



Type I Interferon: Friend and Foe Alike

March 19–23, 2017 | Fairmont Banff Springs | Banff, Alberta | Canada

Scientific Organizers:

Alan Sher, National Institute of Allergy and Infectious Diseases, National Institutes of Health, USA

Virginia Pascual, Baylor Research Institute, USA

Adolfo García-Sastre, Mount Sinai School of Medicine, USA

Anne O'Garra, Francis Crick Institute, UK

Joint with the meeting on *Pattern Recognition Signaling: From Innate Immunity to Inflammatory Disease*

While cytokines play critical roles in host defense and immune homeostasis, in other settings, they can be key mediators of inflammatory pathology. This important functional dichotomy is perhaps best exemplified in the diverse activities of Type I interferon(s) in health and disease. Type I IFNs regulate a broad family of genes that either stimulate or inhibit immune function and in so doing have host protective or detrimental effects. Thus, while Type I IFNs are well-known for their anti-viral activity and stimulation of effector T cell responses, they can also promote autoimmune, bacterial and even certain viral diseases. Understanding this contextual dependency is crucial for unraveling the pathogenesis of Type I IFN-dependent diseases and for the design of interferon-based therapies and will be the central focus of the meeting. The conference will open with talks presenting an overview of Type I IFN genes and their regulation, innate recognition mechanisms and signaling pathways for Type I IFN induction and Mendelian-based interferonopathies. Additional sessions will focus on the role of Type I IFN in viral, bacterial and autoimmune diseases. The symposium will conclude with a discussion of the mechanistic and contextual factors that determine the beneficial versus deleterious outcome of Type I IFN induction and how this information can be applied to the development of targeted therapeutic interventions. Because of the timeliness of the topic, the conference should draw a broad audience from the fields of cytokine biology, inflammation, infectious disease and translational medicine and attract a solid industry representation.


Session Topics:

- Nucleic Acid Recognition Pathways Regulating Type I IFN Induction (Joint)
- Workshop 1: Innate Signals for Type I IFN Induction
- Mendelian Interferonopathies and IFN Deficiencies
- Type I IFN Regulation of Viral Infection and Cancer
- Workshop 2: Role of Type I IFNs in Control and Enhancement of Infection/Malignancy
- Type I IFN Regulation of Viral Infection
- Type I IFN Regulation of Bacterial Infection and Disease
- Role of Type I IFN in Complex Autoimmunity
- Mechanisms Underlying Divergent Functions of Type I IFNs
- Workshop 3: Type I IFN in Clinical and Experimental Autoimmunity
- Tailoring Type I IFN Interventions to Achieve Cure

Scholarship Application & Discounted Abstract Deadline: November 17, 2016

Abstract Deadline: December 20, 2016

Discounted Registration Deadline: January 19, 2017



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

Upper image of cytokines courtesy of National Institute of Allergy and Infectious Diseases, NIH

Meeting Hashtag: #KSifn

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Pattern Recognition Signaling: From Innate Immunity to Inflammatory Disease (X5)

Scientific Organizers: Thirumala-Devi Kanneganti, Vishva M. Dixit and Mohamed Lamkanfi

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SUNDAY, MARCH 19

Arrival and Registration

MONDAY, MARCH 20

Welcome and Keynote Session (Joint)

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

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

Anne O'Garra, Francis Crick Institute, UK

Type I IFN Regulation of Cytokine Networks and Consequences for Infection

Daniel Kastner, National Institutes of Health, USA

PRR Signaling and Inflammatory Disease

Nucleic Acid Recognition Pathways Regulating Type I IFN Induction (Joint)

***Zhijian 'James' Chen**, University of Texas Southwestern Medical Center, USA

Cytosolic Recognition of DNA through cGAS/STING Pathway

Sun Hur, Harvard Medical School, USA

Cytosolic Sensing of Viral RNA by the RIG-I-Like Receptors

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

Endosomal Recognition of Self-Nucleic Acids

Vishva M. Dixit, Genentech, USA

Inflammasome Signaling

Workshop 1: Innate Signals for Type I IFN Induction (X6)

***Paul J. Hertzog**, Hudson Institute of Medical Research, Australia

***Dusan Bogunovic**, Icahn School of Medicine at Mount Sinai, USA

John Ty Crowl, University of Washington, USA

Loss of Sumoylation Triggers a Spontaneous Type I Interferon Response Independent of Cytosolic Nucleic Acid Sensing Pathways

