



Join Keystone Symposia
for the 2016 conference on:

Tuberculosis Co-Morbidities and Immunopathogenesis

February 28–March 3, 2016

Keystone Resort | Keystone, Colorado | USA

Scientific Organizers:

Hardy Kornfeld, Sarah M. Fortune and Thomas R. Hawn

Tuberculosis remains one of the most significant infectious disease threats to global health despite the availability of effective antimicrobials for more than 50 years. The focus of this Keystone Symposia meeting is on co-morbidities that are major driving factors in the TB pandemic and that may cause informative perturbations of immunity. This symposium explores metabolic disorders, environmental exposures, co-infections, age and genetic variants that influence host-pathogen interactions in TB. Plenary sessions will combine rather than separate topics focused on the host and the pathogen, and perspectives from laboratory and field studies. Speakers are encouraged to challenge existing dogma and offer new paradigms as a basis for more effective approaches to TB prevention and treatment.

Session Topics:

- Metabolism and Co-Morbidity I & II
- Workshop 1: Non-Classical Immunity
- Genetic Variation: A Different Type of Co-Morbidity?
- HIV/TB Co-Morbidity
- Workshop 2: Microbiology
- Pediatrics: Is Immaturity a Co-Morbidity?
- Impact of Co-Infections on TB Pathogenesis
- Workshop 3: Tfh and GCs in Disease
- Host-Pathogen Interactions
- Workshop 3: Host-Directed Therapies
- Host-Directed Therapeutics:
Co-Opting Treatment of Co-Morbidities



Submitting an abstract is a great way of participating in the conference through poster presentation and possible selection for a short talk.

Scholarship & Discounted Abstract Deadline: Oct 29, 2015

Abstract Deadline: Dec 1, 2015

Discounted Registration Deadline: Jan 5, 2016

For additional details, visit www.keystonesymposia.org/16B6.

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SUNDAY, FEBRUARY 28

Arrival and Registration

MONDAY, FEBRUARY 29

Metabolism and Co-Morbidity I

***Eric J. Rubin**, Harvard T.H. Chan School of Public Health, USA

Gökhan S. Hotamisligil, Harvard School of Public Health, USA
Immunometabolic Homeostasis and Metaflammation in Health and Disease

Larry S. Schlesinger, Texas Biomedical Research Institute, USA
A Convergence of Macrophage Inflammation and Metabolism

Kyu Y. Rhee, Weill Cornell Medical College, USA
Bacterial Metabolism in a Changing Host Environment

Sarah A. Stanley, University of California, Berkeley, USA
*An Immune-Metabolic Program Regulated by HIF-1 α and Nitric Oxide is Required for Control of *M. tuberculosis**

Noton K. Dutta, Johns Hopkins School of Medicine, USA
Short Talk: Statin Adjunctive Therapy Shortens the Duration of Tuberculosis Treatment in Mice

Workshop 1: TB Risk Factors

***Georgiana Purdy**, Oregon Health & Sciences University, USA

Abul K. Azad, Ohio State University, USA
*Defining the Genetic Basis for Biological Variation Among Donors in Human Macrophage Responses to *Mycobacterium tuberculosis**

Anthony Michael Cadena, University of Pittsburgh School of Medicine, USA
*Barcoding *Mycobacterium tuberculosis* Reveals Local in vivo Infection Dynamics in the Macaque Model of Tuberculosis*

Mark Hatherill, University of Cape Town, South Africa
A Phase 2 Randomized Controlled Trial of Safety and Immunogenicity of MVA85A and Selective, Delayed Bacille Calmette-Guerin (BCG) Vaccination in Infants of HIV Infected Mothers

David J. Horne, University of Washington, USA
Human ULK1 Variation and Susceptibility to Latent Tuberculosis Infection

Nuria Martinez, University of Massachusetts Medical School, USA
*Impaired Innate Recognition of *Mycobacterium tuberculosis* by Alveolar Macrophages from Diabetic Mice*

Juan I. Moliva, Texas Biomedical Research Institute, USA
*Age-Associated Oxidation of Innate Immune Proteins in the Lung Mucosa Alters the Host Response to *Mycobacterium tuberculosis**

Ruijuan Zheng, Tongji University School of Medicine, China
*Induction of Notch4 Negatively Regulate the Inflammatory responses to *Mycobacterium tuberculosis* Infection*

Genetic Variation: A Different Type of Co-Morbidity?

