

KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

Innate Immunity and Determinants of Microbial Pathogenesis (Z3)

Scientific Organizers: Robert L. Modlin, Jenny P.Y. Ting and Foo Y. Liew

Sponsored by BioLegend, Inc.

Mechanisms of Pro-Inflammatory Diseases (Z4)

Scientific Organizers: Virginia Pascual, Mark S. Anderson and Daniel Kastner

April 19-24, 2015 • Resort at Squaw Creek • Olympic Valley, California, USA

Sponsored by AbbVie Inc., Janssen R&D: Pharmaceutical Companies of Johnson & Johnson, Journal of Molecular Cell Biology (JMCB), Merck & Co., Inc. and Theravance Biopharma. Supported by an educational grant from Celgene Corporation.

Abstract & Scholarship Deadline: December 18, 2014 / Abstract Deadline: January 21, 2015 / Discounted Registration Deadline: February 19, 2015

SUNDAY, APRIL 19

Arrival and Registration

MONDAY, APRIL 20

Keynote Session (Joint)

*Robert L. Modlin, University of California, Los Angeles, USA

Introduction

Richard A. Flavell, HHMI, Yale University School of Medicine, USA
Inflammasomes in Health, Dysbiosis and Disease

Zhijian James Chen, HHMI/University of Texas Southwestern Medical Center, USA

Innate Immune Sensing of Cytosolic Nucleic Acids

Innate Immunity (Joint)

Vishva M. Dixit, Genentech, Inc., USA

New Pathways of Inflammasome Activation

Yong-Jun Liu, MedImmune, USA

Sensing of DNA and RNA

Jenny P.Y. Ting, University of North Carolina at Chapel Hill, USA

NLRs in Inflammasome and Non-Inflammasome Functions

Pedro Moura-Alves, Max Planck Institute for Infection Biology, Germany

Short Talk: PAMPing AhR

Workshop 1: IFN (Z3)

Emily M. Eshleman, University of Colorado Denver, USA
Myeloid Cell IFNGR1 Down Regulation Exacerbates Bacterial Infections

Matteo Gentili, Institut Curie, France

Intercellular Transmission of Innate Immune Signaling by Packaging of the Second Messenger cGAMP in Viral Particles

Jarrod S. Johnson†, Seattle Biomedical Research Institute, USA
HIV-1 Alters the Threshold for Type I Interferon Signaling in Dendritic Cells

Ken Chung-Ren Pang†, Walter and Eliza Hall Institute of Medical Research, Australia

Sirt2 Transports Extracellular dsRNA into the Cytoplasm for Innate Immune Recognition

Jan Rehwinkel, Weatherall Institute of Molecular Medicine, University of Oxford, UK

Lentiviruses Transfer the Antiviral Second Messenger cGAMP between Cells

Beiyun Caitlin Liu, Tufts University, USA

Type-I IFN-Independent Induction and Activation of Caspase-11 toward L. pneumophila

Clinton Bradfield, Yale University, USA

Human GBPs Recognize a New Class of DAMPs to Mobilize Cell-Autonomous Immunity to Bacterial Pathogens

Jessica F. Almine, University of Dundee, UK

IFI16 and cGAS Co-Operate in DNA Sensing in Human Keratinocytes

Workshop 1 (Z4)

Short Talks Chosen from Abstracts

Innate Immune Sensing and Consequences in Microbial Infection (Z3)

*Alan Sher, NIAID, National Institutes of Health, USA

Jae U. Jung, University of Southern California, USA

Roles of Pattern Recognizing Receptors and Autophagy in Antiviral Immune Response

Stanley M. Lemon, University of North Carolina at Chapel Hill, USA
Type 1 Interferon Responses Determine Permissiveness and Host Species Range of Human Hepatitis A Virus

Genhong Cheng, University of California, Los Angeles, USA
Balancing Inflammatory Responses during Acute and Chronic Infections

