**WEDNESDAY, DECEMBER 2**

**Welcoming Remarks and Keynote Address (8am Denver/Mountain Time Start)**

*Anne G. Kasmar*, Genentech, USA  
**Soumya Swaminathan**, World Health Organization, Switzerland  
**Taking Science-Based Solutions to Scale**

**Breakthroughs in Biomarkers (8:40am Denver/Mountain Time Start)**

*Bruno B. Andrade*, Fundação Oswaldo Cruz, Brazil  
**Breakthroughs from Brazil and Beyond**

*Mark Hatherill*, University of Cape Town, South Africa  
**Can Host Blood Transcriptomic Biomarkers of Tuberculosis Inform Therapy?**

**Short Talk: Biomarkers to Predict Leprosy: it takes two…**

*Elisa Nemes*, University of Cape Town, South Africa  
**Short Talk: Immune Correlates of Protection in Humans**

**Eduardo Pinheiro Amaral**, NIAID, National Institutes of Health, USA  
**Short Talk: GPX4 and BACH1 Regulate Necrotic Cell Death and Host Resistance in Mycobacterium Tuberculosis Infection in vivo**

*Courtney R. Plumlee*, Seattle Children's Research Institute, USA  
**Short Talk: Apparent Sterilizing Immunity in BCG-Immunized Mice Challenged with an Ultra-Low Dose of Mycobacterium tuberculosis**

**William R. Bishai**, Johns Hopkins School of Medicine and K-RITH, USA  
**Short Talk: Host Immune Regulator PARP1 Drives TB Sex Differences**

**Yang Luo**, Harvard Medical School, USA  
**Short Talk: Genome-to-Genome Analysis Identifies the Effect of the Host Immune Systems on Mycobacterium Tuberculosis and Its Impact on Clinical Outcomes**

**Panel: COVID4TB (10:50am Denver/Mountain Time Start)**

*Rodrigo Corrêa-Oliveira*, FIOCRUZ, Brazil  
**Morton Ruwhald**, FIND, Switzerland  
**Annette Vogel**, BioNTech, Germany  
**David Alland**, Rutgers University, New Jersey Medical School, USA  
**Strategies**

**Short Talk: Visualization of Dormancy Induced by Ribosome Response to DNA Damage in Mycobacteria**

*Naila Cristina Soler Camargo*, University of São Paulo, Brazil  
**Short Talk: Pseudogenization as a Source of Genetic Variability to the Mycobacterium tuberculosis Complex**

**Oyindamola Adefisayo**, Weill Cornell Medicine, USA  
**Short Talk: Functional Characterization of the Transcriptional Response to DNA Damage in Mycobacteria**

**Jamie H. Corro**, State University of New York at Albany, USA  
**Short Talk: Visualization of Dormancy Induced by Ribosome Hibernation in Zinc-Starved Mycobacteria**

**Patricia A. Darrah**, NIAID, National Institutes of Health, USA  
**Mechanisms of Protection in Nonhuman Primates**

**Robert L. Modlin**, University of California, Los Angeles, USA  
**Tricytotoxic CTLs in Leprosy and TB**

*Katrin D. Mayer-Barber*, NIAID, National Institutes of Health, USA  
**Unexpected Aspects of Granuloma Biology**

*Milton Ozório Moraes*, Oswaldo Cruz Institute–Fiocruz, Brazil  
**Short Talk: Autophagy and Host Metabolism in Leprosy**

**Emily Strong**, University of Texas Medical Branch, USA  
**Short Talk: Identification of Autophagy Inhibiting Factors of Mycobacterium tuberculosis by High Throughput Loss of Function Screening**

**Kerry Hilligan**, NIAID, National Institutes of Health, USA  
**Short Talk: Intravenous BCG Vaccination Transiently Depletes Alveolar Macrophages and Contributes to Protection against Mtbb via Long-Term Remodeling of the Pulmonary Myeloid Compartment**

**Priyanka Talukdar**, University of Pittsburgh, USA  
**Short Talk: Type III Interferons Are Expressed in Tuberculous Granulomas and Promote Inflammatory Phenotypes in Macrophages that Differ from Type I Interferons**

**Stacey Reanna Bartlett**, Translational Research Institute–Mater Research Institute., Australia  
**Short Talk: GPR183 Oxytosterol Axis Is Dysregulated at the Site of Disease during M. tuberculosis Infection**

**THURSDAY, DECEMBER 3**

**Back to Bacterial Basics (8am Denver/Mountain Time Start)**

**Olivier Neyrolles**, IPBS, CNRS-University of Toulouse, France  
**The Biology of Metals in Mycobacterial Virulence and Antimycobacterial Immunity**

