



ASM MICROBE

JUNE 13-17 2024 | ATLANTA

PRELIMINARY SCHEDULE

Immerse Yourself in Cutting-Edge Science at ASM Microbe 2024

ASM Microbe 2024 showcases the best microbial sciences in the world and provides a one-of-a-kind forum to explore everything from new microbial discoveries to the latest techniques in clinical practice and public health. From pandemic prevention and disaster microbiology to powering the future, microbes underpin life on this planet and beyond. As one of the largest microbiology gatherings in the world, ASM Microbe's nearly 200 sessions deliver a jam-packed schedule of events, showcasing microbes, the people dedicated to studying them and the groundbreaking research and innovation coming out of the field today.

This schedule-at-a-glance is your guide to the conference, providing a comprehensive look at the diverse range of sessions, workshops, and presentations scheduled throughout the event. With 8 scientific tracks to explore, each with dedicated track hubs, you can plan your conference experience and be among the first to learn about the latest discoveries and breakthroughs in the microbial sciences. Use this schedule to identify sessions and topics that align with your interests and needs and create a personalized journey that maximizes your learning and networking opportunities. Whether you're interested in attending talks on pandemic prevention, exploring the role of microbes in powering the future or discovering the latest research and techniques in clinical practice, this program book has everything you need to make the most of your ASM Microbe 2024 experience.



**ASM
MICROBE**
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Session Types

Career Talks

This type of session features informal, interactive sessions with microbiologists from a wide variety of careers, sharing information on what they do and what to do to join their field. Attendees are encouraged to bring their questions.

Course/Workshop

Held prior to the core meeting dates on Thursday, courses and workshops have a separate registration fee. Courses feature a series of instructors that cover a selection of related subjects typically presented in a lecture format—interactions center on small group discussions and question/answer periods. Workshops are interactive, and the attendees participate in instructional training that takes a deeper dive into a particular subject, software, or specialized equipment.

Cross-Track Plenary

This type of session focuses on interdisciplinary topics of broad interest and showcases transcendent science. Cross-Track Plenary provide an opportunity to expand scientific knowledge and better understand new trends in the field of microbiology. The format is 2-hours in length and invited speakers, followed by a panel discussion or Q&A segment.

In-Depth Symposium

This type of session addresses an important issue and/or research on a particular subject, with a diversity of knowledge and/ or points of view presented by leading experts. The format is 2-hours in length and includes invited speakers and 3 or 4 oral abstracts.

Meet the Expert

This session type features a speaker from a symposia or an award recipient who addresses a significant problem and/or gap in knowledge on a particular subject. The format includes audience interaction with the speaker following their presentation.

Mini-Conference

This session type is an extended format focusing on a specific topic area in the microbial sciences. Mini-Conferences will be scheduled on Thursday, June 13 and Monday, June 17.

Panel Discussion

This type of session generates spontaneous interaction among panelists and between panelists and the audience in response to questions posed by the session convener.

Track Hub

This type of session features a short, highly interactive presentation on a track-specific topic held in informal, open-space Track Hubs on the Exhibit and Poster Hall floor.

Schedule-at-a-Glance

THURSDAY, JUNE 13

8:00 a.m. – 4:00 p.m.	Full Day Courses/Workshops \$
10:00 a.m. – 3:45 p.m.	Industry & Science Workshops
12:00 p.m. – 3:00 p.m.	City Bus Tour \$
1:30 p.m. – 4:00 p.m.	Mini-Conferences
3:00 p.m. – 4:15 p.m.	Attendee Orientation
4:30 p.m. – 6:15 p.m.	Opening General Session
6:30 p.m. – 7:30 p.m.	Opening Reception

FRIDAY, JUNE 14

8:15 a.m. – 10:15 a.m.	Cross-Track Plenary
8:15 a.m. – 10:15 a.m.	In-Depth Symposia
9:15 a.m. – 10:15 a.m.	Panel Discussion
10:00 a.m. – 5:00 p.m.	Exhibit & Poster Hall Open
10:30 a.m. – 11:30 a.m.	Poster Presentations
10:45 a.m. – 11:30 a.m.	Track Hub Session & Career Talks
11:00 a.m. – 1:30 p.m.	Industry & Science Spotlights
11:00 a.m. – 11:45 p.m.	Industry & Science Showcases
11:45 a.m. – 12:30 p.m.	Track Hubs: Rapid Fire Presentations
12:00 p.m. – 12:45 p.m.	Industry & Science Showcases
1:00 p.m. – 1:45 p.m.	Industry & Science Showcases
12:45 p.m. – 1:30 p.m.	Track Hub Session & Career Talks
1:45 p.m. – 2:45 p.m.	Panel Discussion
1:45 p.m. – 3:45 p.m.	In-Depth Symposia
2:00 p.m. – 3:00 p.m.	Lounge & Learn: Late Breaking Abstracts
3:15 p.m. – 4:15 p.m.	Panel Discussion
4:00 p.m. – 4:45 p.m.	Track Hub Session
4:00 p.m. – 5:00 p.m.	Poster Presentations
4:30 p.m. – 5:00 p.m.	Industry & Science Spotlights
5:15 p.m. – 6:15 p.m.	Meet the Experts
6:00 p.m.	Industry & Science Evening Events
6:30 p.m. – 7:45 p.m.	Joint Receptions

SATURDAY, JUNE 15

7:00 a.m. – 8:00 a.m.	Fun Run/Walk \$
8:15 a.m. – 10:15 a.m.	Cross-Track Plenary
8:15 a.m. – 10:15 a.m.	In-Depth Symposia
9:15 a.m. – 10:15 a.m.	Panel Discussion
10:00 a.m. – 5:00 p.m.	Exhibit & Poster Hall Open
10:30 a.m. – 11:30 a.m.	Poster Presentations
10:45 a.m. – 11:30 a.m.	Track Hub Session & Career Talk
11:00 a.m. – 11:45 p.m.	Industry & Science Showcases
11:00 a.m. – 1:30 p.m.	Industry & Science Spotlights

11:45 a.m. – 12:30 p.m.	Track Hubs: Rapid Fire Presentations
12:00 p.m. – 12:45 p.m.	Industry & Science Showcases
12:45 p.m. – 1:30 p.m.	Track Hub Session & Career Talks
1:00 p.m. – 1:45 p.m.	Industry & Science Showcases
1:45 p.m. – 3:45 p.m.	In-Depth Symposia
2:00 p.m. – 3:00 p.m.	Lounge & Learn: Late Breaking Abstracts
3:15 p.m. – 4:15 p.m.	Panel Discussion
4:00 p.m. – 4:45 p.m.	Track Hub Session
4:00 p.m. – 5:00 p.m.	Exhibit & Poster Hall Happy Hour
4:00 p.m. – 5:00 p.m.	Poster Presentations
4:30 p.m. – 5:00 p.m.	Industry & Science Spotlights
5:15 p.m. – 6:30 p.m.	President's Forum
7:15 p.m.	Industry & Science Evening Events

SUNDAY, JUNE 16

8:15 a.m. – 10:15 a.m.	Cross-Track Plenaries
8:15 a.m. – 10:15 a.m.	In-Depth Symposia
9:15 a.m. – 10:15 a.m.	Panel Discussion
10:00 a.m. – 4:00 p.m.	Exhibit & Poster Hall Open
10:30 a.m. – 11:30 a.m.	Poster Presentations
10:45 a.m. – 11:30 a.m.	Track Hubs & Career Talks
11:00 a.m. – 11:45 p.m.	Industry & Science Showcases
11:00 a.m. – 1:30 p.m.	Industry & Science Spotlights
11:45 a.m. – 12:30 p.m.	Track Hub: Poster Spotlight
12:00 p.m. – 12:45 p.m.	Industry & Science Showcases
12:45 p.m. – 1:30 p.m.	Track Hubs & Career Talks
1:00 p.m. – 1:45 p.m.	Industry & Science Showcases
1:45 p.m. – 3:45 p.m.	In-Depth Symposia
2:00 p.m. – 3:00 p.m.	Lounge & Learn: Late Breaking Abstracts
3:00 p.m. – 4:00 p.m.	Poster Presentations
3:15 p.m. – 4:15 p.m.	Panel Discussion
4:00 p.m. – 5:00 p.m.	Exhibit & Poster Hall Happy Hour
4:15 p.m. – 5:15 p.m.	Meet the Experts
5:30 p.m. – 6:45 p.m.	Science and Society Keynote Session

MONDAY, JUNE 17

8:15 a.m. – 10:15 a.m.	In-Depth Symposia
9:15 a.m. – 10:30 a.m.	Panel Discussion
9:30 a.m. – 12:00 p.m.	Mini-Conference
10:30 a.m. – 12:00 p.m.	Research Funding Session

\$ Additional fee required

Thursday Schedule

THURSDAY, JUNE 13, 2024



How to Empower Diversity and Foster Inclusivity in Stem



8:00 a.m. – 4:00 p.m.

COURSE-WORKSHOP (ADDITIONAL FEE REQUIRED; LUNCH INCLUDED)

Convener: **Amy Reese**

Speakers: **Tasha Sturm, Madeline Shay, Karl Thompson, Jeffrey Olimpo, Rachel Roper, Margaret Powers-Fletcher**

There is a significant role for diversity in science education and the future of STEM. This session will explore the multifaceted aspects of diversity, including race, gender, ability, and socioeconomic backgrounds, and how they intersect with science education. This interactive, full day workshop will cover how to pursue STEM outreach and recruitment in areas where education disparities exist, to maintain strong mentorship relationships, develop training curricula that support equitable and inclusive learning, and present strategies to support and overcome challenges. Our speakers will share personal experiences, best practices, and success stories in promoting inclusivity within STEM disciplines.



You Can't Resist: Detecting, Characterizing, and Interpreting Antimicrobial Resistance



8:00 a.m. – 4:00 p.m.

COURSE-WORKSHOP (ADDITIONAL FEE REQUIRED; LUNCH INCLUDED)

Convener: **Carey-Ann Burnham**

Speakers: **Carey-Ann Burnham, Hannah Wang, Eric Ransom, Reeti Khare, Sarah Kidd, Mimi Precit, Daniel Rhoads**

Antimicrobials are unique among all therapeutic agents in that the use of an antimicrobial in one patient can compromise its efficacy in another. Therefore, an intimate understanding of antimicrobial susceptibility testing and resistance detection is essential for all those involved in the practice of clinical microbiology. Guided by subject matter experts, attendees of this workshop will be immersed in interactive presentations brimming with news you can use; covering the fundamentals of these topics as they relate to bacteria, mycobacteria, fungi, and viruses. You can't resist attending!



Histopathology of Infectious Diseases for Clinical Microbiologists



8:30 a.m. – 4:00 p.m.

COURSE-WORKSHOP (ADDITIONAL FEE REQUIRED; LUNCH INCLUDED)

Convener: **Bobbi Pritt**

Speakers: **Blaine Mathison, Bobbi Pritt, Gary Procop, Benjamin Bradley**

The histopathologic study of infectious diseases is not well-covered in most Clinical Microbiology fellowship training programs, and yet is a helpful skill for clinical practice. This updated, interactive, case-based, full-day workshop expands on previous courses to cover the fundamentals of infectious disease pathology, provide helpful algorithms and resources for everyday practice, and reinforce knowledge through an array of brand-new cases. Topics covered will include histology of commonly seen organs, inflammatory patterns associated with infectious diseases, and specific features of bacterial, fungal, viral and parasitic pathogens in tissue sections.










City Bus Tour



12:00 p.m. – 3:30 p.m.

(ADDITIONAL FEE REQUIRED)

Join us for an amazing tour of the City of Atlanta! Take a journey back in time as we start from downtown sites like the world-famous Underground Atlanta. Did you know Atlanta was completely burned to the ground in 1864? Come on tour with us and find out all the secrets of the city known as The Phoenix.

 AAR Antimicrobial Agents and Resistance	 AES Applied and Environmental Science	 CIV Clinical Infections and Vaccines	 CPHM Clinical and Public Health Microbiology	 EEB Ecology, Evolution and Biodiversity	 HMB Host-Microbe Biology	 MBP Molecular Biology and Physiology	 POM Profession of Microbiology	 Additional Fee
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Thursday Schedule

THURSDAY, JUNE 13



Biofilms MiniConference

1:30 p.m. – 4:00 p.m.