***Ann M. Ginsberg**, Aeras, USA

Thomas R. Hawn, University of Washington, USA
*Innate Resistance to *Mtb* Infection*

Igor B. Kramnik, Boston University, USA
Control of Lung Damage and Carcinogenesis in TB: Genes Meet the Microenvironment

Sarah M. Fortune, Harvard TH Chan School of Public Health, USA
*Identifying the Drivers of Genetic Variation in Clinical Isolates of *Mycobacterium tuberculosis**

Maria Lerm, Linköping University, Sweden
Short Talk: Epigenetic Reprogramming of Peripheral Blood Mononuclear Cells in BCG-Vaccinated Individuals

Poster Session 1

TUESDAY, MARCH 1

HIV/TB Co-Morbidity

***Michael Stephen Glickman**, Memorial Sloan-Kettering Institute, USA

Robert J. Wilkinson, University of Cape Town, South Africa
Understanding and Intervening in HIV-Associated Tuberculosis

Anne E. Goldfeld, Children's Hospital Boston, Harvard Medical School, USA
Time is of the Essence: Lessons from the CAMELIA Trial

Keertan Dheda, University of Cape Town, South Africa
New Insights into the Pathogenesis of Drug-Resistant TB and Implications for Clinical Management

Philana Ling Lin, University of Pittsburgh, USA
Lesion Dynamics in SIV/TB Co-Infection

Elisa Nemes, University of Cape Town, South Africa
Short Talk: Host Correlates of Risk of Bacille Calmette-Guerin (BCG) Immune Reconstitution Inflammatory Syndrome (IRIS) in HIV+ Children Starting Antiretroviral Therapy (ART)

Robert Blomgran, Linköping University, Sweden
*Short Talk: HIV Interferes with *Mycobacterium tuberculosis* Antigen Presentation in Human Dendritic Cells*

Tips for Writing NIH Grant Applications: Navigating NIH Peer Review

***Raymond R. Schleef**, NIAID, National Institutes of Health, USA

Workshop 2: Host-Pathogen Interactions

***David M. Tobin**, Duke University School of Medicine, USA

Eusondia Arnett, Texas Biomedical Research Institute, USA
*Characterization of Virulence-Dependent AIM2 Expression, a PPAR- γ effector in Human Macrophages During *Mycobacterium tuberculosis* Infection*

Claire Dodd, Ohio State University, USA
*Scavenger Receptor CD36 Mediates Uptake of Surfactant Lipids by Human Macrophages and Regulates Intracellular Growth of *M. tuberculosis**

Jan Philipp Korte, Heinrich-Heine University Düsseldorf, Germany
*Trehalose-6-Phosphate Mediated Toxicity Determines Essentiality of OtsB2 in *Mycobacterium tuberculosis* in vitro and in mice*

Lenette Lu, Partners HealthCare, USA
Unique Functional Antibody Profiles in Latent and Active Tuberculosis Infection

Amanda J. Martinot, Beth Israel Deaconess Medical Center, Harvard Medical School, USA
*"Fat is not Fit": Targeting Lipid Transport in Drug Discovery for *Mycobacterium tuberculosis**

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Amira Refai, Institut Pasteur de Tunis, Tunisia
Discrepancy Around Biological Functions of Mycobacterium tuberculosis Virulent factor ESAT-6 is due to two Distinct Conformational States of the Protein

Pediatrics: Is Immaturity a Co-Morbidity?

***Thomas J. Scriba**, University of Cape Town, South Africa

Theodore H. Cohen, Yale School of Public Health, USA
Within-host Heterogeneity of M. tuberculosis Infection

Deborah Lewinsohn, Oregon Health & Science University, USA
Pediatric Immunity in TB

Helen McShane, Jenner Institute, UK
Vaccine Immunogenicity and Correlates of Protection in Infants and Adults

Michael Shiloh, University of Texas Southwestern Medical Center, USA
Short Talk: Airway Microfold Cells Translocate Mycobacterium Tuberculosis to Initiate Infection

Poster Session 2

WEDNESDAY, MARCH 2

Impact of Co-Infections on TB Pathogenesis

***Shabaana Khader**, Washington University School of Medicine, USA

Alessandro Sette, La Jolla Institute for Allergy & Immunology, USA
Comprehensive Immunophenotyping and Immunoprofiling of Epitope-Specific Responses.

