SUNDAY, DECEMBER 4
Arrival and Registration

MONDAY, DECEMBER 5
Welcome and Keynote Address (RQ3)
Howard Ochman, University of Texas at Austin, USA
The First Epoch of Bacterial Genomes

Welcome and Keynote Address (RQ4)
Eric G. Pamer, University of Chicago, USA
Impact of Antibiotic on Resistance Development, the Microbiome and Human Health

Expanding the Source of Chemical Space for Antimicrobial (RQ4)
Man-Wah Tan, Genentech, Inc., USA
DNA Encoded Macrocyclus and Metagenomic Mining for Antibiotic Discovery

David Corti, Vir Biotechnology, Switzerland
Advances and Challenges in the Development of Anti-Infective Monoclonal Antibodies

Paola Estrada, Princeton University, USA
Short Talk: Discovery of Aromatic Polyketides from the Human Microbiome

Noam Adir, Technion, Israel
Short Talk: Lethal Sequences: Development of a Platform for Novel Peptide Antibiotics

Co-Evolution and Co-Diversification of Microbiota and their Hosts (RQ3)
Andrew Moeller, Cornell University, USA
Co-evolution of Hominins and their Microbiomes

Katherine R. Amato, Northwestern University, USA
Diet and the Evolution of the Human Microbiome

Ran Blekhman, University of Minnesota, USA
Human Genomics and the Human Microbiome

Taiichi A. Suzuki, Max Planck Institute for Developmental Biology, Germany
Short Talk: Codiversification of Gut Microbiota with Humans

Host Factors and the Microbiome (RQ3)
Alexandra Zhernakova, University Medical Center Groningen, Netherlands
Host Genetics in Relation to the Microbiome

C. Jessica Metcalf, Princeton University, USA
Demographics and the Human Microbiome

Nandita Garud, University of California, Los Angeles, USA
Comparative Population Genetics in the Human Gut Microbiome

Qijun Zhang, University of Wisconsin-Madison, USA
Short Talk: Systems Genetics Uncovers Microbe-Lipid-Host Connections in the Murine Gut

Faye Chleilat, Stanford University, USA
Short Talk: Paternal High Protein Diet-induced Intergenerational Effects on Body Composition, Insulin Sensitivity, Epigenetics and the Gut Microbiota

Novel Approaches to Discover Therapeutics and Overcome AMR (RQ4)
Deborah T. Hung, Broad Institute of MIT & Harvard, USA
Systems Approach to Antimicrobial Discovery

Jonathan M. Stokes, McMaster University, Canada
AI-Driven Antibiotic Discovery: New Weapons Against Old Foes

Houra Merrikh, Vanderbilt University, USA
Blocking the Evolution of Resistance

David S. Weiss, Emory University, USA
Exploiting Heteroresistance to Treat Pan-resistant Infections

Tommaso Biancalani, Genentech, USA
Short Talk: GNEprop: State of the Art Deep Learning Framework for Antibiotic Discovery

Poster Session 1

TUESDAY, DECEMBER 6
Controlling the Microbiome for Health (RQ3)
Lisa Maier, University of Tübingen, Germany
Dissecting the Interactions between Commonly Used Drugs and the Human Gut Microbiota

Jens Walter, APC Microbiome Ireland. University College Cork, Ireland
Applying Ecological Theory in Controlling Microbiomes

Marie Wende, Helmholtz Centre for Infection Research, Germany
Short Talk: Promoting Gut Decolonization of Multi-Drug Resistant Bacteria via the Microbiome

Soumaya Zlitni, Stanford University, USA
Short Talk: Microbial Chatter: A Novel Quorum Sensing System in the Gut Bacterium and Pathogen E. Faecalis

Mackenzie Gutierrez, University of Calgary, Canada
Short Talk: Early-life Fungal Colonization Mediates Host Metabolism and White Adipose Tissue Inflammation in Mice

Amanda Adams, Harvard T.H. Chan School of Public Health, USA
Short Talk: Bacteria-virus Interactions in the Vaginal Microbiome Reduce Herpes Virus Infectivity

Alternatives Approaches to Tackle AMR (RQ4)
Cesar de la Fuente, University of Pennsylvania, USA
Artificial Intelligence Approaches for Antibiotic Discovery
Kimberly Kline, University of Geneva, Switzerland
*New Approaches to Target Both Host and Bacteria to Overcome Vancomycin Resistance in Enterococcus Faecalis*

Heather Pinkett, Northwestern University, USA
*Transmitters in AMR*

Uyen Thy Nguyen, University of Wisconsin Madison, USA
*Short Talk: Mining Sustainable Antimicrobials in the Human Skin Microbiome*

Dalton T. Ham, University Of Western Ontario, Canada
*Short Talk: Characterizing Cleavage Activity of CRISPR Guide RNAs in Bacteria to Enhance Strain-specific Elimination from Complex Microbial Populations*