MINI-CONFERENCE

Convener: **Birthe Kjellerup**

Speakers: **Mette Burmølle, Gabriele Micali, David Karig, Benjamin Bradley, Clara Belzer**

While research was initially focused solely on their destruction, the complexity, interactions, and utility of biofilms have been the subject of much research in recent decades. Technological advancements in e.g., sequencing and imaging have facilitated advancements in our understanding of the structure, formation, and microbial interactions within and outside of biofilms. The speakers in this mini conference will present research on ASTM methods and biofilm standards, environmental biofilms, bioremediation and biodegradation, and electrified/synthetic biofilms.



New frontiers in Shigella Vaccine Development: First Clinical Readouts from Multivalent Parenteral Shigella Vaccines and Trials Among Infants in Low- and Middle-income Countries

1:30 p.m. – 4:00 p.m.

MINI-CONFERENCE

Convener: **Calman MacLennan**

Speakers: **Laurence Mulard, Patricia Martin, Francesca Micoli**

Shigellosis is the leading bacterial cause of diarrheal deaths globally and is associated with linear growth faltering and rising levels of antimicrobial resistance. Despite 120 years of Shigella vaccine development and clinical efficacy with a Shigella sonnei conjugate vaccine 25 years ago, there is no licensed vaccine. However, promising new-generation parenteral vaccines utilizing a range of technologies are completing clinical trials for the first time in multivalent format and/or in the target population of infants in low- and middle-income countries. This mini-conference will present the findings of these studies, providing the learner with background information on each candidate and vaccine technology and results from these clinical trials, and enabling them to understand what is advancing to late-stage clinical studies with a view to a first licensed vaccine against shigellosis.



Microbial Data and Tools Without Borders: Advancing an Open Science Ecosystem

1:30 p.m. – 4:00 p.m.

MINI-CONFERENCE

Convener: **Emiley Eloë-Fadrosh**

Speakers: **Christina Kellogg, Srimathy Sriskantharajah, Amalia Corby, Chloe Mirzayi, Scott Jackson, Julia Kelliher, J. Rodney Brister, Luke Thompson, Katherine Thibault, Mamta Rawat**

The microbial sciences are poised to make significant contributions towards advancing the bioeconomy. To realize this future, a multiagency ecosystem supporting data, software, infrastructure, and synthesis is needed. This mini-conference will bring together resource providers spanning diverse areas of microbial science to share perspectives on data sharing and standards, broadening access, training an inclusive workforce, and the current needs to support national capacity. Panelists will highlight current tools and resources that enable the generation of Findable, Accessible, Interoperable, and Reusable (FAIR) data and discuss how FAIR data practices enable data reuse. Panelists will explore existing and future ways to support broadening access and providing learning opportunities with an emphasis on fostering interdisciplinary team science. Content will cover resources provided by the National Microbiome Data Collaborative (NMDC), the National Ecological Observatory Network (NEON), NASA GeneLab, the National Center for Biotechnology Information (NCBI), and the International Microbiome and Multi-Omics Standards Alliance (IMMSA). Attendees will participate in open discussion with panelists to outline priorities in support of a collaborative open science ecosystem that transcends existing agency and domain borders. Attendees will also gain an understanding of data stewardship best practices and an understanding of the available tools and resources that can further their research goals.

Thursday Schedule

THURSDAY, JUNE 13, 2024



CDC’s Legacy of Triumphs and Challenges in Tackling the Biggest Microbial Challenges of Our Era

1:30 p.m. – 4:00 p.m.

MINI-CONFERENCE

Convener: **Sergio Rodriguez**

Speakers: **Stefanie Iverson Cabral, Tomislav Mestrovic, Sergio Rodriguez**

The Centers for Disease Control and Prevention (CDC) has had a significant historical role in safeguarding public health and addressing the ever-evolving microbial landscape, not only in the U.S., but throughout the world. There were many triumphs in eradicating lethal diseases, coupled with the discovery of novel pathogens with manifold implications for modern microbial sciences and clinical practice. This symposium, developed by the Center for the History of Microbiology/ASM Archives (CHOMA), will explore the most important and captivating stories of the agency’s past successes, challenges and controversies in tackling pressing microbial challenges of our time, with an emphasis on international collaboration. The symposium will look at CDC’s central role in 1) eradicating smallpox, a testament to the application of scientific surveillance principles in addressing a complex problem; 2) its work on Ebola virus, understanding sexual transmission of hepatitis B. 3) isolating the hepatitis C virus 4) isolating the organism responsible for Legionnaires disease. 5) formulating the Study of the Effectiveness of Nosocomial Infection Control (SENIC), a substantial undertaking that demonstrated, for the first time, the efficacy of recommended infection-control practices. Speakers in this session will: 1) Analyze how CDC identified the causes of Legionnaires’ disease and toxic shock syndrome during the mid-1970s and early 1980s and played a pivotal role in investigating and reporting on the emerging acquired immunodeficiency syndrome (AIDS) epidemic. Since then, CDC’s ongoing efforts in addressing AIDS have been supported by a significant portion of its budget and staff, underscoring its dedication to combat this formidable health challenge. 2) Discuss Sanchez and Heinz Feldman efforts between the mid-1980s and mid-1990s to study and characterize the Ebola virus genome. 3) Explore how CDC played a trailblazing role in the international smallpox eradication campaign. As a global leader in public health, CDC spearheaded efforts to combat smallpox, coordinating with various international partners and institutes. Through rigorous research, vaccination campaigns, and surveillance, CDC’s leadership paved the way for the successful eradication of smallpox, leaving a lasting impact on global health and showcasing the power of international collaboration in conquering deadly diseases. 4) Explain how the Venereal Disease Program, which became a part of CDC in 1957, laid the foundation for comprehensive STI surveillance, prevention, and treatment efforts. Although concentrated on syphilis and gonorrhoeae during 1950s and 1960s, its pioneering work in understanding the epidemiology of STIs and implementing public health interventions has informed current strategies to combat these infections. 5) Examine how the Tuskegee Syphilis Study impacted CDC’s approach to studying and battling infectious diseases, striving for a more equitable, inclusive and effective response to protect public health. In addition to the 2 suggested speakers listed later in this proposal, a third speaker is TBD*; topic for 3rd speaker is "The Trailblazing Role of CDC in International Smallpox Eradication Campaign" A panel discussion with session speakers/CDC reps will conclude the session.

AAR	AES	CIV	CPHM	EEB	HMB	MBP	POM	Additional Fee
Antimicrobial Agents and Resistance	Applied and Environmental Science	Clinical Infections and Vaccines	Clinical and Public Health Microbiology	Ecology, Evolution and Biodiversity	Host-Microbe Biology	Molecular Biology and Physiology	Profession of Microbiology	

Friday Schedule

FRIDAY, JUNE 14



Microbial Innovations for a Sustainable Tomorrow

8:15 a.m. – 10:15 a.m.

CROSS-TRACK PLENARY

Convener: **Yaprak Ozakman**

Speakers: **Jason Peters, Angela Sessitsch, Suzanne van Asten**

This session focuses on the intersection of microbiology and sustainability, where microbial innovations hold immense potential for shaping a sustainable future. Microorganisms play vital roles in various sustainability-related areas. In this session, we will explore cutting-edge research and transformative applications that leverage the power of microorganisms to address global sustainability challenges. Through engaging presentations and interactive discussions, attendees will discover the latest advancements in harnessing microbial capabilities for eco-friendly solutions including advanced use of genetic approaches and microbiome approaches. From novel biotechnological approaches to microbiome innovations, we will highlight the wide range of possibilities that microbes offer for creating a sustainable tomorrow. The discussion will also center on how to implement responsible and sustainable lab management to save resources and costs in microbiology everyday practice. This session aims to bridge the gap between theory and practice by providing hands-on examples on how we can live up to our responsibility of sustainability. This session is co-hosted with the ASM Young Leader's Circle.



New Therapeutic Options for Treating Gram-negative Infections; The Uprising of the Beta-lactam/ Beta-lactamase Compounds

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Laurent Poirel**

Speakers: **Laurence Mulard, Patricia Martin, Francesca Micoli**

The recent development of novel therapeutic drugs aiming to provide novel therapeutic alternatives against infections caused by the so-called multidrug-resistant isolates opens a totally novel landscape in the bacterial-related infectious diseases field. Indeed, although very few therapeutic options were still available in many infectious contexts and in many geographical areas quite recently, there is currently a new wave of therapeutical options that are not or will soon be available. The tremendous development of β -lactamase inhibitors now provides new alternatives when combined to some β -lactam antibiotics (being either old or new molecules). Those β -lactamase inhibitors belonging to several molecule classes (i.e. diazabicyclonate-derived, boronic acid-derived, etc...) are currently under clinical evaluation, implying that fundamental and clinical investigations are currently required to i) evaluate their potency in association with some other antibacterial agents, ii) identify any possible resistance mechanisms, and iii) perform some corresponding epidemiological / surveillance surveys to better evaluate their overall efficacy and added value in different epidemiological contexts.



Immune Recognition of Microbial Troublemakers

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Christopher LaRock**

Speakers: **Christopher LaRock, Igor Brodsky, Kim Robinson**

Detecting infiltration by prospective pathogens plays a crucial role in safeguarding the health and survival of organisms. Conventional pattern recognition receptors are adept at recognizing microbe-associated molecular patterns. However, this is typically too non-specific at barrier sites to discriminate an infectious threat from resident microbiota species that must be tolerated. Furthermore, several species blur this line and can be microbiota, cause routine mild disease, or deadly infections; escalation of the immune response in these circumstances would be advantageous. In recent years several exciting advances are detailing mechanisms in the threat assessment of a microbe. This session will cover emergent topics in cell-intrinsic immunity and effector-triggered immunity to discuss how cells can specifically detect pathogenesis through the activities of microbial toxins or effectors, and how successful pathogens can subvert this for their growth, survival, and transmission.

Friday Schedule

FRIDAY, JUNE 14



Brain Busters: Clinical and Public Health Microbiology

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Moderators: **Alexandra Bryson, Kyle Rodino**

This session is an interactive, case-based way to test your clinical microbiology knowledge and learn about the latest technologies and emerging pathogens. Four teams comprised of diverse members in infectious diseases, clinical microbiology, and public health microbiology will compete in three rounds of infectious diseases diagnostics trivia. The audience can participate alongside the teams and help provide answers when the teams need to phone a friend for assistance in answering the case question.



The Rise and Fall of Proteins

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Karl Thompson**

Speakers: **Peter Dedon, Peter Chien, Aisha Burton**

This session will introduce the audience to critical cis and trans acting factors that control the efficiency of translational elongation in bacteria. While translational initiation can be regulated by small RNAs and RNA chaperones, the mechanisms used by bacteria to regulate translation during elongation are not as well characterized. The elongation process is a committed process, whereby termination within the reading frame does not occur unless translational errors occur. In this session the audience will learn about tRNA modifications, synonymous codon usage, and codon context that, taken together, can fine tune translation elongation. The learner should attend this session to obtain a greater understanding of this re-emerging topic, particularly in the context of emerging epitranscriptome studies in microbial and non-microbial systems. This will also illuminate potential scenarios in various regulatory systems whereby these factors may play an unexpected but influential role in the expression of a given gene.



AI and the Search for New Antimicrobials

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Georgina Cox**

Speakers: **Jonathan Stokes, Cesar de la Fuente, Silvia Cardona**

The ever-increasing emergence of drug-resistant microbial pathogens emphasizes the need for innovation in the drug discovery field. Artificial intelligence (AI) and machine learning algorithms could revolutionize the search for new antimicrobial agents. Over the last decade, monumental technological advances have led to an increase in AI-integrated drug discovery endeavors. This session will explore how AI is transforming and expediting the search for new antibiotics.