Martin R. Jakobsen, department of biomedicine, Denmark

IFI16 Dictates DNA Sensing in Human Macrophages by Promoting Production and Function of cGAMP

Stefanie Luecke, Aarhus University, Denmark

Length-Dependent Sensing of Low-Abundance dsDNA by cGAS

Jennifer Lumb, Stanford University, USA

Unbiased Haploid Genetic Screen Uncovers a Novel RNA Binding Immune Regulator

Nathalie M. Grandvaux, Université de Montréal, Canada

Characterization of a Delayed Transcriptional Program Induced in Response to the Synergistic Action of IFN β +TNF α Reveals Novel STAT2 and IRF9-Dependent Pathways

Jennie B. Altman, Icahn School of Medicine at Mount Sinai, USA

Non-Canonical Type I IFN Signaling in ISG15 $^{-/-}$ and USP18 $^{-/-}$ Cells

Antje Blumenthal, University of Queensland, Australia

Spatiotemporal Regulation of TLR4 Signaling and Promotion of Type I IFN Responses by the RP105-PI3K p110delta Innate Immune Signaling Axis

Philippe D. Pierre, Centre d'Immunologie Marseille-Luminy, CIML, France

Ppp1r15a/GADD34 Controls Heterogeneity of Type-I Interferon Production in Response to dsRNA

Workshop 1: PRRs in Inflammatory Diseases (X5)

***Fayyaz Sutterwala**, Cedars-Sinai Medical Center, USA

***Eicke Latz**, University of Bonn, Germany

Sreya Ghosh, University of Massachusetts Medical School, USA

The PYHIN Protein IFI205 Regulates Immune Signaling by Controlling Expression of the Inflammasome Adaptor ASC

Mena Abdel-Nour, University of Toronto, Canada

The eIF2 alpha Kinase HRI Senses Protein Aggregation and Facilitates Signaling of Innate Immune Receptors

José Santos, University of Basel, Switzerland

Novel GBP-Dependent Mechanisms of Inflammasome Activation

Matthew James George Eldridge, Imperial College London, UK

The Atypical Ubiquitin E2 Conjugase UBE2L3 is an Indirect Caspase-1 Target and controls IL-1 β Secretion by Inflammasomes

Nidhi Jain, Cedars-Sinai Medical Center, USA

NLRP12 Mutation Causes C57BL/6J Strain-Specific Defect in Neutrophil Recruitment

Nina Van Opdenbosch, VIB-University of Ghent, Belgium

Defective Caspase-1 Recruitment Licenses ASC Specks to Engage Non-Inflammatory Caspase-8-Driven Apoptosis in Macrophages and Intestinal Epithelial Cells

Charlotte Macleod, University of Cambridge, UK

Determining the Stoichiometry of the TLR-4 Adaptor Protein Mal/TIRAP using TIRF Microscopy

Scott W. Canna, Children's Hospital of Pittsburgh, University of Pittsburgh, USA

Chronic IL-18 of Diverse Origins Defines and Drives the Hyperinflammatory State Known as Macrophage Activation Syndrome

Mendelian Interferonopathies and IFN-Deficiencies (X6)

***Virginia Pascual**, Cornell University, USA

Dusan Bogunovic, Icahn School of Medicine at Mount Sinai, USA

Loss of Type I Interferon Negative Regulation in Humans

Min Ae Lee-Kirsch, Technische Universität Dresden, Germany

Defective Intracellular Nucleic Acid Waste Management in Type 1 Interferon-Driven Autoinflammation and Autoimmunity

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Raphaela Theresia Goldbach-Mansky, NIAID, LCIM, National Institutes of Health, USA
Novel Insights into the Pathogenesis and Treatment Approaches of the Type I-IFN-Mediated Autoinflammatory Diseases, CANDLE and SAVI

Joaquín M. Espinosa, University of Colorado Boulder, USA
Short Talk: Trisomy 21 Consistently Activates the Interferon Response: Understanding Down Syndrome as an Interferonopathy

Nucleic Acids in TLR and NLR Signaling (X5)