Arun Kumar Mankan, University of Bonn, Institute of Molecular Medicine, Germany

Short Talk: Cytosolic RNA:DNA Hybrids Activate the cGAS-STING Axis

Innate Triggers of Adaptive Immunity (Z4)

Mark S. Anderson, University of California, San Francisco, USA
Innate Mechanisms in Thymic Selection

Hideki Ueno, Baylor Institute for Immunology Research, USA
T Follicular Helper Cells in Autoimmunity in Humans

Andrea Cerutti, Mount Sinai School of Medicine, USA
Innate Mechanisms of B Cell Help

Short Talk Chosen from Abstracts

Poster Session 1

TUESDAY, APRIL 21

Innate Immunity in Inflammation and Disease (Joint)

Shizuo Akira, Osaka University, Japan

Control of the Inflammatory and Immune Responses by the Ribonuclease, Regnase-1

Daniel Kastner, National Institutes of Health, USA
Dissecting New Inflammatory Pathways through Genetics

Virginia Pascual, Baylor Institute for Immunology Research, USA
Novel Insights into Human SLE Pathogenesis

Robert L. Modlin, University of California, Los Angeles, USA
Innate Immunity in TB

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Hubertus Hochrein, Bavarian Nordic, Germany

Short Talk: IFN- λ Production of CD8 cDCs in Response to DNA-Viruses, Transfected dsDNA or Cyclic-di-Nucleotides Depends on STING

Workshop 2: Mycobacteria (Z3)

André Alves Dias, Oswaldo Cruz Foundation, Brazil

The Role of TLR9 Activation in the Host Immune Response during Type II Reaction In Leprosy

Robert O. Watson†, Texas A&M Health Science Center, USA

cGAS Detects Mycobacterium tuberculosis DNA to Activate both Type I Interferon and Autophagy

Trude Helen Flo, Norwegian University of Science, Norway

Keap1 Regulates Inflammatory Signaling in M. avium Infected Human Macrophages

Jennifer R. Honda, University of Colorado Anschutz Medical Campus, USA

Polar Lipids of Nontuberculous Mycobacteria Likely Contribute to Neutralization of Cathelicidin

Susan Realegeno, University of California, Los Angeles, USA

Identifying TLR and IFN- γ Inducible Antimicrobial Responses Against Mycobacteria in Human Macrophages

Leonardo Ribeiro Batista Silva, Fundação Oswaldo Cruz, Brazil

Insulin-Like Growth Factor-I (IGF-I) Induced by Mycobacterium Leprae Inhibits the Stat1 Signaling Pathway via SOCS3 in Macrophages

Kirsten E. Wiens, New York University School of Medicine, USA

Differential Type I Interferon Induction by Distinct Mycobacterium tuberculosis Strains Despite Similar Access to the Host Cytosol

Chien-Hsiung Yu, University of Queensland Diamantina Institute, Australia

RP105 Dependent Activation of PI3Kdelta Promotes Cytokine Trafficking in Mycobacteria-Infected Macrophages

Workshop 2 (Z4)

Short Talks Chosen from Abstracts

Innate Regulation of Adaptive Immunity (Z3)

Foo Y. Liew, University of Glasgow, UK

The Role of Cytokines in Infection and Inflammation

Alan Sher, NIAID, National Institutes of Health, USA

Cytokine and Lipid Mediator Cross-Talk in the Innate Immune Response to Mycobacterium tuberculosis

Marco Colonna, Washington University School of Medicine, USA

Talk Title to be Announced

Jesse C. Nussbaum, University of California, San Francisco, USA

Short Talk: Group 2 Innate Lymphocytes Are Early Effectors that Cooperate with Adaptive Immunity after Helminth Infection

Sterile Nucleic Acid Sensing and Disease (Z4)

Yanick Crow, Institut Imagine, France

Human Type I Interferonopathies

Gregory M. Barton, University of California, Berkeley, USA

Regulation of Toll-Like Receptors

Glen N. Barber, University of Miami, USA

STING and Sterile Inflammation

Short Talk Chosen from Abstracts

Poster Session 2

WEDNESDAY, APRIL 22

Systems Biology/Immunomics of Innate Immunity (Z3)

