glass**, University of California, San Diego, USA  
*Exploiting Natural Genetic Variation to Understand Macrophage Identity and Function*

**Michael H. Sieweke**, Centre d'Immunologic Marseille-Luming, France  
*Transcriptional Control of Macrophage Proliferation*

**Bart N. Lambrecht**, VIB, Ghent University, Belgium  
*Macrophages, DC and ER Stress*

**Sarah A. Dick**, University Health Network, Canada  
*Short Talk: Embryonic Macrophages Are Maintained in the Aged Heart and Are Required for Repair*

#### Poster Session 1

### TUESDAY, MAY 2

#### Mononuclear Phagocytes at the Tissue Site

\***Florent Ginhoux**, Singapore Immunology Network, Singapore

**Martin Guilliams**, Ghent University - VIB, Belgium  
*Development and Functional Specialization of Liver-Resident Kupffer Cells*

**Gwendalyn J. Randolph**, Washington University, USA  
*Macrophages in the Serosal Cavity*

**Brian D. Brown**, Mount Sinai School of Medicine, USA  
*T Cell and DC Interactions in Tissues*

**Wolfgang Kastentmüller**, University of Bonn, Germany  
*Intranodal T Cell - DC Interactions during Viral Infection*

**Sheau Yng Lim**, National University of Singapore, Singapore  
*Short Talk: The Origin and Maintenance of LYVE-1-Expressing Macrophages*

#### Mononuclear Phagocytes in Gut Homeostasis and Inflammation

\***Miriam Merad**, Mount Sinai School of Medicine, USA

**Carla V. Rothlin**, Yale University, USA  
*TAM Receptor Signaling in Resolution of Inflammation*

**Yasmine Belkaid**, NIAID, National Institutes of Health, USA  
*Homeostatic Immunity and the Microbiota*

**Michael F. Goldberg**, University of Minnesota, USA  
*Short Talk: Colonization of Different Phagocyte Subsets Underlies the Pathogenesis of a Persistent Phagosomal Infection*

**Ivaylo I. Ivanov**, Columbia University, USA  
*Short Talk: Innate Immune Cells in Regulation of Commensal Th17 Responses*

**Milena Bogunovic**, Pennsylvania State University College of Medicine, USA  
*Short Talk: Macrophages as Regulators of Intestinal Neuroplasticity*

#### Poster Session 2

### WEDNESDAY, MAY 3

#### Mononuclear Phagocyte Interactions with the Central and Peripheral Nervous System

**Marco Colonna**, Washington University School of Medicine, USA  
*Microglia-Driven Pathology, Trem2*

**Daniel Mucida**, Rockefeller University, USA  
*Tissue Adaptation of Intestinal Macrophages*

\***Burkhard Becher**, University of Zurich, Switzerland  
*The T Cell-Myeloid Connection in Chronic Inflammation*

**Steffen Jung**, Weizmann Institute of Science, Israel  
*Tissue Macrophages in Control of Innervation*

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**Shoutang Wang**, Institut Gustave Roussy, France  
*Short Talk: Lyl-1 Controls Primitive Macrophages and Microglia Development*

### Poster Session 3

#### Workshop 2: Regulation of DC and Macrophage Function in Health and Disease

\***Brian T. Edelson**, Washington University School of Medicine, USA

**Carl Allen**, Baylor College of Medicine, USA  
*Braf-V600e in Blood and Brain and Response to Braf Inhibition Suggest Hematopoietic Origin of Neurodegeneration in Lch*

**Caroline Hutter**, St. Anna Kinderspital, Austria  
*Notch Signaling Induces a Langerhans Cell Histiocytosis Gene Expression Signature in Human Monocytes*

**Margaret E. Warren**, Columbia University, USA  
*Notch Signaling Confers Optimal Phenotype and Function on in vitro-Generated Classical Dendritic Cells*

**Briana Nixon**, Memorial Sloan Kettering Cancer Center, USA  
*The Role of the Notch Pathway in Tumor-Associated Macrophage Differentiation*

**Ashley Steed**, Washington University in St. Louis, USA  
*The Role of Type I Interferon during Influenza A Infection*

**Lucie Van Emmenis**, University College London, UK  
*Characterization of Macrophages in Peripheral Nerve Regeneration*

**Richard E. Zigmond**, Case Western Reserve University, USA  
*The Role of Mononuclear Phagocytes in Peripheral Nerve Degeneration and Regeneration: A New Perspective*

#### Mononuclear Phagocytes, Inflammation and Therapy

\***Gwendalyn J. Randolph**, Washington University, USA

**Gabriel D. Victora**, Rockefeller University, USA  
*Monitoring T Cell-APC Interactions in vivo*

**Catherine Hedrick**, La Jolla Institute for Allergy and Immunology, USA  
*Monocyte Heterogeneity: Implications for Cancer*

**Michele De Palma**, École Polytechnique Fédérale de Lausanne, Switzerland  
*Macrophage Reprogramming for Anti-Cancer Therapy*

**Irit Sagi**, Weizmann Institute of Science, Israel  
*Short Talk: Macrophages Are Context- Dependent Builders or Destroyers of Collagenous Matrix*

### THURSDAY, MAY 4

#### Molecular Control of Mononuclear Phagocytes

\***Brian D. Brown**, Mount Sinai School of Medicine, USA

**Jorge Henao-Mejia**, University of Pennsylvania and Children's Hospital of Philadelphia, USA  
*Long Non-Coding RNAs and the Homeostasis Mononuclear Phagocytes*

**Nir Hacohen**, Massachusetts General Hospital, USA  
*Human DC and Monocytes Revisited*

**Boris Reizis**, New York University Langone Medical Center, USA  
*Transcriptional Control of Dendritic Cell Functionality*

**Philippe J. Benaroch**, Institut Curie, INSERM, France  
*Phagocytes and HIV*

**Adriana M. Mujal**, University of California, San Francisco, USA  
*Short Talk: Characterizing the Role of CD11b+ Dendritic Cell Subsets in Priming Anti-Tumor CD4 T Cell Responses*

#### Mononuclear Phagocytes and Cancer Treatment

**Nina Bhardwaj**, Icahn School of Medicine at Mount Sinai, USA  
*Cancer-Induced Innate Immune Modulation*

\***Laurence Zitvogel**, Institut Gustave Roussy, France  
*Gut Microbiota Connects Mucosal and Tumoral Immune Responses*

**Miriam Merad**, Mount Sinai School of Medicine, USA  
*Harnessing the Tumor Myeloid Micro-Environment to Enhance Cancer Treatment*

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

### FRIDAY, MAY 5

#### Departure