***Mohamed Lamkanfi**, Ghent University, Belgium

Jonathan C. Kagan, Boston Children's Hospital, USA
Initiation and Regulation of Innate Immune Signal Transduction

Kate A. Fitzgerald, University of Massachusetts Medical School, USA
Novel Regulators of PRR-Driven Transcriptional Responses

Thirumala-Devi Kanneganti, St. Jude Children's Research Hospital, USA
Inflammasomes and Pathogen Sensing

Osamu Takeuchi, Kyoto University, Japan
Short Talk: Spatiotemporal Regulation of Inflammatory mRNAs in Innate Immune Responses

Poster Session 1

TUESDAY, MARCH 21

Type I IFN Regulation of Viral Infection and Cancer (X6)

***Adolfo García-Sastre**, Mount Sinai School of Medicine, USA

Ana Fernandez-Sesma, Mount Sinai School of Medicine, USA
Modulation of Innate Immunity by Dengue Virus: Feeling the STING

Andreas Wack, Francis Crick Institute, UK
Unique and Overlapping Roles of Type I and Type III Interferons in Influenza Infection

John W. Schoggins, University of Texas Southwestern Medical Center, USA
Cell Intrinsic Modulation of Viral and Bacterial Infection by IFN-Stimulated Genes

Thomas J. Braciale, University of Virginia, USA
Innate Immune Control of Respiratory Virus Infection

Gaya K. Amarasinghe, Washington University in St. Louis, USA
Short Talk: Control of Type I IFN Signaling in Negative Sense RNA Viruses

Jason Waithman, Telethon Kids Institute, Australia
Short Talk: IFN α Subtypes Drive Distinct Anti-Cancer Activities

Recent Insights in Inflammasome Signaling (X5)

***Vishva M. Dixit**, Genentech, USA

Fayyaz Sutterwala, Cedars-Sinai Medical Center, USA
Cardiolipin Promotes Mitochondrial Localization of NLRP3 and Caspase-1

Mohamed Lamkanfi, Ghent University, Belgium
Inflammasome Regulation in Auto-Inflammation

Kim Newton, Genentech, Inc., USA
Regulation of Inflammation and Cell Death by RIPK1

Feng Shao, National Institute of Biological Sciences, China
Pyroptosis in Anti-Bacterial Immunity: Sensing & Execution

Bharat Behl, University of Connecticut Health Center, USA
Short Talk: Molecular Determinants of Noncanonical Inflammasome Activation by LPS

Olaf Groß, Universitätsklinikum Freiburg, Germany
Short Talk: Caspase-1 Mutant Mouse Reveals a Central Role of Caspase-1 Protease Activity and GSDMD in Fate Decisions After Inflammasome Activation

Meet the Editors

***Teodoro Pulvirenti**, Journal of Experimental Medicine, USA

Workshop 2: Role of Type I IFNs in Control and Enhancement of Infection (X6)

***Thomas J. Braciale**, University of Virginia, USA

***Katrin D. Mayer-Barber**, NIAID, National Institutes of Health, USA

Charles S. Dela Cruz, Yale University, USA
Chitinase-Like Protein Chi311 Modulates Type I Interferon Response through TLR9-AP3-IRF7 Axis during Streptococcus Pneumoniae Lung Infection

Ren Sun, University of California, Los Angeles, USA
Genome-Wide Identification of Anti-Interferon Functions in Influenza A Virus

Lindsey Cook, Washington University in St. Louis, USA
Differential Roles of Type I Interferons in Chikungunya Virus Infection

Bastian Opitz, Charité University Medicine Berlin, Germany
A Common Loss-of-Function Variant of STING Affects cGAS-Dependent Antibacterial Defense

Laura Sinigaglia, Institut Pasteur, France
Transfer of Yellow Fever Virus RNA from Infected Cells to Plasmacytoid Dendritic Cells Triggers Interferon Production

Nick Parekh, Penn State College of Medicine, USA
cGAS Mediates a Protective Local Response to Dermal Vaccinia Infection Independent of Control of Virus Replication

Susan Pereira Ribeiro, Case Western Reserve University, USA
Different Interferon Signatures Characterize Two Subclasses of Immune Non-responder Subjects

Workshop 2: PRRs in Inflammatory Diseases (X5)