Robindra Basu Roy, London School of Hygiene & Tropical Medicine, UK
*Short Talk: A Novel Host-directed Therapy for Intrinsically Drug-resistant Mycobacterium Abscessus*

Seongmi Russell, Washington University in St. Louis, USA
*Short Talk: An Alternative Approach for Recurrent Infectious Disease: Bacterial Infection Drives Trained Immunity through Epigenetic Remodeling of Epithelial Stem Cells*

**Career Roundtable (Joint)**

**Host-Virus-Microbiome Interactions (Joint)**

Andrew T. Gewirtz, Georgia State University / Frontiers, USA
*Host-Virus-Microbiome Interactions*

Alejandro Reyes, Los Andes University, Colombia
*Bioinformatics Approaches to Phage-Host Interactions*

Christopher B. Ford, Seres Therapeutics, USA
*Microbiome Therapeutics to Combat Antimicrobial Resistance and Modulate Host Immunity*

Lindsay R. Kalan, University of Wisconsin Madison, USA
*Short Talk: Antifungal Potential of the Skin Microbiome*

Nirajan Nagarajan, Genome Institute of Singapore, Singapore
*Short Talk: Long-Term Ecological and Evolutionary Dynamics in the Gut Microbiomes of Carbapenemase-Producing Enterobacteriaceae Colonized Subjects*

Elizabeth Culp, Yale University, USA
*Short Talk: Mapping Cause and Effect of Gut Microbiome Composition and Dietary Xenobiotic Metabolism*

**Poster Session 2**

**WEDNESDAY, DECEMBER 7**

**Microbe-Microbe Interactions in Shaping the Microbiome (RQ3)**

Britt Koskella, University of California, Berkeley, USA
*How Microbial Interactions Maintain Diversity*

Carolina Tropini, University of British Columbia, Canada
*How the Host Physical Environment Shapes the Gut Microbiota in Health and Disease*

Randall J. Platt, ETH Zurich, Switzerland
*Noninvasive Assessment of Gut Function with Transcriptional Recording Sentinel Cells*

Kevin Foster, University of Oxford, UK
*Competition and Warfare in Bacteria and the Human Microbiome*

Anna Sophie Weiss, Max von Pettenkofer Institute, Germany
*Short Talk: Exploring the Interaction Network of a Synthetic Gut Bacterial Community*

Caitlin H. Kowalski, University of Oregon, USA
*Short Talk: Antimicrobial Activity of Skin-Resident Fungi Alters Pathogen Adaptation*

**Innovations in Rapid Diagnostic to Combat AMR (RQ4)**

Roby Bhattacharyya, Massachusetts General Hospital, USA
*Gene Expression Profiling to Accelerate Infectious Disease Diagnostics*

Julie A. Segre, National Institutes of Health, USA
*Tracking an Emerging Pathogen Candida auris in Nursing Homes with Genomic-Epidemiology*

Kelly Flentie, Selux Diagnostics, Inc, USA
*Rapid Phenotypic Antibiotic Susceptibility Testing*

Yoelkys Morales, Tufts University School of Medicine, USA
*Short Talk: Impact of Tissue Mimetic Conditions on Combination Therapy in the Treatment of Multi-drug Resistant Klebsiella*

Skylar Martin, Harvard School of Public Health, USA
*Short Talk: Optimizing Molecular Antimicrobial Susceptibility Tests for Neisseria Gonorrhoeae*

Tony Hu, Tulane University, USA
*Short Talk: A Standalone Lab-in-a-Tube Multiplex Assay for Rapid TB Drug-Susceptibility Testing*

**Molecular Cross Talk (RQ3)**

Elizabeth L. Johnson, Cornell University, USA
*Dietary Lipids as Modulators of Gut Microbiome Function*

Ruth E. Ley, Max Planck Institute for Developmental Biology, Germany
*Silent Recognition of Flagellins from Human Gut Commensal Bacteria by Toll-Like Receptor 5*

Eric C. Martens, University of Michigan Medical School, USA
*The Bacteroides Capsule in Microbiome Interactions*

Tamia Alisha Harris-Tryon, University of Texas Southwestern Medical Center, USA
*Short Talk: Small Proline-rich Proteins (SPRRs) are Epidermally Produced Antimicrobial Proteins that Defend the Cutaneous Barrier by Direct Bacterial Membrane Disruption*

**Challenges and Novel Pathways to Develop Alternative Therapies (RQ4)**

*Session Chair † Invited but not yet accepted  Program current as of November 17, 2022 Meal formats are based on meeting venue. For the most up-to-date details, visit https://www.keystonesymposia.org.*
Sumathi Nambiar, Johnson and Johnson, USA
Regulatory Paths and Novel Clinical Endpoints

Carrie M. Rosenberger, Genentech, Inc., USA
Talk Title to be Announced

Speaker to be Announced

Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (RQ3)

Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (RQ4)

THURSDAY, DECEMBER 8

Departure