**David R. Sherman**, University of Washington, USA  
**How MTB Sees the Host-Pathogen Interface**

**Cressida Madigan**, University of California, San Diego, USA  
**Short Talk: Live-Imaging M. Leprae**

**Babak Javid**, University of California San Francisco, USA  
**Targeting Adaptive Mycobacterial Translation as Anti-Virulence Strategies**

*Deborah T. Hung*, Broad Institute of MIT & Harvard, USA  
**Mining PROSPECT for TB Drugs**

**Todd A. Gray**, New York State Department of Health, USA  
**Short Talk: The Abundant Small Proteome of Mycobacterium tuberculosis**

**Naila Cristina Soler Camargo**, University of São Paulo, Brazil  
**Short Talk: Pseudogenization as a Source of Genetic Variability to the Mycobacterium tuberculosis Complex**

**Oyindamola Adefisayo**, Weill Cornell Medicine, USA  
**Short Talk: Functional Characterization of the Transcriptional Response to DNA Damage in Mycobacteria**

**Jamie H. Corro**, State University of New York at Albany, USA  
**Short Talk: Visualization of Dormancy Induced by Ribosome Hibernation in Zinc-Starved Mycobacteria**

* Session Chair † Invited but not yet accepted   Program current as of September 4, 2021.  
For the most up-to-date details, visit [https://www.keystonesymposia.org](https://www.keystonesymposia.org).
Meet the Editors (12:30pm Denver/Mountain Time Start)
Salvatore Fabbiano, Cell Press, USA
George Hills, Sage Publications, UK
Zeljko Durdevic, EMBO Press, Germany
Francesca Dickens, Frontiers, UK

Data to Drive Innovation (3pm Denver/Mountain Time Start)
Gabriel D. Victora, Rockefeller University, USA
Clonal Dynamics of the Antibody Response
Sarah M. Fortune, Harvard TH Chan School of Public Health, USA
Multiscale Approaches Decipher the Many Faces of Altered Drug Susceptibility in Mycobacterium Tuberculosis
Purvesh Khatri, Stanford University, USA
Adventures of a Data Parasite: Using Heterogeneity in "Dirty Data" to Accelerate Translational Medicine
Christopher M. Sassetti, University of Massachusetts Medical School, USA
Modeling Genetic Diversity in TB Susceptibility
Shabaana A. Khader, Washington University School of Medicine, USA
Tuberculosis Strain Diversity Drives Immune Response
Shuyi Ma, University of Washington, USA
Short Talk: Data-Driven Inference of Drug Synergy
Caylin G. Winchell, University of Pittsburgh School of Medicine, USA
Short Talk: Defining the Role of CD8 T Cell Subsets in Tuberculosis in Non-Human Primates
Valdir C. Barth, Boston Children's Hospital, USA
Short Talk: Mycobacterium tuberculosis VapC4 Toxin Engages Small ORFs to Initiate an Integrated Oxidative and Copper Stress Response

FRIDAY, DECEMBER 4

Rethinking Risk in TB (8am Denver/Mountain Time Start)
Neel R. Gandhi, Emory University, USA
Transmission is Driving the TB Epidemic, but Where Is the Majority of Transmission Occurring?
Julio Croda, Oswaldo Cruz Foundation / Federal University of Mato Grosso do Sul / Yale School, Brazil
Tuberculosis in Prisons: Spillover and Impact in the Community
Padmini Salgame, Rutgers University, USA
Mt transmission and tissue response
Kyu Y. Rhee, Weill Cornell Medical College, USA
A Focus on Bacterial Factors
Sara Suliman, Brigham and Women's Hospital, USA
Short Talk: Integration of Genetic and Transcriptional Profiles of Innate Cells to Decipher Mechanisms of TB Susceptibility
Betânia M.F. Nogueira, Universidade Federal da Bahia, Brazil
Short Talk: The Effect of Dysglycemia on Mycobacterium tuberculosis Transmission to Close Contacts of Persons with Pulmonary Tuberculosis

Paul J. Converse, Johns Hopkins University, USA
Short Talk: The Next-Generation Diarylquinoline TBAJ-587 has Superior Efficacy Against, and Restricts Selection of, Bedaquiline-Resistant Rv0678 Mutants in a Mouse Model of Tuberculosis
Nittu Singh, CSIR-IMTECH, India
Short Talk: MtbEis Mediated Acetylation of RelMtb Regulates Stringent Response in Mycobacterium tuberculosis
Damian C. Ekiert, New York University School of Medicine, USA
Short Talk: CryoEM Structure of an Mce/YrbE ABC Transporter Complex Sheds Light on Hydrophobic Transport across the Envelope

Closing Keynote Address (5:45pm Denver/Mountain Time Start)
David Alland, Rutgers University, New Jersey Medical School, USA
Turning Discoveries into Useful Tools

For the most up-to-date details, visit https://www.keystonesymposia.org.