***Dmitry M. Shayakhmetov**, Emory University, USA

***Denise M. Monack**, Stanford University, USA

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T. Sam Xiao, Case Western Reserve University, USA
Structures of GSDMD C-Terminal Domain Suggest Mechanisms of Autoinhibition

Igor E. Brodsky, University of Pennsylvania, USA
Role of Caspase-8 Enzymatic Activity in Control of TLR-Induced Macrophage Gene Expression

Damien Arnoult, Hopital Paul Brousse, France
The Golgi Apparatus Acts as a Platform for TBK1 Activation After Viral RNA Sensing

Randilea Nichols, University of California, Los Angeles, USA
NLR4 Inflammasome Activation in Neutrophils is Sufficient to Cause Systemic Inflammatory Disease

Rosalie Heilig, University of Basel, Switzerland
The Role of Gasdermin D in IL-1 β Release

Cindy Chiang, University of Chicago, USA
The Human Papillomavirus E6 Oncoprotein Inhibits TRIM25- and RIG-I-Mediated Innate Immune Signaling

Andrea Ablasser, Ecole Polytechnique Fédérale de Lausanne, Switzerland
Innate Immune Sensing of Cytosolic Chromatin Fragments through cGAS Promotes Cellular Senescence

Type I IFN Regulation of Viral Infection (X6)

***Andreas Wack**, Francis Crick Institute, UK

Netanya Sandler Utay, University of Texas Health Science Center at Houston, USA
Type I Interferons: Barrier or Pathway to HIV Disease?

Adolfo García-Sastre, Mount Sinai School of Medicine, USA
Regulation of Influenza Virus Sensing and Antiviral Responses by Host and Virus Factors

Andreas Pichlmair, Max-Planck Institute of Biochemistry, Germany
Interactions of Cellular Proteins with Viral Nucleic Acids

Ricardo Rajsbaum, University of Texas Medical Branch, USA
Short Talk: Friend and Foe in the Regulation of IFN Pathways: Pro-Viral and Anti-Viral Functions of the Host E3-Ubiquitin Ligase TRIM6

Interfering with Pathogenic TLR and NLR Signaling (X5)

***Gabriel Nuñez**, University of Michigan, USA

Dana Philpott, University of Toronto, Canada
Nod2 Signaling

Dmitry M. Shayakhmetov, Emory University, USA
Non-canonical Regulated Necrotic Death and Sensing Danger

Jenny P.Y. Ting, University of North Carolina at Chapel Hill, USA
Intracellular Innate Immune Receptors: Regulators of Inflammation, Cancer and Immunity

Vikram R. Rao, Pfizer, USA
Short Talk: IRAK4 Kinase Inhibitors: Emerging Biology and Therapeutic Implications

Poster Session 2

WEDNESDAY, MARCH 22

Type I IFN Regulation of Bacterial Infection and Disease (X6)

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

Thomas J. Scriba, University of Cape Town, South Africa
IFN Signatures that Predict Human Tuberculosis

Katrin D. Mayer-Barber, NIAID, National Institutes of Health, USA
The Dichotomy between Interleukin 1 and Type I Interferon during Mycobacterium Tuberculosis Infection Exposes Distinct and Opposing Classes of Inflammation

Craig R. Roy, Yale University School of Medicine, USA
Modulation of Type I Interferon Production during Infection by Vacuolar Pathogens

Jacques F. Banchereau, The Jackson Laboratory for Genomic Medicine, USA

Human Dendritic Cell Subsets Differentially Respond to Vaccines

Terje Espevik, Norwegian University of Science and Technology, Norway

Short Talk: CD150 Positively Regulates TRAM Recruitment to E.coli Phagosomes and Type I IFN Secretion

Beiyun Caitlin Liu, Tufts University, USA
Short Talk: Host-Intrinsic Interferon Signaling Licenses GBP-Mediated Attack on Cytosolic Bacteria

PRR Signaling in Bacterial and Viral Infection (X5)

***Kate A. Fitzgerald**, University of Massachusetts Medical School, USA

Russell E. Vance, University of California, Berkeley, USA
Activation of Inflammasomes by Bacterial Pathogens

Amal Amer, Ohio State University, USA
Unconventional Functions of Inflammasomes

Denise M. Monack, Stanford University, USA
Inflammasomes and Bacterial Infections