Recent Advances from the Next Generation of Scientists

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Ashley Groshong**

Research within the Molecular Biology and Physiology Track embodies a wide array of topics within the microbiological sciences. This session will highlight groundbreaking work from trainee submitted abstracts within and beyond the areas emphasized in our in-depth symposia programming.

AAR	AES	CIV	CPHM	EEB	HMB	MBP	POM	Additional Fee
Antimicrobial Agents and Resistance	Applied and Environmental Science	Clinical Infections and Vaccines	Clinical and Public Health Microbiology	Ecology, Evolution and Biodiversity	Host-Microbe Biology	Molecular Biology and Physiology	Profession of Microbiology	

Friday Schedule

FRIDAY, JUNE 14



Fine-Tuning Beta-Lactams: Prolonged Infusion Therapy and Therapeutic Drug Monitoring

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Jacinda Abdul-Mutakabbir**

Speakers: **Marc Scheetz, Erin Barreto**

This session will be focused on optimizing PK/PD to achieve targeted concentrations to overcome resistance and promote positive patient outcomes.



Synthetic Biology for Natural Products Discovery and Production

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Benjamin Philmus**

Speakers: **Jay Keasling, Alessandra Eustaquio**

This session will present updates on synthetic biology approaches to define and activate novel/cryptic gene clusters and create means of increasing specificity and yields.



A New Look at an Old Disease: Tuberculosis

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Adrian Zelazny**

Speakers: **Juliet Sekandi, Russell Kempker, Bruno Bezerril Andrade**

New approaches are now being used to understand pathogenesis, and in diagnosis and treatment of infections. In this session speakers will explore novel techniques such as artificial intelligence and single cell transcriptomics in the approach to tuberculosis and lung diseases.



Impact of Metabolism on Microbial-host Interactions

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Shaun Brinsmade**

Speakers: **Casey Theriot, Jeff Boyd, Robert Quinn**

The gut microbiota utilizes, interacts and transforms GI metabolites to mediate growth, virulence, and regulate the host. Recent advances to analyze the consequences of such manipulations on a genome- and system-wide level have revealed unexpected connections between metabolism and virulence. These metabolic interactions have a significant impact on human health. This session highlights some of these recent discoveries and the impacts they are having on our understanding of host-microbiome crosstalk through these important molecules in the human gut.



Phage Therapy in the Age of AMR: Strategies to Accelerate Phage Therapy from Lab to Market

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Ashlan Kunz Coyne**

Speakers: **Susan Lehman, Ghady Haidar**

In the face of rising antimicrobial resistance (AMR), phage therapy emerges as a promising countermeasure. This session offers a deep dive into the journey of phages from laboratory discovery to clinical application. We'll tackle key challenges from pre-clinical validation and clinical trials to regulatory complexities and production scalability. Through expert insights and collaborative discussions, attendees will gain a comprehensive understanding of current barriers and strategies to expedite the market readiness of phage therapies in the AMR era. Ideal for professionals in antimicrobial research, phage biology, clinical therapeutics, and regulatory domains.

Friday Schedule

FRIDAY, JUNE 14



Can Artificial Intelligence Solve Environmental Microbiology's Greatest Challenges?

9:15 a.m. – 10:15 a.m.

PANEL DISCUSSION

Moderator: **Peter Girguis**

Regenerative AI models such as ChatGPT have revolutionized the way we interact with online information and has presented new opportunities for various scientific disciplines, including environmental microbiology. Indeed, these could be of value in exploring and analyzing complex datasets. In this panel, we will explore ChatGPT's potential to tackle one of environmental microbiology's "grand challenges": The identification of processes, patterns, and relationships across disparate datasets, and consider the advantages and limitations of using such models in environmental microbiology...and microbiology writ large.

Environmental microbiology began over two hundred years ago, and since its inception has faced the challenge of deciphering complex and intricate relationships between biological, geochemical, and physical factors. The complexity of these data hinders the identification of patterns and relationships in natural and anthropogenic environments. Regenerative AI such as ChatGPT is, by nature, ideally suited to identifying patterns in its training dataset (the "corpus") and presenting distillations of those patterns in readily accessible formats. Thus, environmental microbiologists can potentially leverage its natural language processing abilities to explore intricate datasets more efficiently.

There is an opportunity to adapt such models specifically to environmental microbiology. For example, the model could be trained on environmental microbiological data, and as it becomes better acquainted with these datasets and the field's nuances, it might develop a more effective capacity to offer domain-specific insights that enhance scholars' understanding of patterns and processes in microbial ecosystems. Via these explorations, researchers can iteratively refine their questions and investigate novel hypotheses, ultimately leading to more precise and targeted investigations.

That said, and despite its remarkable potential, several questions remain regarding these models' efficacy in enhancing scientific discovery. First, given the complexities of natural ecosystems, will they be able to comprehend and process such vast volumes of data without introducing biases or oversimplifications? Next, how well can models handle very disparate data types, for example biological (e.g., cellular physiology, genetic expression and regulation, genomic evolution), geochemical (e.g., spatial and temporal variation in local and regional chemistry), and physical (e.g., variations in barometric or hydrostatic pressure, water activity, etc.) data? Finally, will they be able to offer rigorous statistical analyses and avoid spurious correlations that may mislead researchers?

As regenerative AI models continue to evolve, they hold significant promise for transforming the way researchers access and analyze information. Nevertheless, the successful application of large language models to environmental microbiology relies on addressing potential limitations and biases and recognizing the model's role as a tool to complement, rather than replace, scholarly expertise. To put it succinctly, the microbiological community is going to have to actively engage with these models and determine if/how they are suitable for the aforementioned applications (among others). As such, it is essential to critically assess their efficacy in advancing scientific inquiry and to establish responsible practices to ensure reliable and meaningful discoveries in the field.



"Game On!" – The Utilization of Apps, Card-Based Games, and Board-games in Medical Education

9:15 a.m. – 10:15 a.m.

TRACK HUB

Moderator: **Kenneth Gavina**

There has been an explosion in the creation of different games & apps targeting the medical sciences. Many of these have been designed and produced by subject matter experts (MD, PharmD, PhD, etc.) with the intent of providing a fun and alternative means of medical education for trainees and all learners. In this session, we will discuss some of the merits and pitfalls of medical education games (MEGs) as it pertains to microbiology and other subjects, as well as provide an opportunity for attendees to play some of the games provided.

AAR	AES	CIV	CPHM	EEB	HMB	MBP	POM	Additional Fee
Antimicrobial Agents and Resistance	Applied and Environmental Science	Clinical Infections and Vaccines	Clinical and Public Health Microbiology	Ecology, Evolution and Biodiversity	Host-Microbe Biology	Molecular Biology and Physiology	Profession of Microbiology	

Friday Schedule

FRIDAY, JUNE 14



Practical Approaches to Establishing and Maintaining Successful Industry Research Partnerships

9:15 a.m. – 10:15 a.m.

PANEL DISCUSSION

Moderator: **Sophonie Oyeniran**

Speakers: **Daniel Rhoads, Ana Maria Cardenas, Nathan Ledeboer**

This panel discussion will provide an overview to junior-level clinical and public health microbiology faculty with an interest in developing diagnostic research programs. Senior clinical microbiologists and industry executives with active research programs will share their experience navigating regulatory and institutional requirements as part of industry-sponsored research programs. This session will provide a framework to tackle the logistics and challenges of establishing and maintaining an externally funded research program.



Breaking Boundaries: US Fungal Meningitis Outbreak following Medical Procedures

10:45 a.m. – 11:30 a.m.

TRACK HUB

Moderator: **Rachel Denyer**

Speaker: **Tom Chiller**

This session discusses recent outbreaks of human disease associated with devices and medical procedures, including the current outbreak of fungal meningitis due to *Fusarium solani* amongst persons who received epidural anesthesia in Mexico as well as tuberculosis associated with bone allograft material.



Bringing Outreach In; Making Outreach Mainstream to Increase STEM Recruitment

10:45 a.m. – 11:30 a.m.

CAREER TALK

Moderator: **Sophonie Oyeniran**

Speakers: **Daniel Rhoads, Ana Maria Cardenas, Nathan Ledeboer**

As we study the “pipeline” problem of recruiting and retaining in science, we see that STEM-themed outreach events can be vital to exposing young students to science and potentially inspiring them to pursue science as a career. Opportunities for introductions to science fields and activities can be particularly important in areas where education disparities exist, and school districts may not have structures in place to support strong science programs and therefore students may not even consider science as an area of interest or a career option. Educational events aimed at children and adults have an added benefit of community education, engagement, and can enhance public trust of science in the general public as a whole. This session will address the value and impact of outreach and strategies for incorporating outreach events into “big” science.



Mobile-ome Revolution: Advancements in Mobile- and Genome-Resolved Metagenomics for Plasmids and Phages

10:45 a.m. – 11:30 a.m.

TRACK HUB

Speaker: **Ivan Liachko**

Major developments in third-generation sequencing technologies have moved the field of genome-resolved metagenomics from the realm of the “possible”, to now being prevalent. Alongside these advances has been an expansion of tools and methods that have made it increasingly feasible to study the “mobile-ome”: the collection of mobile genetic elements that mediate diverse processes including phage infection, horizontal gene transfer (HGT), transmission of pathogenicity, and antimicrobial resistance (AMR) mechanisms. Our speakers will present cutting-edge research on these techniques to explore the composition, role, and host-range of mobile genetic elements. They will highlight the transformative power of long-read and proximity-ligation sequencing technologies, along with other novel approaches, to explore the mobile-ome in diverse microbial communities. Attendees will gain insights into the latest advancements which allow for the reliable discovery and host-attribution of these mobile genetic elements without the need for culturing. We will explore the challenges and opportunities which arise from analyzing these information-rich datasets and will highlight published and unpublished discoveries resulting from the application of “mobile-resolved” metagenomics.

Friday Schedule

FRIDAY, JUNE 14



Microbiology Careers Outside Academia: Navigating through Government Opportunities

10:45 a.m. – 11:30 a.m.

LOUNGE AND LEARN

Moderator: **Anthony Tran**

Speakers: **Matthew Arduino, Anthony Tran, Anna Lau**

This session will provide attendees the opportunity to learn more about career opportunities outside of the traditional academic route and focus on jobs in the governmental sector. Presenters will discuss their perspectives and share experiences from both the federal and state levels. This will be an interactive panel discussion that allows for questions from the audience to be answered by the panelists.



Supporting Sustainable Outreach Initiatives through Hands-on Community Engagement

10:45 a.m. – 11:30 a.m.

TRACK HUB

Moderator: **Pamela Brown**

Speaker: **Adronisha Frazier**

Effective science outreach plays a critical role in bridging the gap between researchers and the public, fostering understanding, and inspiring the next generation of scientists. This session will dive into successful outreach strategies, such as community engagement programming and showcasing the community work of the ASM Young Ambassadors and Young Leaders Circle. Attendees will gain valuable insight in designing impactful and sustainable outreach initiatives to effectively communicate complex microbiological concepts to diverse audiences. Emphasis will be on how to effectively convey intricate scientific concepts, like the mechanisms of microbial life at the molecular, cellular, and multi-cellular level. The overarching objective is to encourage microbiologists to participate in science outreach to enhance societal science literacy while nurturing the budding scientific minds of tomorrow.



Data Analysis in Microbiome Studies










10:45 a.m. – 11:30 a.m.

TRACK HUB

Moderator: **Vincent Lee**

Speaker: **Kelly Hines**

Microbiome studies based on characterization of the composition of microbes through high-throughput sequencing has led to conclusions regarding the participation of microbes in various disease states. Recent studies have suggested that there are specific associations between specific bacterial species and specific disease outcomes. If true, these associations can provide a scientific basis to interrogate whether these novel bacterial species are causing the disease outcome or a consequence of the disease outcome. However, independent analysis of the data from these studies suggest that the processing of the data has led to several systematic errors. Thus, the conclusions drawn from the results of this analysis should be reconsidered. Furthermore, this session will discuss the key processes in data processing that can lead to the introduction of unintended systematic errors.