Subash S. Babu, National Institutes of Health - ICER, India
Modulation of Immune and Inflammatory Responses in Active Pulmonary Tuberculosis by Co-Incidental Helminth Infections

Padmini Salgame, Rutgers University, USA
Helminth/TB Co-Infection: Th2 Cytokines

Maziar Divangahi, McGill University, Canada
Influenza and Tuberculosis

Jannike Blank, Research Center Borstel, Germany
Short Talk: One Episode of Self-resolving Plasmodium yoelii Infection Transiently Exacerbates Chronic Mycobacterium tuberculosis Infection

Workshop 3: Host-Directed Therapy

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

Anna-Maria Andersson, Linköping University, Sweden
Autophagy Enhances Mycobacterium tuberculosis Replication in Latently and HIV Co-Infected Human Macrophages

Shashank Gupta, Johns Hopkins University, USA
ONTAK, a Recombinant Toxin, as a Host-Directed Therapy for Tuberculosis in the Mouse Model

Stefan H. Oehlers, Centenary Institute, Australia
Interception of Host Angiogenic Signaling Limits Mycobacterial Growth

Joseph Edward Qualls, Cincinnati Children's Hospital Medical Center, USA
Macrophage L-citrulline Metabolism Improves Anti-Mycobacterial Host Defense in vivo

Robindra Basu Roy, University of Oxford, UK
Evaluation of ibuprofen with Novel Whole Blood BCG GFP-luciferase Full Operon Assay

Javeed Ali Shah, University of Washington, USA
TOLLIP Deficiency is Associated with Increased Mycobacterium tuberculosis-specific Anti-Microbial Monocyte Responses and Protection from Pediatric Tuberculosis in South Africa

Metabolism and Co-Morbidity II

***Blanca I. Restrepo**, University of Texas Health Science Center, USA

Megan Murray, Harvard Medical School, USA
Diabetes and Environmental Co-Morbidities with TB

Hazel M. Dockrell, London School Hygiene & Tropical Medicine, UK
Tuberculosis and Diabetes: Learning in TANDEM

Hardy Kornfeld, University of Massachusetts Medical School, USA
Cellular Immunology of TB Susceptibility with Metabolic Co-Morbidities

Satyanarayana Swamy Cheekatla, University of Texas Health N.E., USA

Short Talk: Nk-dc Crosstalk in Diabetes Enhances il-6 Mediated Inflammation during Tuberculosis Infection

Anil Kumar Ojha, Wadsworth Center, University at Albany, USA
Short Talk: Ribosomal Heterogeneity Determines Biofilm Development and Drug Tolerance in Mycobacteria

Poster Session 3

THURSDAY, MARCH 3

Host-Pathogen Interactions

***Priscille Marie Brodin**, CIIL Institut Pasteur, France
Small Molecules Targeting Host Against M. tuberculosis

Shabaana Khader, Washington University School of Medicine, USA
Neutrophils in TB: The Good, the Bad and the Ugly

Jeffery S. Cox, University of California, Berkeley, USA
Discrimination of Pathogens from Non-Pathogens by Innate Immune Cells

Joseph Keane, St. James's Hospital and Trinity College Dublin, Ireland

Effects of Cigarette Smoke on the Macrophage-Pathogen Interaction

Jacqueline M. Kimmey, Washington University, USA
Short Talk: Unique Role for ATG5 in PMN-Mediated Immunopathology during M. tuberculosis Infection

Joyanne Turner, Texas Biomedical Research Institute, USA
Short Talk: A Mouse Model of Age-Associated Tuberculosis Reactivation Positions KLRG1 as a Modulator of Disease Progression

Host-Directed Therapeutics: Co-Opting Treatment of Co-Morbidities

***Anna Kathleen Coussens**, Walter and Eliza Hall Institute, Australia

Amit Singhal, Singapore Immunology Network, Singapore
Intervening Host Immunometabolic Program: Potential for TB HDT

Guy Edward Thwaites, Oxford University Clinical Research Unit, Vietnam
Personalised Adjunctive Anti-Inflammatory Therapy for Tuberculosis

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Adrian Martineau, Queen Mary University of London, UK
Vitamin D and Phenylbutyrate as Potential Host-Directed Therapies

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

FRIDAY, MARCH 4

Departure