

2<sup>nd</sup> International Virtual Conference on

# *Mycobacterium tuberculosis*

## Research and Drug Development

February 27-28, 2024 | Virtual

**Time zone:** Eastern Time USA (GMT -5:00)

**Conference Chair:** Prof. Martin Rottenberg, Karolinska Institutet, Sweden

09:00 - 09:05 Welcome & Introductory Remarks  
**Martin Rottenberg**, Karolinska Institutet, Sweden

### Session I - Immunobiology of *M. tuberculosis* Infection

**Session Chair: Martin Rottenberg**, Karolinska Institutet, Sweden

09:05 - 09:45 **William (Bill) R. Jacobs, Jr.**, Albert Einstein College of Medicine, NY, USA **Plenary**  
 Exacting Edward Jenner's Revenge: Serendipity and Vaccine Discovery

09:45 - 10:10 **Olivier Neyrolles**, CNRS-Université de Toulouse, France  
 Neuroimmune Revelation: Unveiling Lung Innervation in TB Granulomas and Beyond

10:10 - 10:35 **Tony Y. Hu**, Tulane University, LA, USA  
 Precision Diagnosis of Tuberculosis: Empowering Personalized Healthcare with Nano and Micro Technologies

10:35 - 10:55 Break

10:55 - 11:20 **Samuel M. Behar**, University of Massachusetts Medical School, MA, USA  
 CD4 T Cell Dysfunction during Chronic Infection

11:20 - 11:45 **Andrew W. Simonson**, University of Pittsburgh School of Medicine, PA, USA  
 CD8+ Lymphocytes are Required for Containment of Secondary *Mycobacterium tuberculosis* Infection

11:45 - 12:10 **Volker Briken**, University of Maryland, MD, USA  
 Interaction of *Mycobacterium tuberculosis* with the Host Cell Inflammasome

12:10 - 12:35 **Ophelie Rutschmann**, Swiss Federal Institute of Technology in Lausanne (EPFL), Switzerland  
 Non-canonical Inflammasome Activation in Macrophages Infected with *M. tuberculosis*

12:35 - 13:05 Break

### Session II - Metabolism, Oxidative Stress and Immunity in Tuberculosis

**Session Chair: Patricia A. Champion**, University of Notre Dame, IN, USA

13:05 - 13:30 **Robert Wallis**, The Aurum Institute, South Africa  
 Oxidative Stress and Lung Injury in Tuberculosis: Opportunities for Disease-modifying Therapies

13:30 - 13:55 **Martin Rottenberg**, Karolinska Institutet, Sweden  
 Immune Mechanisms and Oxidative Stress Underlying the Interaction of Tuberculosis and Diabetes

13:55 - 14:20 **Hardy Kornfeld**, UMass Chan Medical School, MA, USA  
 TB-Diabetes Interaction Update

14:20 - 14:45 **Igor Kramnik**, Boston University School of Medicine, MA, USA  
 Decoding Tuberculosis's Lung Predilection

14:45 - 15:05 Break

15:05 - 15:30 **Marcela Henao-Tamayo**, Colorado State University, CO, USA  
 Mucosal Exposure to NTM Elicits B-cell-mediated Protection Against Pulmonary Tuberculosis

15:30 - 15:55 **Sarah Stanley**, University of California, Berkeley, CA, USA  
 Aldehydes as Novel Immune Effectors in Tuberculosis

15:55 - 16:20 **Robert O. Watson**, Texas A&M University, TX, USA  
 Mitochondria Shape Innate Immune Responses and Susceptibility to *Mycobacterium tuberculosis* Infection

16:20 - 16:45 **Petros C. Karakousis**, Johns Hopkins University School of Medicine, MD, USA  
 Targeting Heme Oxygenase-1 as a Novel Host-Directed Therapy for TB

16:45 End of the Day 1

09:00 - 09:10 Day 2 Opening Remarks

## Session III - Mechanisms of Persistence and Latency

**Session Chair:** Alexandre Gouzy, Weill Cornell Medicine, NY, USA

09:10 - 09:35 **Vinay Kumar Nandicoori**, Center for Cellular and Molecular Biology, India  
Delineating the Survival Strategies of Mtb

09:35 - 10:00 **Anil K. Ojha**, Wadsworth Center/School of Public Health, University at Albany, NY, USA  
Visualizing Non-replicating Persisters of *Mycobacterium tuberculosis* in Lung Lesions

10:00 - 10:25 **Matthew M. Champion**, University of Notre Dame, IN, USA  
Rose Colored Glasses; What Are We Missing in the Mycobacterial Dark Proteome?

10:25 - 10:50 Break

## Session IV - Host and Bacteria-directed Therapy

**Session Chair:** Selvakumar Subbian, New Jersey Medical School, Rutgers University, NJ, USA

10:50 - 11:15 **Amy Barczak**, The Ragon Institute of MGH, MIT and Harvard, MA, USA  
Toward Mechanisms of TB-associated Lung Fibrosis

11:15 - 11:40 **Larry S. Schlesinger**, Texas Biomedical Research Institute, TX, USA  
Combination of MCL-1 and BCL-2 Inhibitors is a Promising Approach for a Host-directed Therapy for Tuberculosis

11:40 - 12:05 **Nitin Baliga**, Institute for Systems Biology, WA, USA  
Systems Biology Approaches to Accelerate TB Drug Discovery

12:05 - 12:35 Break

## Session V - Drug Discovery and Drug Resistance

**Session Chair:** Sanjib Bhakta, UCL and Birkbeck, University of London

12:35 - 13:00 **Daniela Maria Cirillo**, San Raffaele Scientific Institute, Italy  
Drug Resistance to New Antitubercular Drugs: Should We Plan Ahead?

13:00 - 13:25 **Denise Kirschner**, University of Michigan, MI, USA  
Optimizing Drug Regimens for Tuberculosis Treatment

13:25 - 13:50 **Anna D. Tischler**, University of Minnesota, MN, USA  
Metabolic Pathways Essential for *Mycobacterium tuberculosis* Infection Revealed by Tn-seq

13:50 - 14:15 **Kyle Rohde**, University of Central Florida, FL, USA  
Nature-inspired Strategies to Overcome Mycobacterial Drug Resistance and Tolerance

14:15 - 14:35 Break

14:35 - 15:00 **Joel S. Freundlich**, Rutgers University, NJ, USA  
A Preclinical TB Candidate Targeting KasA

15:00 - 15:25 **Mary Jackson**, Colorado State University, CO, USA  
Molecular Signals Controlling the Biosynthesis and Biological Activities of (lipo)polysaccharides in *Mycobacterium tuberculosis*

15:25 - 15:50 **G. Marcela Rodriguez**, Rutgers University, NJ, USA  
Deciphering the Response of *M. tuberculosis* to Changes in Iron Availability to Identify Novel Drug Targets

15:50 Summary/Concluding remarks



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