 AAR Antimicrobial Agents and Resistance	 AES Applied and Environmental Science	 CIV Clinical Infections and Vaccines	 CPHM Clinical and Public Health Microbiology	 EEB Ecology, Evolution and Biodiversity	 HMB Host-Microbe Biology	 MBP Molecular Biology and Physiology	 POM Profession of Microbiology	 Additional Fee
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Friday Schedule

FRIDAY, JUNE 14



All New Creepy Dreadful Wonderful Parasites

10:45 a.m. – 11:30 a.m.

TRACK HUB

Speaker: **Bobbi Pritt**

Parasitology is among the most diverse and challenging fields in Clinical Microbiology, given its broad membership of single-celled protozoa, multicellular helminths, and arthropods; heavy reliance on subjective identification methods; and relative paucity of instruction in clinical parasitology. This fun and interactive case-based session will provide important pearls for identification of clinically relevant parasites and discuss the associated implications for patient care. Updated taxonomic designations will be provided for common parasites.



Green Cards for Scientific Researchers: How to Win Your EB-1A/NIW Case

12:45 p.m. – 1:30 p.m.

CAREER TALK

Moderator: **Irene Hulede**

Speaker: **Brian H. Getson**

Learn about the U.S. immigration process and how to maximize your chances of immigration success from attorney Brian Getson. Mr. Getson's presentation will help scientists learn how to obtain a green card in the U.S. through the EB-1A and NIW categories and how to avoid costly immigration mistakes. Participants will be able to set up one on one consultations with the speaker following the session.



Changing Abortion Laws and It's Implications for Sepsis and Maternal Mortality

12:45 p.m. – 1:30 p.m.

TRACK HUB

Moderator: **Boghuma Titanji**

Speaker: **David Aronoff**

After the legalization of abortion in the United States in 1973, the risk of infectious morbidity and mortality from this procedure notably decreased. With increasingly restrictive legislation targeting access to safe abortion services, reviewing infectious complications of unsafe pregnancy termination is crucial, particularly the diagnosis and management of life-threatening clostridial and related anaerobic bacterial infections that can complicate unsafe abortion. It is important for clinicians and microbiologists to re-familiarize themselves with these infections and the causal pathogens.



Computational Approaches for Identifying Bacterial Outer Membrane Proteins

12:45 p.m. – 1:30 p.m.

TRACK HUB

Moderator: **Josephine Chandler**

Speaker: **Joanna Slusky**

Outer membrane proteins of Gram-negative bacteria are frequently the focus of vaccine targets, yet many outer membrane proteins remain poorly understood. This track hub will describe the development of an algorithm to classify bacterial membrane proteins based on their amino acid sequence. This web-accessible database (IsItABarrel) can be used to identify new features and functions of outer membrane proteins, which will be a useful tool for uncovering new targets for vaccine development.



Antimicrobial Resistance (AMR) Coming into Existence: Overview of AMR and the Real-World Use of Novel Beta-Lactams in the Pediatric Population

12:45 p.m. – 1:30 p.m.

TRACK HUB

Moderator: **Jacinda Abdul-Mutakabbir**

Speaker: **Taylor Morrisette**

This session will provide a broad scoping review of antimicrobial resistance within the pediatric population and provide real-world perspectives on the use of novel beta-lactams to mitigate the observed resistance.

Friday Schedule

FRIDAY, JUNE 14



Development of Organoid Systems to Study Host-microbe Interactions

12:45 p.m. – 1:30 p.m.

TRACK HUB

Moderator: **Nicholas Zachos**

Speaker: **Seema Mattoo**

Human organoids offer the key advantage of recapitulating 3D cellular architecture, heterogeneity and primary cell function. Dr. Zachos is recognized for developing co-culture organoid systems that incorporate human immune cells with human intestinal organoids to interrogate host cell responses to enteric pathogens. These organoid model systems have accurately recapitulated physiological epithelial and mucosal immune responses to gut commensals and enteropathogens, in addition to providing insights for other gastrointestinal, metabolic and pre-cancer disorders. Further, comparing multicellular co-culture organoids from healthy versus diseased subjects can provide important information about disease etiology to facilitate development of novel therapeutics.



Taking a Pathobiome Approach to Disease

12:45 p.m. – 1:30 p.m.

TRACK HUB

Moderator: **Britt Koskella**

Speaker: **Marvin Whiteley**

Description TBD*.



Antifungal Drug Resistance and Emerging Fungal Pathogens

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Rebecca Shapiro**

Speakers: **Jesús Romo, Johnanna Rhodes**

The incidence of invasive fungal infections and the prevalence of drug-resistant fungi has increased worldwide. Fungal pathogens are emerging at an alarming rate due to environmental changes and expansion of at-risk populations. In this session, speakers will highlight the changing landscape of fungal pathogens and infections, highlighting recent advances in our knowledge of antifungal drug resistance, host-pathogen interactions, and how fungi can adapt to environmental stressors. Such information is critical to guide interventions to address antifungal resistance and emerging fungal pathogens.



Are Tetracyclines Cool Again?: Exploring Advancements in Tetracycline Chemistry and Clinical Application










1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Jacinda Abdul-Mutakabbir**

Speakers: **Robbie Christian, Dionicio Siegel**

This session will discuss the chemical alterations in tetracyclines designed to increase activity against MDR organisms. The session will also discuss tetracycline protective benefits against *C. difficile* and benefits in clinical application.

								
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Friday Schedule

FRIDAY, JUNE 14



Are We Missing Something?: The Resurgence of Hard-to-treat Gram-positive Infections

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Jacinda Abdul-Mutakabbir**

Speakers: **Felicia Ruffin, Michael Veve**

The focus of this in-depth symposium is to enlighten the participants about the intricate dynamics surrounding the resurgence of invasive Group A Streptococcus (iGAS) infections. Our aim is to delve into the complex interplay of factors contributing to this resurgence, including viral co-infections, age-related susceptibility, and the impact of vaccination strategies. By exploring these intricate connections, we seek to deepen understanding and enhance awareness regarding iGAS infections and their implications for clinical practice, public health measures, and interdisciplinary research efforts.



The Promise of a Microbe-driven Bioeconomy

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Speakers: **Erica Majumder, Rohan Jain**

This session will summarize key concepts of bioeconomy and strategies to achieve circular economies that create fuel, chemical, food and materials.



With a Little Help from My Friends: Using Marine Probiotics to Protect Food and Health

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Blake Ushijima**

Speaker: **Lone Gram**

This session will present novel probiotics and techniques aimed at increasing yield in aquaculture and protecting marine organisms from disease.



Wound Cultures from Bench to Bedside: Review of What's New and a Clinician's Perspective

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Alexandra Bryson**

Speakers: **Christopher Doern, Julie Reznicek**

Join an Infectious Diseases Physician and a Clinical Microbiologist to explore the complex workup of wound cultures through example cases and an interactive discussion. The session will cover the latest updates in wound cultures with a focus on diabetic wounds and prosthetic joint infections. Learn what your patients' providers wished you knew and how the laboratory can help.



The Year in Clinical Microbiology

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Alexander McAdam**

Speakers: **Patricia Simner, Elitza (Elli) Theel**

The most important publications in clinical microbiology from the previous year will be discussed. Editors from the "Journal of Clinical Virology" and the "Journal of Clinical Microbiology" will discuss significant papers about diagnostic testing for viruses, bacteria, fungi and mycobacteria, as well as antibiotic susceptibility testing and testing stewardship. Publications from a variety of journals will be discussed. Attendees will gain an understanding of the significant advances in clinical microbiology in the past year.

Friday Schedule

FRIDAY, JUNE 14



Ebola and Marburg Viruses: Have We Tamed the Beasts?

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Derrick Chen**

Speakers: **Andrea Marzi, Jonathan Towner**

It has been 10 years since the 2014 West Africa Ebola epidemic, the largest Ebola outbreak in history. While Ebola has faded from headlines, much work has been done to prevent and combat future outbreaks, and this session will update the audience on the developments in medications and vaccines, healthcare infrastructure, and sociopolitical and economic conditions. Globalization has also increased the likelihood of an outbreak by another filovirus, Marburg virus, and this session will update the audience about progress made for this deadly virus as well.



Phage-encoded Auxiliary Metabolic Genes (AMGs) in Human and Environmental Microbiomes

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Simon Roux**

Speakers: **Karthik Anantharaman, Cynthia Silveira, Lee Hughes**

Since their discovery, Auxiliary Metabolic Genes (AMGs), i.e., metabolic genes encoded by bacteriophages and used to complement or reprogram the metabolism of their host cell, have captivated the field of viral ecogenomics. Because the existence of these genes unexpectedly suggested phage infections could deeply impact microbial metabolism, many tools and studies were dedicated to the search for more AMGs. From only a handful of experimentally characterized examples, metagenome analyses now routinely report hundreds to thousands of “AMGs” from uncultivated phages. In this session, attendees will hear about the latest examples of phage-encoded metabolic genes that have been discovered and, for some, experimentally characterized, including the potential role(s) of these AMGs in impacting microbial metabolism and biogeochemistry across ecosystems. Attendees will also learn about the limits of AMG detection from (meta) genome analysis recently highlighted, as well as newly proposed frameworks to better identify and classify phage-encoded genes involved in various phage-host interactions, including but not limited to metabolic genes.



Enhancing Methane Mitigation Strategies via Methanogenesis & Methanotrophy

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Jay-Terrence Lennon**

Speakers: **Dipti Nayak, Jeremy Semrau**

Methane is a potent greenhouse gas but has a short atmospheric residence time of about 12 years. Consequently, effective mitigation of methane emissions and/or removal of methane from the atmosphere can be a fast-acting and important lever to slow climate change. Significant sources and sinks of methane include microbial processes in agriculture, waste management and natural ecosystems. Several designs for using filters or biofilms to remove methane from environments with elevated concentrations depend upon microbial components. This session will highlight how advancements in our understanding of microbial diversity, methanogenesis and methanotrophy inform mitigation options in engineered systems, agriculture, and natural ecosystems to reduce overall methane emissions.

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Friday Schedule

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Microbial Dynamics within their Hosts

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Karthik Hullahalli**

Speakers: **Matthew Waldor, Charlotte Michaux**

Populations of microorganisms undergo complex dynamics when they colonize or infect their hosts, such as heterogeneous patterns of replication, dissemination to distal sites, and stringent bottlenecks that constrain diversity. This session will explore these hidden dynamics and how they influence the outcomes of host-microbe interactions. Presentations will leverage technologies that enable monitoring of distinct clones within microbial communities to reveal how microbes replicate, traffic, and are cleared from their hosts. Findings will highlight how these population dynamics are controlled by various factors, such as the microbiota, the host innate immune system, and pathogen-encoded virulence genes. Together, this session will examine the unseen population dynamics of microbes across different animal models, providing a quantitative exploration of microbial behavior within their hosts.



Advances in Polysaccharide Capsule Export and Function

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Kimberly Walker**

Speakers: **Chris Whitfield, Kimberly Walker**

This session will highlight several new advances in our understanding of production, regulation, and function of capsule, an essential virulence factor in many pathogens. Topics covered by invited speakers will include 1) an overview of capsule production from structural biology perspective covering recent discoveries from new structural analyses, and 2) new or expanded role(s) for capsule in virulence or a novel mechanism regulating capsule gene transcription or capsule function. Other topics we anticipate including are recent use of phage therapy targeting capsules and adaptive evolution of capsules. We will target topic diversity with a goal of including talks on 3-4 different organisms. Emphasis will be placed on compiling a diverse cohort of speakers from the abstracts in race/ethnicity, gender, and career stage. Why this topic is important: Capsule (CPS) has been recognized as an essential virulence factor for nearly 100 years. Early studies showed that loss of CPS in many pathogens reduced or eliminated their ability to establish disease, and the role of CPS was determined to be in protecting the bacterium from phagocytosis and opsonization. The *cps* locus is complex and can be heterogeneous even within the same species. Although genes encoding the proteins involved in CPS production have been identified, their function has been difficult to ascertain due to the challenges of studying multimeric and membrane bound proteins. However, recent advances in structural biology have led to important new discoveries on how many of the export proteins function. In addition, transcriptional regulation of *cps* gene expression is multifaceted and new regulators of capsule gene expression are still being identified, the complexity of which illustrates how synthesis of this important factor must be finely tuned. In multiple bacterial pathogens, sequence analysis has revealed that isolates with CPS mutations are found in clinical samples, and that both gain and loss of function mutations can arise during the course of infection. These data are improving our understanding of the types of infections where CPS is beneficial or detrimental to the pathogen, as well as providing more information on how capsule is produced. Lastly, capsule is a target for vaccine development and antibacterial therapies using phage. A more complete understanding of the biology of polysaccharide capsules is essential for development of broadly applicable vaccines and phage therapy. It appears there has not been a session specifically dedicated to bacterial capsules in several years, and a focused update would benefit the research community. This session would begin with a structural overview of capsule synthesis and export proteins, then highlight recent discoveries that have substantially increased our knowledge about capsule function and the roles played by capsule during infection.