Alan Aderem, Seattle BioMed, USA

A Systems Approach to Dissecting Immunity

Ronald N. Germain, NIAID, National Institutes of Health, USA

Single Cell and Systems Level Analysis and Modeling of Innate Immunity

Iain D.C. Fraser, NIAID, National Institutes of Health, USA

Interrogating Immune Signaling Systems with High Throughput, High Content Screening

T. Sam Xiao, Case Western Reserve University, USA

Short Talk: Structure and Regulation of IFI16

Roi Avraham, Broad Institute, USA

Short Talk: Single Cell Expression Analysis Reveals Co-Variation of Bacterial and Host Factors that Control Infection Outcome

Johan Van Weyenbergh, FIOCRUZ, Brazil

Short Talk: Systemic and in situ Transcriptomics Reveal an Innate/Type I IFN Link between Oxidative Burst, Cell Death and Inflammation in Human Cutaneous Leishmaniasis

Novel Players in the Control of Inflammation (Z4)

Luke A. J. O'Neill, Trinity College Dublin, Ireland

Metabolic Control of Inflammation

Speakers to be Announced

Thirumala-Devi Kanneganti, St. Jude Children's Research Hospital, USA

Regulators of Inflammatory Responses

Short Talk(s) Chosen from Abstracts

Workshop 3: Effector Function (Z3)

Jon A. Hagar, University of North Carolina at Chapel Hill, USA

Endotoxin Signaling Potentiates Insulin-Induced Acute Hypoglycemia

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Richard I. Tapping†, University of Illinois, USA
Toll-Like Receptor 10 Is a B-Cell Intrinsic Suppressor of Adaptive Humoral Immune Responses

Marina Zaitseva, Center for Biologics Evaluation and Research, USA
Critical Role of GPR14 Receptor in Prostaglandin Production by Human Monocytes in Response to MDP

Sarah E. Clark, University of Colorado, USA
Regulation of Natural Killer Cell IL-10 Production during Listeria Infection

Mathias S. Dick, University of Basel, Switzerland
Oligomerization of ASC Serves as Signal Amplification Mechanism for Inflammasomes

Naohiro Inohara, University of Michigan Medical School, USA
Interleukin-22 Bridges Local Inflammation to Systemic Protection Against Pathobionts after Pathogen-Induced Intestinal Damage

A. Marijke Keestra-Gounder, University of California, Davis, USA
The ER Stress-Induced Pro-Inflammatory Response Is Mediated by the NOD1/NOD2 Signaling Pathway

Shie-Liang Hsieh†, Academia Sinica, Taiwan
Modulation of Influenza Virus-Induced Macrophage Activation by Decoy Receptor 3 (DcR3)

Workshop 3 (Z4)

Short Talks Chosen from Abstracts

Microbiome and Innate Immunity (Z3)

Cathryn Nagler, University of Chicago, USA
Innate Immune Regulation of Sensitization to Dietary Antigens by Commensal Bacteria

Yasmine Belkaid, NIAID, National Institutes of Health, USA
T Cell Commensals

Sarkis K. Mazmanian, California Institute of Technology, USA
Regulation of Mucosal Immunity by the Gut Microbiome

Jonathan L. Linehan, NIAID, National Institutes of Health, USA
Short Talk: The Role of the Commensal Staphylococcus epidermidis in Driving a Unique CD8+ T Cell Response in Skin

Epigenetic Control of Inflammation (Z4)

Howard Y. Chang, Stanford University, USA
LncRNAs and Inflammation

Alexander (Sasha) Tarakhovsky, Rockefeller University, USA
Epigenetic Control of Inflammatory Cascades

John J. O'Shea, NIAMS, National Institutes of Health, USA
Epigenetic Control of T Cell Fate

Short Talk Chosen from Abstracts

Poster Session 3

THURSDAY, APRIL 23

Intervention/Vaccines (Z3)

