

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 M. 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 Guillems, 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 Medical Center, 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 (Lynn) 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