Microbial Responses to Stressful Environments - A Focus on Metabolism

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Sadia Sultana**

Speakers: **Thomas Kehl-Fie, Jason Yang**

Microorganisms are exposed to a large and diverse number of stressors both in their natural and host environment. To survive these potentially hazardous conditions, organisms must be able to quickly and efficiently sense and respond to changes in their environment. Many of the cellular responses include transcriptional, post-translational, and metabolic adaptations. This in-depth symposium will feature the latest research that sheds light on how microorganisms utilize defense mechanisms to survive different stress environments – with particular focus on metabolic adaptations.

Friday Schedule

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Antagonistic Microbial Interactions

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Ramy Rajagopalan**

Speakers: **Michele Leroux, Souvik Bhattacharyya**

Microbial populations face a diverse set of antagonistic challenges in their microecosystems. Recently, the molecular and evolutionary mechanisms governing such behaviors have been the focus of several studies – made possible by latest cutting-edge techniques. This session will focus on microbial antagonistic behaviors such as predation, phage-induced lysis, secretion of antimicrobial compounds and proteolytic agents, and resistance mechanisms against antagonism. The presentations can encompass a range of sub-topics such as the molecular mechanisms and signaling pathways governing these processes, the role of secreted metabolites, and the evolution of resistance mechanisms.



Bench to Bedside: Challenging Clinical Cases - Part 1

3:15 p.m. – 4:15 p.m.

PANEL DISCUSSION

Moderator: **Rachel Denyer**

Following William Osler's advice to 'have no teaching without a patient for a test', this cross-track symposium allows attendees to learn from a diverse array of challenging clinical cases. The diagnosis and management of four highly interesting and unusual patient cases will be presented by CPEP (or infectious diseases) fellows, with Q and A discussion facilitated by experts in the field of public health, clinical microbiology and infectious diseases. The session will offer trainees a chance to present their best cases, but we anticipate broad appeal of the session to an audience ranging from novice to expert.



Molecular Biology and Physiology (MBP) Community Meet-Up

4:00 p.m. – 4:45 p.m.

TRACK HUB

Moderators: **Gisela Storz, Pamela Brown**

Join the Molecular Biology and Physiology (MBP) community for a meet-up! Connect with colleagues to discuss topics relevant to your scientific track community. This event is moderated by the ASM Council on Microbial Sciences (COMS) MBP Community Leader and the ASM Microbe MBP Track Leader.












Applied and Environmental Science (AES) Community Meet-Up

4:00 p.m. – 4:45 p.m.

TRACK HUB

Moderators: **Erin Field, Patrick Videau**

Join the Applied and Environmental Sciences (AES) community for a meet-up! Connect with colleagues to discuss topics relevant to your scientific track community. This event is moderated by the ASM Council on Microbial Sciences (COMS) AES Community Leader and the ASM Microbe AES Track Leader.

								
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Clinical and Public Health Microbiology (CPHM) Community Meet Up

4:00 p.m. – 4:45 p.m.

TRACK HUB

Moderators: **Andrea Prinzi, Jennifer Guthrie**

Join the Clinical and Public Health Microbiology (CPHM) community for a meet-up! Connect with colleagues to discuss topics relevant to your scientific track community. This event is moderated by the ASM Council on Microbial Sciences (COMS) CPHM Community Leader and the ASM Microbe CPHM Track Leader.



Evolution in Human Gut Microbiomes

4:00 p.m. – 4:45 p.m.

TRACK HUB

Moderator: **Catalina Cuellar-Gempeler**

Speaker: **Nandita Garud**

Description TBD*



Use of Defined Microbiomes to Interrogate Host-microbe Interactions

4:00 p.m. – 4:45 p.m.

TRACK HUB

Moderator: **Mariana Byndloss**

Speaker: **Alice Cheng**

Microbiome studies are complicated by the unique microbiome that exists in different individuals and multi-omics approaches that cannot determine the gut microbiota's causative role in disease. One strategy to reduce the complexity is the use of genetically tractable defined microbiota communities to dissect host-microbiome and commensal-pathogen interactions. The speaker will discuss the advantages and disadvantages of these approaches and strategies that can be used to design mechanistic microbiome studies.



Ecology of Chemosynthetic Environments

5:15 p.m. – 6:15 p.m.

MEET-THE-EXPERT

Moderator: **Britt Koskella**

Speaker: **Nicole Dubilier**

Description TBD*



Meet the Expert: ASM Honorary Diversity Lecturer Awardee

5:15 p.m. – 6:15 p.m.

MEET-THE-EXPERT

Moderator: **Patrick Videau**

Speaker: **Arturo Casadevall**

This year's award winner will discuss research, policy, publications, and other pursuits throughout an illustrious career.

Friday Schedule

FRIDAY, JUNE 14



Multiplexed PCR Panels for Diagnosis of Infectious Diseases: Perspective from the Laboratory

5:15 p.m. – 6:15 p.m.

MEET-THE-EXPERT

Moderator: **Sanchita Das**

Speaker: **Mark Gonzalez**

This session will provide an update on the use of commercial FDA approved PCR panels and the success and challenges of these rapid diagnostic platforms. Specifically, it will be a discussion of the experience in using the PCR panels for a syndromic etiologic diagnosis and its impact on patient care.



Let's Have a (Ka)hoot!

5:15 p.m. – 6:15 p.m.

MEET-THE-EXPERT

Moderator: **Lily McKnight**

An ice breaker session for MBP community.



Unraveling COVID-19: Molecular Insights and Therapeutic Strategies Targeting SARS-CoV-2 Spike Protein










5:30 p.m. – 6:30 p.m.

MEET-THE-EXPERT

Moderator: **Matthew Lawrenz**

Speaker: **Fang Li**

The spike protein of SARS-CoV-2 is the major determinant of the COVID-19 pandemic. Early on, our decade-long structural studies of the related SARS-CoV-1 spike protein facilitated predictions regarding the receptor usage and host range of SARS-CoV-2. Our subsequent studies identified three unique molecular mechanisms of the SARS-CoV-2 spike protein, revealing its enhanced capability to infect human cells. These critical insights were instrumental in the development of therapies aimed at blocking SARS-CoV-2 entry into cells.

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PRESIDENT'S FORUM

The Power of Microbial Sciences to Change the World Microbiology—Shaping the Global Future

Saturday, June 15 • 5:15 p.m.

Join the Microbe 2024 ASM President's Forum for a captivating gathering of top minds in microbial sciences! On June 15 in Atlanta, immerse yourself in dynamic discussions led by ASM President Virginia Miller, Ph.D., along with former ASM President Timothy Donohue, Ph.D., antiviral drug strategist Nat Moorman, Ph.D., and metagenomics expert Emiley Eloë-Fadrosh, Ph.D. Together, they'll dive into the exciting realm of microbes as catalysts for a bio-revolution, the pivotal role of READDI in preparing for the next pandemic and the interconnected ecosystems of microbiome research. Don't miss this thrilling exploration of microbiology's power and be part of the conversation shaping the future—with the biggest names in the microbial sciences community!



Timothy Donohue, Ph.D.

ASM, University of Wisconsin-Madison

Former ASM President, Director of the Great Lakes Bioenergy Research Center studying the utilization of networks that microbes use to generate biomass or produce alternative fuels.



Nat Moorman, Ph.D.

University of North Carolina

Associate professor studying human cytomegalovirus at the Department of Microbiology & Immunology in the School of Medicine UNC Chapel Hill.



Emiley Eloë-Fadrosh, Ph.D.

Joint Genome Institute

NIH award-winning researcher of the Joint Genome Institute and Berkeley Lab Lead for the National Microbiome Data Collaborative (NMDC).

INTRODUCING THE ASM MICROBE SCIENCE AND SOCIETY KEYNOTE LECTURE SERIES

MSNBC's Jonathan Capehart Takes the Stage to Moderate Science & Society Keynote with Dr. Peter Hotez

Sunday, June 16 • 5:30 p.m. – 6:45 p.m.

The ASM Microbe "Science and Society" keynote lecture is a series that highlights the importance of new scientific discoveries and their impact on our community. Through this series, featuring world-renowned speakers and in-depth discussions on cutting-edge topics, ASM will showcase how microbes are essential in our lives and, through innovative technologies, can solve the world's most pressing public health concerns.

At ASM Microbe 2024, MSNBC's Jonathan Capehart will take the stage to moderate the annual Science & Society Keynote with renowned scientist Dr. Peter Hotez.



Dr. Peter Hotez M.D., Ph.D.



Jonathan Capehart
Pulitzer Prize-Winning Journalist

Saturday Schedule

SATURDAY, JUNE 15

Fun Walk/ Run

7:00 a.m. – 8:00 a.m.

(ADDITIONAL FEE REQUIRED)

Lace-up & explore Atlanta! Join your colleagues for an early morning trek around the city. All paces welcome.



Climate Change, AMR, and Global Surveillance of Emerging Microbes

8:15 a.m. – 10:15 a.m.

CROSS-TRACK PLENARY

Convener: **Vanessa Sperandio**

Speakers: **Iruka Okeke, Rino Rappuoli, Salvador Almagro-Moreno**

The COVID-19 pandemic reminded the world of the potential destructive power of microbes. Though not new, antimicrobial resistance has always been a major public health concern to society. The impact of the changing climate on microbes leading to resistance to current treatments cannot be overlooked. The purpose of the session is to look at microbial surveillance, interactions of microbes and hosts, and potential public health response to antimicrobial resistance globally to gain new insights about our current readiness and the important steps that the scientific community (from basic, applied and clinical microbiology) will need to take to prepare ourselves for the possible future. This plenary session will be convened by the American Academy of Microbiology (Academy), which is the honorific leadership group & scientific think tank within the American Society for Microbiology (ASM). The Fellows of the Academy are experts in their respective fields. Every year, the Chair of the Academy Governors invites distinguished experts to discuss an important topic in microbial sciences. The intention is to bring the attention of the community toward that topic and stimulate discussions and action to advance that area.



Heteroresistance: The New Frontier in the War on Antimicrobial Resistance

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Tho Pham**

Speakers: **Vanthida Huang, David Weissl**

Heteroresistance, first discovered in 1947, is a phenomenon wherein bacteria harbor a small subpopulation of resistant cells co-existing with a majority of susceptible population. The emergence of heteroresistance among Gram-positive pathogens, particularly *Staphylococcus aureus*, *Enterococci*, and *Streptococcus pneumoniae* over the past decades has posed significant challenges for clinicians and diagnostic microbiologists. The challenges stem from the lack of standardized methods of detection and the phenotypic instability associated with heteroresistance. The main objective of this program is to examine the underlying mechanisms of heteroresistance, various factors contributing to its emergence, how we can address resistance development, and how we can elucidate it. By attending the section, attendees will gain a comprehensive understanding of the phenomenon, its implications on clinical practice and public health, and potential strategies to overcome the challenges it presents.



New Mechanisms in Viral Resistance: Special Considerations for Clinical Practice

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Jacinda Abdul-Mutakabbir**

Speakers: **Alireza FakhriRavarix, Nada Fadul**

This session will provide a broad overview of newly identified viral resistance and strategies for overcoming hard to treat infections.