Christian Holm, Aarhus University, Denmark
Short Talk: Nitro-Fatty Acids Can Suppress STING Signaling

Peng Li, National Institute of Biological Sciences, China
Short Talk: Ubiquitination and Degradation of GBPs by Shigella Ipha9.8 Effector to Suppress Host Defenses

Valesca Lindenberg, Institute of Medical Microbiology and Hospital Hygiene, Germany

Short Talk: Extensive Characterization of mGBPs Localization Chlamydia trachomatis Infection

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Katelyn Susanne Burleigh, University of Washington, USA
Short Talk: Uncovering the Mechanism of E1A Antagonism of the cGAS-STING Pathway

Role of Type I IFN in Complex Autoimmunity (X6)

***Virginia Pascual**, Cornell University, USA
Pathogenic Functions of Type I IFN in SLE

***Richard M. Siegel**, NIAMS, National Institutes of Health, USA
Interferon, Anti-Interferon Antibodies and NK Cells in Systemic Autoimmunity

Robert C. Axtell, Oklahoma Medical Research Foundation, USA
Immunological Heterogeneity in Neurological Autoimmunity: Lessons from Studying Type I Interferon Responses

Mari L. Shinohara, Duke University, USA
Short Talk: Type-I Interferons and the NLRP3 Inflammasome in CNS Autoimmunity

Inflammasome and NF- κ B Regulatory Mechanisms (X5)

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

Christian Stehlik, Northwestern University, USA
Inflammasome Inhibition

Eicke Latz, University of Bonn, Germany
Inflammasomes in Health and Disease

Luke A. J. O'Neill, Trinity Biomedical Sciences Institute, Ireland
Metabolic Reprogramming in Innate Immunity and Inflammation

Ali A. Zarrin, Genentech, Inc., USA
Short Talk: TPL2 Kinase Activates MEK-1/2 and/or MEK-3/6 to Regulate Inflammatory Pathways in Myeloid Cells

Poster Session 3

THURSDAY, MARCH 23

Mechanisms Underlying Divergent Functions of Type I IFNs (X6)

***Anne O'Garra**, Francis Crick Institute, UK

Jae U. Jung, Keck School of Medicine of University of Southern California, USA
TRIM-Mediated Control of Type I IFN Pathway

Marco Colonna, Washington University School of Medicine, USA
Targeting Type I IFN Activity through Plasmacytoid DC

Laurel L. Lenz, University of Colorado, USA
Role of Type I - Type II IFN Crosstalk in Macrophage Effector Function

Gideon Schreiber, Weizmann Institute, Israel
The Molecular Basis for Differential Activity of Type I Interferons

Paul J. Hertzog, Hudson Institute of Medical Research, Australia
Short Talk: Systems Biology of Type I Interferon Responses

Ronald L. Rabin, US Food and Drug Administration, USA
Short Talk: A Potential Modulatory Role for IFN α 1 Dependent on its Low Affinity for IFNAR2

Interactions between Microbiota and the Innate Immune System (X5)

***Mihai G. Netea**, Radboud University, Netherlands

Daniel Graham, Massachusetts General Hospital, USA
Host Genetics and Microbe Interactions in Human Disease

Kathy D. McCoy, University of Calgary, Canada
Intestinal Commensal Microbiota and Education of the Innate Immune System

Gabriel Nuñez, University of Michigan, USA
Control of Pathogen Colonization by Host Immunity and the Microbiota in the Gut

Andrew T. Gewirtz, Georgia State University, USA
Microbial-Mediated Protection from Infectious Disease

Prosper N.

Stephen Rubino, Brigham and Women's Hospital, USA
Activated Microglia Induce Type 1-interferon Dependent Neurodegeneration

Workshop 3: PRRs in Inflammatory Diseases (X5)

***Amal Amer**, Ohio State University, USA
***Dana Philpott**, University of Toronto, Canada

Eric P. Hanson, National Institutes of Health, USA
A Novel NEMO Isoform Mediates Enhanced Antiviral Activity and Autoinflammatory Disease via Stabilization of IKKepsilon

Kiva V. Brennan, Trinity College Dublin, Ireland
Designing Vaccines for the Paediatric Population; Potential for Cytosolic Nucleic Acids as Vaccine Adjuvants