Hana Golding, Center for Biologics Evaluation and Research, US Food and Drug Administration, USA
Impact of Adjuvants on Antibody Repertoires and Affinity Maturation against Pandemic Influenza Vaccines

Eva Harris, University of California, Berkeley, USA
Antibodies to Dengue Virus Non-Structural Protein 1 Protect against Endothelial Permeability and Lethal Vascular Leak

Robert L. Coffman, Dynavax Technologies, USA
Systems Biology Analysis of the Human Response to Hepatitis B Vaccines Using Alum or CpG Oligonucleotide Adjuvants

John D. MacMicking, Yale University, USA
Discovery of IFN-Induced GBPs in Inflammasome-Mediated Host Defense

Margherita Coccia†, GlaxoSmithKline Vaccines, Belgium
Short Talk: Innate Immune Mechanisms and Early NK Cell Activation as a Result of MPL and QS-21 Combination Controls the Adjuvant Effect Induced by the Human Adjuvant System AS01

Ugo D'Oro†, Novartis Vaccines, Italy
Short Talk: The Novel Adjuvant Alum-TLR7 Is Able to Potentiate the Immune Response to Glycoconjugate Vaccines

Therapeutic Interventions in Autoinflammation and Autoimmunity (Z4)

Raphaela Goldbach-Mansky, NIAMS, National Institutes of Health, USA

Targeted Therapies in Autoinflammatory Diseases

Speaker to be Announced

Dhaval Kumar D. Patel, Novartis Institutes for BioMedical Research, Switzerland

IL17 Blockade in Psoriasis and Other Autoimmune Diseases

Christoph Klein, Ludwig-Maximilians-University Munich, Germany
Novel Genetic Defects of the Human Immune System

Short Talk(s) Chosen from Abstracts

Workshop 4: Systems Biology/Cytokine Pathway (Z3)

Manuella Bouttier, McGill University, Canada
Genomics Analysis Reveals Elevated LXRalpha Signaling Reduces M. tuberculosis Viability

Irina Tikhonovich, University of Kansas Medical Center, USA
Dynamic Arginine Methylation of TRAF6 Regulates TLR Signaling

Sakthimala Jagadeesan†, MGH/Harvard Medical School, USA
Genome-Wide Screen Identifies Genes Involved in Gut Immunity and Homeostasis in C. elegans

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Anneliese O. Speak, Wellcome Trust Sanger Institute, UK

High-Throughput Mutant Mouse Characterization Is a Powerful Tool to Identify Novel Immune Phenotypes

Jacob S. Yount, Ohio State University, USA

Chemoproteomics Reveals Toll-Like Receptor Fatty Acylation

Petr Broz, Biozentrum, University of Basel, Switzerland

GBPs Promote AIM2 Inflammasome Activation during Francisella Infection by Inducing Cytosolic Bacteriolysis and DNA Release

Claudia Annelie Nold-Petry†, MIMR-PHI Institute of Medical Research, Australia

IL-37 Requires the Receptors IL-18Rα and IL-1R8 (SIGIRR) to Carry out its Multi-Faceted Anti-Inflammatory Program on Innate Signal Transduction

Helene Minyi Liu, National Taiwan University, Taiwan

Deacetylation-Dependent Regulation of RIG-I Activation by the HDAC6 Deacetylase Mediates Innate Anti-Viral Immunity

Workshop 4: Novel Therapies for Inflammatory Diseases (Z4)

Short Talks Chosen from Abstracts

Targets for Immunotherapy (Joint)

Thomas A. Waldmann, National Institutes of Health, USA

IL-15 in the Life and Death of Lymphocytes—Implications for Immunotherapy of Cancer and Autoimmune Disease

Maria Grazia Roncarolo, Stanford University School of Medicine, USA

Tr1 Cells in Inflammatory Diseases

Akiko Iwasaki, Yale University School of Medicine, USA

Innate Defense Against Influenza Virus Infection

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

FRIDAY, APRIL 24

Departure