Saturday Schedule (continued)

SATURDAY, JUNE 15



Data Science and Microbial Systems in Food Safety

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Kali Kniel**

Speakers: **Teresa Kniel, Arie Havelaar, Shannon Manning**

Bacterial persistence across food systems is a complex challenge. Multiple bacterial genera survive in non-host environments and are linked epidemiologically to cases of foodborne illness. Analysis of metadata, including climactic and processing conditions, in combination with genomic tools are used to identify influential patterns in bacterial survival and persistence in pre- and post-harvest food systems. Functional genomics can be used to evaluate mechanisms of persistence across food systems as well as for the development of mitigation and control mechanisms to enhance food safety. Genomic and physiological data are then applied to epidemiological models to better understand the burden of foodborne illness.



Crossing Paths: Microscopy Across Clinical Laboratories for the Unified Diagnosis of Infection

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Neil Anderson**

Speakers: **D. Jane Hata, Rebecca Marrero Rolon, Neil Anderson**

There are numerous advanced diagnostic modalities for the diagnosis of infections, though they are not widely available to all laboratories. Microscopic evaluation of stained direct specimen smears and cultures in microbiology, and of cytopathologic and histopathologic preparations in anatomic pathology can provide valuable diagnostic information and are available to most laboratories. Recognizing distinct microscopic morphologic features of infectious microorganisms continues to be an important skill for microbiologists and integrating findings obtained from different specimen preparation types can help establish an early diagnosis with improved accuracy. Often, arriving at the correct diagnosis based on direct morphology requires a synthesis of microscopic findings, a knowledge of available staining techniques and a familiarity with specimen processing. This session will focus on reviewing key morphologic features seen from different microscopic specimen preparations with an overview of specimen processing, focusing on body fluids, tissues, and gastrointestinal specimens. Sample cases will be presented to demonstrate the importance of collaborations between the microbiology laboratory and other areas of clinical and anatomic pathology.



When Hoofbeats Reveal Zebras: Atypical Infections in Immunocompetent Populations

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Sheila Johnson**

Speakers: **Patrick McGann, Mitsuru Toda**

This session will explore non-traditional infections in healthy immunocompetent individuals that arise from atypical scenarios such as natural disasters, wilderness settings, military deployments, and warzones. The symposium will highlight unexpected infections with multidrug resistant bacteria affecting casualties in Ukraine, invasive fungal infections after natural disasters, and infections associated with diverse environmental sources: marine, freshwater, and soil sources. This symposium promises to be an enriching and thought-provoking event, covering unexpected infections in otherwise healthy populations.

 AAR Antimicrobial Agents and Resistance	 AES Applied and Environmental Science	 CIV Clinical Infections and Vaccines	 CPHM Clinical and Public Health Microbiology	 EEB Ecology, Evolution and Biodiversity	 HMB Host-Microbe Biology	 MBP Molecular Biology and Physiology	 POM Profession of Microbiology	 Additional Fee
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Saturday Schedule (continued)

SATURDAY, JUNE 15



What's New with HIV Diagnostics? Laboratory Challenges in the Era of Highly Potent Antiretrovirals

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Sara Blosser**

Speakers: **Jeff Johnson, Ron Kagan**

Because of highly potent antiretrovirals (ARVs), persons with HIV (PWH) are able to live full lives and, together with the availability of both preexposure (PrEP) and postexposure (PEP) prophylaxis regimens, transmission of HIV has the potential to be halted – the ultimate objective of Ending the HIV Epidemic in the US (EHE). The future looks bright – so why attend a session on laboratory challenges in HIV diagnostics? These improvements in HIV prevention and treatment can cause significant diagnostic dilemmas for the clinical microbiology laboratory. From the development of antiviral resistance to delayed seroreactivity and even suppression of RNA detection, clinical microbiologists need to be aware of the unintended consequences of newer ARVs. In this session, we will look at the rise in proviral resistance testing to aid in switching patients to long-active ARVs, the need to include resistance panels for newer ARVs (such as cabotegravir and doravirine), troubleshooting RNA nonreactive/delayed seroreactive/occult infection cases in the context of PrEP and PEP, and the role of DNA testing within HIV diagnostics.



What Will AI Provide to Clinical Microbiology and Public Health in 10 Years?

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Susan Sharp**

Speakers: **Audrey Schuetz, Paula Snippes Vagnone, Kendall Bryant**

Artificial Intelligence is beginning to revolutionize the fields of clinical microbiology, public health microbiology/epidemiology and infectious diseases diagnosis. This session will focus on what is offered by AI now and where experts in these areas see this movement going in the future for diagnostic testing and monitoring public health.



Novel Approaches and Challenges of Laboratory Diagnosis of Invasive Fungal Diseases

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Sean Zhang**

Speakers: **Heather Glasgow, Niaz Banaei, Thomas Walsh**

This session will highlight recent advanced using novel plasma cell-free PCRs as a non-invasive approach for diagnosis of invasive aspergillosis, mucormycosis, pneumocystis pneumonia, and other invasive fungal diseases. Fungal diseases of the central nerve system (CNS) have been increasingly recognized, particularly from a recent outbreak possibly caused by *Fusarium* associated with contaminated epidural anesthesia procedures performed in clinics in Mexico. However, laboratory diagnosis of fungal diseases of the CNS remains challenging and progress including utilizing fungal biomarkers or next generation sequencing is reviewed in this session. Furthermore, the challenges of diagnosing invasive fungal diseases in pediatric patients are reviewed and strategies to improve their detection are discussed.



How to Train Your Microbiome

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **David Baltrus**

Speakers: **Kevin Hockett, Taichi Suzuki, Sylvie Estrelah**

As the number of characterized microbiomes has increased over the past few decades, and our understanding of relationships between microbiome composition and phenotypic effects on hosts has increased, research efforts have shifted towards learning new ways to effectively design and shape microbiomes using ecological and evolutionary principles. This symposium will explore how we can use ecological principles to manipulate microbiomes in intended ways and will explore the ways in which host organisms can craft and control their own microbiomes.

Saturday Schedule

SATURDAY, JUNE 15



It Takes Two to Tango: How the Molecular Crosstalk of Protein Evolution and Target Recognition Guides Cell Signaling

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Seema Mattoo**

Speakers: **Michael Laub, Jeffery Miller, Gemma Reguera**

Biology often relies on gene duplication to generate divergent protein-protein interactions and evolve novel cell signaling functions. How functionally robust are these events, do they generate crosstalk between otherwise insulated pathways, and how does nature avoid detrimental crosstalk? Experts Dr. Michael Laub and Dr. Jeff F. Miller will provide mechanistic insights into such protein evolution and molecular recognition events using examples of deep mutational scanning and diversity generating retroelements.



Protect the Barrier!: The Essential Bacterial Cell Envelope

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Wanda Figueroa-Cuilan**

Speakers: **Stephen Trent, Kumaran Ramamurthi, Christine Jacobs-Wagner**

In this session, we will scrutinize how bacterial cells employ various mechanisms to ensure bacterial survival and fitness in diverse, often hostile, environments. The bacterial cell envelope is a multilayer structure that protects bacteria from the environment. However, bacterial cells utilize several mechanisms to cope with environmental cues, stresses, and microbial insults including alterations in metabolic states and physiology, the formation of spores, induction of bacterial variants such as L-forms, and the use of secretion systems, appendages, and nanomachines to allow broad behaviors including DNA uptake. As a result, this session will delve into how these mechanisms are at play in response to environmental conditions and how these can be utilized to improve current therapies.



Regulatory Alphabet Soup: Interaction of CAP, CLIA, and FDA

9:15 a.m. – 10:15 a.m.

PANEL DISCUSSION

Moderator: **Lauren Cooper**

Panelists: **Kris Roth, Lauren Cooper, Bobbi Pritt**

The session is to go into more details of where clinical laboratories need to comply with the FDA and where they need to comply with CLIA. An example of topics would include when LDT's can be done (because they are under CLIA) and where they cannot (because they are under the FDA).



Advancing Polymyxin Combination Therapies: Unveiling PK/PD Dynamics, Innovative Dosing, Translational Insights, and Collaborative Frontiers









10:45 a.m. – 11:30 a.m.

TRACK HUB

Moderator: **Ashlan Kunz Coyne**

Speaker: **Gauri Rao**

The purpose of the track hub is to educate the audience on the intricate landscape of polymyxin combination therapy through the lenses of PK/PD principles, innovative dosing strategies, translational strategies, and interdisciplinary collaboration.

								
AAR	AES	CIV	CPHM	EEB	HMB	MBP	POM	Additional Fee
Antimicrobial Agents and Resistance	Applied and Environmental Science	Clinical Infections and Vaccines	Clinical and Public Health Microbiology	Ecology, Evolution and Biodiversity	Host-Microbe Biology	Molecular Biology and Physiology	Profession of Microbiology	

Saturday Schedule (continued)

SATURDAY, JUNE 15



New Approaches to Antimicrobial Stewardship: Utilizing Telestewardship to Mitigate AMR

10:45 a.m. – 11:30 a.m.

TRACK HUB

Moderator: **Jacinda Abdul-Mutakabbir**

Speaker: **Matthew Davis**

This session will discuss antimicrobial resistance and the utility in telestewardship in optimizing antimicrobial regimens and mitigating resistance.



One Health Bridges the Gap for Food Safety

10:45 a.m. – 11:30 a.m.

TRACK HUB

Speaker: **Sandra Tallent**

One Health is a holistic approach that seeks to understand the intersect of human, animal, food crops, and environment providing a model for prevention of foodborne illnesses through public health officials' acknowledgement that shared data is shared knowledge. The combined knowledge and ideas of many scientists has been realized in the ongoing development of open database repositories of genomic data from various samples collected during surveillance activities or foodborne outbreaks. The data is used by researchers to propose and support evolutionary theories, discover microbial adaptations, or define knowledge gaps relating to specific microbes. This presentation will provide insights about data collection, workflow, and how shared data contributes to achieving a safe and wholesome food supply.



CLSI's New Guidance on Antifungal Intrinsic Resistance and Reporting by Body Site

10:45 a.m. – 11:30 a.m.

TRACK HUB

Moderator: **Audrey Schuetz**

Speaker: **Tanis Dingle**

The Clinical and Laboratory Standards Institute (CLSI) recently released new guidance on intrinsic resistance of yeasts and molds and reporting restrictions by body site. These reporting guidelines have been recently published in various CLSI antifungal documents. This session will cover the process and criteria by which intrinsic resistance was determined by CLSI for various organism-antifungal combinations and for which body site reporting restrictions were applied. Speakers will present case scenarios to demonstrate various ways in which these new antifungal reporting guidelines can be incorporated into a laboratory's protocols.



Quick Chat on Rapid AST

10:45 a.m. – 11:30 a.m.

TRACK HUB

Speaker: **Daniel Rhoads**

Numerous rapid susceptibility test systems are being developed and brought to market: Selux, Q-Linea, bioMerieux (Specific) Reveal, QuickMIC, LifeScale, Accelerate, rapid KB. This session will provide a brief overview of the technologies.

Saturday Schedule (continued)

SATURDAY, JUNE 15



Global Clinical Phage Rounds: Oh, the Places Phages and Phage Clinicians will Go!

10:45 a.m. – 11:30 a.m.

TRACK HUB

Moderator: **Greg German**

Speaker: **Ameneh Khatami**

Due to antimicrobial resistance epidemic and lack of production and access to new antibiotics clinicians are returning to a 100-year-old strategy and adapting it for modern personalized medicine. Bacteriophage or phage therapy is increasingly seen as the last resort anti-bacterial solution for difficult to treat infections that would otherwise require either extensive surgery, lifelong antibiotics, or palliation. Global Clinical Phage Rounds is where phage clinicians and their laboratory colleagues meet monthly to discuss challenging cases and progressive methods of providing Phage therapy for compassionate and clinical research use. We have over 150 physicians and phage researchers in our group. Leading this virtual collaboration is the Mayo Clinic, the Canadian and European Microbiology & Infectious disease societies, as well as Phage Australia. Each country that has participated has had a unique production, regulatory and clinical microbiology path to bring phage therapy to the bedside. Come join us and participate in our global journey as we discuss challenging and groundbreaking phage therapy cases.



Deciphering Microbial Phenotypic Heterogeneity with Single-Cell RNA Sequencing of Complex Samples

10:45 a.m. – 11:30 a.m.