Nesrin Ozoren, Bogazici University, Turkey
ASC Specks as Vaccine Technology

Jingjin Ding, National Institute of Biological Sciences, China
LPS Binding to Caspase-1/4/5 Triggers Pyroptosis by Releasing the Pore-Forming Activity of GSDMD

Orna

Vishva Deep Dixit, Yale University, USA
Metabolic Control of Inflammasomes

Mihai G. Netea, Radboud University, Netherlands
Metabolic Basis for Trained Innate Immunity

Meeting Wrap-Up: Outcomes and Future Directions (X6)

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

Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (X5)

FRIDAY, MARCH 24

Departure

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Boyaka, Ohio State University, USA
Regulation of Mucosal Immunity by Toxins and Microbiota

Grace Yi Chen, University of Michigan, USA
Short Talk: NLRP6 Limits Colonization of Akkermansia to Protect Against the Development of Colitis and Colon Tumorigenesis

Felix Yarovinsky, University of Rochester Medical Center, USA
Short Talk: Loss of Paneth Cell Autophagy Leads to Catastrophic Susceptibility to Acute Gastrointestinal Inflammation

Workshop 3: Role of Type I IFNs in Autoimmunity and Malignancy (X6)

***Raphaela Theresia Goldbach-Mansky**, NIAID, LCIM, National Institutes of Health, USA

***Marco Colonna**, Washington University School of Medicine, USA

Kebin Liu, Medical College of Georgia, USA
Jak-STAT-Mediated Chronic Inflammation Impairs Cytotoxic T Lymphocyte Activation to Decrease Anti-PD-1 Immunotherapy

Rabinovich-Ernst, NIAID, National Institutes of Health, USA
An Arrayed Genome-Wide RNAi Screen for the Discovery of Novel Inflammasome Regulators

Thomas A. Kufer, University of Hohenheim, Germany
Roles of NLRP10 in Innate and Adaptive Immunity

Navigating the Peer Review Process (X5)

***Tina M. McIntyre**, National Institutes of Health, USA

Tailoring Type I IFN Interventions to Achieve Cure (X6)

***Jacques F. Banchereau**, The Jackson Laboratory for Genomic Medicine, USA
Geraldine P. Grouard-Vogel, Neovacs, France
Overexpression of IFN α and Derived Diseases: Innovative Approach with a Therapeutic Vaccine IFN α Kinoid

Gary P. Sims, MedImmune Inc, USA
Novel Pathogenic Role for IgE in SLE, and Pharmacological Blockade of Type I IFN Receptor in Patients

John J. O'Shea, NIAMS, National Institutes of Health, USA
Targeting Type I IFN Signaling Pathways

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immunotherapy

*Efficacy in
Pancreatic Cancer*

Jacquelyn

Gorman, Seattle
Children's
Research Institute,
USA

*The IFIH1A946T
Coding Variant*

*Mediates an
Interferon Program
that Limits Viral
Infection but
Increases the Risk
for Autoimmunity*

Mark E. Kleinman,
University of
Kentucky, USA

*Epigenetic
Regulation of Type
I IFN Response in
Age-Related
Macular
Degeneration*

Elisaveta

Voynova,
Medimmune, USA
*Blockade of Critical
Immune Regulators
Results in Different
Roads to
Pathogenesis in
Primary Sjögren's
Syndrome*

Mona Motwani,
University of
Massachusetts,
USA

*The cGAS-STING
Pathway Restrains
Systemic
Autoimmunity*

Simone Caielli,
Baylor Institute for
Immunology
Research, USA
*Oxidized
Mitochondrial DNA
is a Powerful
Activator of Human
pDCs and Induces
a Lupus-Specific
CD4 T Cell
Phenotype*

Innate Immune Receptors and Metabolism (X5)

***Prosper N. Boyaka**,
Ohio State University,
USA

Marcia A. Munoz,
Garvan Institute of
Medical Research,
Australia
*Short Talk: Defective
Protein Prenylation Is
a Diagnostic
Biomarker for
Mevalonate Kinase
Deficiency*

Je-Wook Yu, Yonsei
University College of
Medicine, South Korea
*Short Talk:
25-Hydroxycholesterol
Contributes to
Cerebral Inflammation
of X-Linked
Adrenoleukodystrophy
(X-ALD) through
Activation of the
NLRP3 Inflammasome*

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