TRACK HUB

Moderator: **Marian Schmidt**

Speaker: **Anna Kuchina**

In this session, we will explore high throughput transcriptome quantitation of thousands of single bacterial cells. The speaker will discuss new biological insights into the extent of bacterial phenotypic heterogeneity afforded by these technological advances, such as metabolic division of labor, bet-hedging strategies, variation in pathogenic gene expression and heterogeneous responses to stress. It will also highlight the potential of the new methodologies to uncover new aspects of bacterial biology with high-resolution and discuss future research directions they enable for the field.



Mass Spectrometry-Based Approaches to Bacterial Lipidomics And Metabolomics

10:45 a.m. – 11:30 a.m.

TRACK HUB

Moderator: **Ryan Hunter**

Speaker: **Kelly Hines**

Cutting-edge bioanalytical methods using ion mobility-mass spectrometry (IM-MS) enhance the throughput and dimensionality of bacterial lipidomics and metabolomics. This session will feature new MS approaches towards characterizing the metabolic alterations in antibiotic resistant pathogens and developing IM-MS methods for antibiotic susceptibility testing and small molecule screening.

AAR	AES	CIV	CPHM	EEB	HMB	MBP	POM	Additional Fee
Antimicrobial Agents and Resistance	Applied and Environmental Science	Clinical Infections and Vaccines	Clinical and Public Health Microbiology	Ecology, Evolution and Biodiversity	Host-Microbe Biology	Molecular Biology and Physiology	Profession of Microbiology	

Saturday Schedule (continued)

SATURDAY, JUNE 15



Synthetic Biology Approaches to Study Microbial Development

10:45 a.m. – 11:30 a.m.

TRACK HUB

Moderator: **Josephine Chandler**

Speaker: **W. Seth Childers**

Synthetic biology is an interdisciplinary field that focuses on designing and engineering biological components, pathways, and organisms at the molecular level to create novel, artificially constructed microbial systems with specific functions. This session will consider how synthetic biology strategies can be applied to questions in microbial development, including the advantages and disadvantages of these approaches. Strategies will include bottom-up reconstitution of signaling pathways in distantly related organisms to construct and deconstruct how pathways work. Moreover, biosensors can be engineered to track key metabolites, secondary messengers, quorum-sensing molecules or cell-cycle checkpoint events. These synthetic biology strategies will be leveraged to understand how a subcellularly localized signaling pathway regulates the asymmetric division of *Caulobacter crescentus*.



Advancing Inclusive and Equitable Mentoring in Biology Laboratory Course Contexts

10:45 a.m. – 11:30 a.m.

CAREER TALK

Moderator: **Jeffrey Olimpo**

Speaker: **Aimee Hernandez**

Empirical evidence indicates that positive mentorship has the potential to advance mentees' self-efficacy, identity development, sense of belonging, and persistence in the STEM fields. Yet, limited studies have explored the types of mentoring relationships and structures that support equitable and inclusive learning in the context of biology laboratory curricula. In this interactive session, we will address this concern through evaluation and discussion of student/instructor data about mentoring in the context of an introductory course-based undergraduate research experience (CURE) as well as case study excerpts extrapolated from the facilitators experience working in CURE environments. Real-time polling will be used to gauge attendees' familiarity with various mentoring approaches, with the session culminating in the generation of a matrix detailing inclusive and equitable mentoring strategies designed to promote student learning and success in biology laboratory spaces.



Microbiology in Microgravity: A History of Space Biology Hardware and How it Applies to Your Science

12:45 p.m. – 1:30 p.m.

TRACK HUB

Moderator: **Kathleen Ryan**

Anyone interested in exploring how their science could be enabled in space should consider attending this talk. This activity will review a short history of hardware and other tools that have enabled space biology experiments, the challenges of working in an extreme environment, and the NASA-defined processes of preparing for a flight project. If the learner is interested in the microgravity environment, boundary-pushing research, or wants to take their current research to the next level, this talk is for them. If the learner is only casually interested in spaceflight experiments, this talk is for them!



Clinical Microbiology Virtual Journal Club - Live!

12:45 p.m. – 1:30 p.m.

TRACK HUB

Moderator: **Richard Davis**

Speaker: **David Gaston**

This session is the live, in-person continuation of the long-running monthly Clinical Microbiology Virtual Club. Presenters and panelists will discuss a recent publication and discuss the details, impact, and implications of the study.

Saturday Schedule (continued)

SATURDAY, JUNE 15



Preparing for a Cyberattack

12:45 p.m. – 1:30 p.m.

TRACK HUB

Speaker: **Christina Wojewoda**

Cyberattacks are increasingly common in medicine. One presenter will give their experience in a clinical microbiology laboratory during a 25-day downtime. A second speaker will discuss ways to protect your laboratory from a cyberattack.



Precision Metagenomic Testing: The Next Frontier

12:45 p.m. – 1:30 p.m.

TRACK HUB

Speaker: **Charles Chiu**

The session will focus on current and future applications of clinical metagenomic testing beyond its use for multiplexed pathogen identification. Speakers will review the latest advances in the field that leverage metagenomics to allow point-of-care testing and antimicrobial resistance prediction on rapid nanopore sequencers, incorporation of a patient's host / immune response to infection to aid in diagnosis, and differential diagnosis of cancer. Attendees will learn how metagenomic testing has the potential to become a key tool for precision medicine in microbiology by providing the capability of diagnosing non-infectious as well as infectious conditions. This session will also cover what will be needed for practical implementation of these state-of-the-art technologies in clinical microbiology laboratories.



Deciphering Microbes and Microbiomes With Chemistry

12:45 p.m. – 1:30 p.m.

TRACK HUB

Moderator: **Britt Koskella**

Speaker: **Cara Brook**

A reductionist view of metabolites as simple downstream products of gene and protein expression has been revised in light of evidence demonstrating that small molecules are able to modulate all steps in the flux of genetic information, through mechanisms such as feedback inhibition and cell signaling. This session aims to highlight advancement in metabolomics methods and their application to microbial research to delineate mechanisms of microbe-microbe, and microbe-drug, microbe-host interactions.



Understanding the Function of Microbial Effector Proteins

12:45 p.m. – 1:30 p.m.

TRACK HUB

Moderator: **Seema Mattoo**

Speaker: **Matthias Machner**

Pathogenic bacteria secrete effector proteins that hijack/manipulate host cell signaling events to promote pathogenesis. Many of these effectors can have redundant functions that make deciphering effector function difficult. Using *Legionella pneumophila*, which secretes over 300 effectors, as a model, Dr. Matthias Machner will describe innovative strategies - such as multiplex, randomized CRISPR interference sequencing (MuRCIS) and FRET-based high throughput screening - employed to delineate overlapping effector functions.

AAR	AES	CIV	CPHM	EEB	HMB	MBP	POM	Additional Fee
Antimicrobial Agents and Resistance	Applied and Environmental Science	Clinical Infections and Vaccines	Clinical and Public Health Microbiology	Ecology, Evolution and Biodiversity	Host-Microbe Biology	Molecular Biology and Physiology	Profession of Microbiology	

Saturday Schedule (continued)

SATURDAY, JUNE 15



The Perks of Being Squishy: Archaea as a Skillful Mechanoresponsive Machine

12:45 p.m. – 1:30 p.m.

TRACK HUB

Moderator: **Randy Morgenstein**

Speaker: **Alexandre Bisson**

Microbes are often seen as the product of biochemical activities determined by a combination of gene pathways in response to environmental changes. However, little attention is given to how mechanical forces from the same environment determined how cells respond as active-matter entity. This session will cover how archaea, prokaryotic microbes that are closer to eukaryotes than bacteria, have compromised mechanical stability of a rigid cell wall to develop morphological plasticity. Such responses to fast changes to readout their physical environment likely played a role in allowing not only to survive in a wide range of environments but played a role in the origins of eukaryotes.



Microbial Diversity: Empowering Disabled Scientists in Microbiology

12:45 p.m. – 1:30 p.m.

CAREER TALK

Speaker: **Madeline Shay**

This session will act as an introduction to common challenges faced by disabled scientists and trainees and will provide practical strategies and best practice on how to effectively support disabled scientists. Attendees at every level will be encouraged to critically examine current standard practices in academia, and how they can act as barriers to the entry and retention of disabled learners. Actionable items for learners at different career stages (student, technician, post-doc, professor) will be presented, followed by the opportunity for a discussion on questions/concerns the learners have about the best strategies to address ableism in academia. After the session, learners will have the skills and initial exposure to acknowledge and challenge barriers faced by disabled individuals in microbiology, take action to combat ableism around them, and to create a more inclusive research environment that nurtures the potential of all scientists.



Interaction of Cefiderocol with Beta-Lactamases: Clinical and Biochemical Aspects

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Alejandro Vila**

Speakers: **Pablo Power, Jose Alexander**

Antimicrobial resistance, mainly to beta-lactam antibiotics, is a relevant threat to public health. New drugs, either new antibiotics or inhibitors of resistance mechanisms, are urgently required. Cefiderocol is a recently approved cephalosporin that has been reported as refractory to hydrolysis by most beta-lactamases. Cefiderocol is a siderophore-modified cephalosporin that has been designed to enter the periplasm of Gram-negative bacteria by exploiting a selective iron-transporter channel, resulting in higher concentrations of this antibiotic in the bacterial cell and consequently, excellent antibacterial activity. In addition, cefiderocol was reported to be refractory to the action of beta-lactamases, including the broad spectrum metallo-beta-lactamases such as NDM-1, IMP-1 and VIM-2. However, after its approval, an increasing number of resistance events to cefiderocol have been reported. Resistance has been related to mutations in the iron transporter in Enterobacterales and non-fermentors, but (more surprisingly) to the overexpression of beta-lactamases. The understanding of the interaction of different beta-lactamases is required to understand the occurring resistance phenomena and guide better therapies. This Symposium is aimed to link clinical and biochemical information, including different families of beta-lactamases, for a general audience.



Drug Discovery and Resistance Against NTM

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Prabakaran Narayanasamy**

Speakers: **Robert Abramovitch, Prabakaran Narayanasamy**

The goal for the Session is to bring Scientist within the nation and other countries, to define the direction and identify critical knowledge gaps in inhibitors and resistance developed non-tuberculous mycobacterium. Our ultimate goal is to assemble a NTM research team with desirable expertise to design and optimize inhibitors targeting different pathways and study mechanisms of resistance in non-tuberculous mycobacteria.

Saturday Schedule (continued)

SATURDAY, JUNE 15



If We Build It, They Will Colonize: the Resident Microbiome of Food Processing-built Environments

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Aeriel Belk**

Speakers: **Jasna Kovac, Peipei Zhang**

Food processing environments are critical reservoirs of foodborne pathogens and spoilage microorganisms, yet the full scope of the microbes surviving in these locations has only recently begun to be investigated. This session will bring together researchers investigating a wide range of food processing environments, from fruit and produce to animal products. Researchers will present key findings in the core microbiomes of these locations, impacts of microbial controls on the microbial communities, and the impacts these microbes have on the final product; these will include investigations of the free-living microorganisms as well as those in biofilms, and the relationship between these two survival methods. The ultimate goal of this session is to provide a holistic picture of our current understanding of the microbial communities of these critical environments and to achieve a working consensus on the best methodologies for investigating them. This consensus will also generate recommendations for industrial and commercial food operations to improve food plant design and sanitation protocols to improve overall public health



The Secret Life of Anaerobes

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Nicole Buan**

Speaker: **Kylie Allen, Nicole Buan**

Globally, most microbes are strict or facultative anaerobes, with unique metabolism that requires specialized techniques to study them. This session will feature speakers studying anaerobic processes in diverse microbes across the tree of life. Recent advances in culturing, in situ metabolism, genome engineering and computational modeling are allowing researchers to make exciting discoveries of how anaerobic microbes contribute to nutrient cycles, climate, and how they interact with agricultural and human hosts. Attendees will have the opportunity to learn about the state-of-the-art interdisciplinary techniques researchers are using to uncover the hidden yet essential biology of anaerobic microbes.



Keeping Our Kids Safe: Prevention, Diagnosis, and Treatment of Childhood Infections










1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Karen Acker**

Speakers: **Karen Acker, Mark Gonzalez, Paul Spearmann**

Susceptibility to infections in children is often distinct from adults, with increased susceptibility to certain infections and almost full tolerance to others. Age-based differences in infectious agents and severity are seen throughout pediatric age groups and require a nuanced understanding to address appropriate prevention, diagnosis, and treatment. Therefore, the practice of infectious diseases and clinical microbiology in pediatrics is different from that in adults, and it is important providers and laboratorians are aware of the unique features and needs of children to provide comprehensive infectious diseases care. Through illustrative cases and vignettes, and guided by evidence-based medicine, subject matter experts will describe the practice of clinical microbiology, infectious diseases, and vaccination in children so attendees can apply this information to their own practice.

 AAR Antimicrobial Agents and Resistance	 AES Applied and Environmental Science	 CIV Clinical Infections and Vaccines	 CPHM Clinical and Public Health Microbiology	 EEB Ecology, Evolution and Biodiversity	 HMB Host-Microbe Biology	 MBP Molecular Biology and Physiology	 POM Profession of Microbiology	 Additional Fee
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Saturday Schedule (continued)

SATURDAY, JUNE 15



Moving into the Future: New Tools for Detection and Resistance Testing of Mycobacteria

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Allison Eberly**

Speakers: **Reeti Khare, Salika Shakir**

Tuberculosis and non-tuberculosis mycobacterial infections are difficult to treat and require multidrug regimens for several months. Due to the slow growth of mycobacteria, culture and phenotypic susceptibility testing of mycobacteria requires extended time compared to other microbes, which ultimately delays proper patient care and treatment. Therefore, new, rapid technologies with high throughput and low cost are needed for mycobacterial identification and susceptibility testing. In this session, emerging technologies and strategies for identification and genotypic antibiotic susceptibilities of mycobacteria will be discussed.



Endemic Mycoses: A Tale of Two Continents

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Sanchita Das**

Speakers: **Thuy Le, Fariba Donovan**

The epidemiology, diagnosis and management of coccidioidomycosis has changed over the last decade. Similarly, our understanding of the pathogenesis and immunity to this endemic disease. Also enigmatic is the infection Talaromycosis while mostly seen in Southeast Asia there are reported cases throughout the world either related to travel or acquired by unique means. This session will describe the two fungi that are confined to their niches on two different continents yet are able to cause disseminated and serious infections in some hosts.



Microscale Microbial Ecology

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Julia Schwartzman**

Speakers: **Carey Nadell, Glen D'Souza**

This session focuses on the microscale ecology of microbial populations and communities, and how the physical, chemical, and biological features of local environments shape the properties of collectives. Microbes modulate the biological activity of other life forms, ranging from recycling nutrients through ecosystems to the modulation of plant and animal health and development. The mode and tempo of microbial activities is shaped by the micro-scale interactions of individual cells. How do we link the collective behaviors of microbial populations and communities to their underlying interactions? Attend this session to learn how spatial and temporal interactions at the scale of a microbial neighborhood shape the collective functions of microbial communities and populations.



Microbial Experimental Evolution

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **William Ratcliff**

Speakers: **Michael Baym, Alita Burmeister**

Microbial experimental evolution is a powerful approach for understanding the fundamental evolutionary processes that shape all life on Earth. This session will showcase the latest advancements in experimental microbial evolution to understand adaptation, antibiotic resistance, and evolution in natural populations. Leading researchers will present cutting-edge studies manipulating model microbial systems in the lab to elucidate the genetic and molecular mechanisms underlying evolution. Talks will cover experimental evolution of viruses, bacteria, and yeast under diverse selective pressures including growth in novel carbon sources, temperature stress, antibiotic exposure, and viral infection. Attendees will learn how microbial experimental evolution provides novel insight into evolutionary dynamics including parallelism, contingency, epistasis, pleiotropy, and genetic drift. Speakers will also discuss integrating experimental evolution with whole genome sequencing, proteomics, and RNA-sequencing to connect genotype with phenotype.

This session is ideal for microbiologists, evolutionary biologists, geneticists, and infectious disease researchers interested in using experimental evolution as a tool. Attendees will gain an up-to-date understanding of the field of microbial experimental evolution, experimental

Saturday Schedule (continued)

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design, and cutting-edge techniques. Talks will highlight innovative new selections, assays, and microbial model systems pushing the boundaries of experimental evolution. The speakers will also share empirical data and theoretical models generated using experimental evolution and describe how these insights can be extended to diverse topics including the evolution of new traits and functions, arms race dynamics, development of antibiotic resistance, experimental testing of evolutionary theory, and evolution in natural populations. Attendees will have the opportunity to connect directly with leaders in microbial experimental evolution, share ideas, and brainstorm new collaborations. We encourage all researchers interested in fundamental evolutionary processes and exploring the power of microbial experimental evolution to understand the forces shaping life on Earth to attend this exciting session.



Survival of the Stealthiest: Unraveling Bacterial Pathogen Within-Host Adaptation

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Ashlee Earl**

Speakers: **Ashlee Earl, Daria Van Tyne**

Many bacterial pathogens can form persistent infections, providing an infectious reservoir which allows for recrudescence and infection of new hosts. The molecular mechanisms and evolutionary dynamics driving persistence are still not well-understood yet hold key information for designing more effective clinical strategies. High-throughput sequencing methods have enabled the study of within-host evolution of persistent bacterial pathogens, revealing i) how bacterial species adapt to persist within a host and ii) testable hypotheses for the role this evolution plays in the host-pathogen relationship. This session will focus on emerging insights on this topic, including from analysis of data from human-cohort and experimental studies of persistent infections.



Molecular Assembly on the Bacterial Cell Envelope and Host-Pathogen Interactions

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Hung Ton-That**

Speakers: **Hung Ton-That, Dominique Missiakas**

A variety of bacterial cell surface components are assembled on the cell envelope by intricate molecular machines. Often vital for orchestrating pathogenesis, surface proteins and carbohydrate and protein polymers mediate adherence to and modulate host cells. This symposium aims to provide a much-needed platform to discuss major recent advances and remaining challenges, and wherever possible, integrate the common and novel themes of surface assembly and host-pathogen interactions mediated by these surface determinants in both single- and double-membrane bacteria.



Molecular Mechanisms of Interactions Between Biofilm Bacteria and Their Hosts

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Kyle Floyd**

Speakers: **Dominique Limoli, Will DePas**

Microbes can live and thrive within multicellular communities, known as biofilms. Many of the pathways underlying biofilm formation have been well established, however the mechanisms that drive biofilm-associated interactions with host organisms is an emerging area. This symposium will feature some of the latest research examining the molecular underpinnings of biofilm-host interactions; dissecting the biomolecular machineries and pathways that determine how microbial multicellular lifestyles effect host interactions ranging from symbiotic to pathogenic.

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Decoding Bacterial Behavior and Physiology with Artificial Intelligence

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Y Hoang**

Speakers: **Lingchong You, Paul Jensen**

This session provides an exploration at the intersection of microbiology and artificial intelligence (AI). Our speakers, Dr. Lingchong You and Dr. Paul Jensen, will showcase innovative AI applications to dissect the dynamics and metabolism of microbial communities. The insights acquired have substantial potential in the development of novel adaptive materials and the cultivation of under-studied bacteria. This session is a must-attend for those intrigued by the dynamic interplay of science and technology, specifically the transformative power of AI in deciphering bacterial behavior and physiology.



Bench to Bedside: Challenging Clinical Cases - Part 2

3:15 p.m. – 4:15 p.m.

PANEL DISCUSSION

Moderator: **Rachel Denyer**

Panelist: **Tristan Grams**

Following William Osler's advice to 'have no teaching without a patient for a text', this cross-track symposium allows attendees to learn from a diverse array of challenging clinical cases. The diagnosis and management of four highly interesting and unusual patient cases will be presented by CPEP (or infectious diseases) fellows, with Q and A discussion facilitated by experts in the field of public health, clinical microbiology and infectious diseases. The session will offer trainees a chance to present their best cases, but we anticipate broad appeal of the session to an audience ranging from novice to expert.



Embracing Active Learning & Artificial intelligence in Microbiology Education

4:00 p.m. – 4:45 p.m.

CAREER TALK

Speaker: **Kersten Schroeder**

Active Learning and Artificial intelligence (AI) in Microbiology Education can help to increase the students' understanding of Microbes. Embracing new teaching modalities and using AI can help to increase student engagement in the Microbiology courses we teach with the goal of helping the students retain more of the subject matter for use in their future careers. Active learning can include case-based learning, game-based learning, problem-based learning, and team-based learning. AI can help with generating different types of active learning exercises or even have students interact with a chatbot in trying to learn more information about different aspects of Microbiology. AI can also be used to generate summative and formative questions for students to use throughout their Microbiology courses.



Antimicrobial Agents and Resistance (AAR) Community Meet-Up

4:00 p.m. – 4:45 p.m.

TRACK HUB

Moderators: **Jacinda Abdul-Mutakabbir, Silvia Pineiro**

Join the Antimicrobial Agents and Resistance (AAR) community for a meet-up! Connect with colleagues to discuss topics relevant to your scientific track community. This event is moderated by the ASM Council on Microbial Sciences (COMS) AAR Community Leader and the ASM Microbe AAR Track Leader.

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Cannabis and Hop Latent Viroid: Who Will Survive?

4:00 p.m. – 4:45 p.m.

TRACK HUB

Moderator: **Patrick Videau**

Speaker: **Zamir Punja**

The hop latent viroid is destroying cannabis crops throughout North America. While previously found to cause disease in hops, it has moved on to another target, and it is a weed we may not want to kill. This session will present the host-pathogen interaction, spread, and current understanding of potential outcomes for growers.



Clinical Infections and Vaccines (CIV) Meet-up

4:00 p.m. – 4:45 p.m.

TRACK HUB

Moderators: **Michael Lieberman, Sanchita Das**

Join the Clinical Infections and Vaccines (CIV) community for a meet-up! Connect with colleagues to discuss topics relevant to your scientific track community. This event is moderated by the ASM Council on Microbial Sciences (COMS) CIV Community Leader and the ASM Microbe CIV Track Leader.



Ecology, Evolution, and Biodiversity (EEB) Community Meet-Up

4:00 p.m. – 4:45 p.m.

TRACK HUB

Moderators: **Britt Koskella, Peter Gurguis**

Join the Ecology, Evolution, and Biodiversity (EEB) community for a meet-up! Connect with colleagues to discuss topics relevant to your scientific track community. This event is moderated by the ASM Council on Microbial Sciences (COMS) EEB Community Leader and the ASM Microbe EEB Track Leader.



Host-Microbe Biology (HMB) Community Meet-Up

4:00 p.m. – 4:45 p.m.

TRACK HUB

Moderators: **Monica Cartelle Gestal, Vincent Lee**

Join the Host-Microbe Biology (HMB) community for a meet-up! Connect with colleagues to discuss topics relevant to your scientific track community. This event is moderated by the ASM Council on Microbial Sciences (COMS) HMB Community Leader and the ASM Microbe HMB Track Leader.

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Antimicrobial Agents and Resistance	Applied and Environmental Science	Clinical Infections and Vaccines	Clinical and Public Health Microbiology	Ecology, Evolution and Biodiversity	Host-Microbe Biology	Molecular Biology and Physiology	Profession of Microbiology	

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How to Wrangle a Training Opportunity at NIAID

4:00 p.m. – 4:45 p.m.

TRACK HUB

Moderator: **Ashley Groshong**

Speaker: **Angela Harris**

An overview of all training opportunities within the NIAID, how to apply, and what the training environment looks like across different campuses.



Profession of Microbiology (POM) Community Meet-Up

4:00 p.m. – 4:45 p.m.

TRACK HUB

Moderators: **Jorge Cervantes, Tatiana Pinto**

Join the Profession of Microbiology (POM) community for a meet-up! Connect with colleagues to discuss topics relevant to your scientific track community. This event is moderated by the ASM Council on Microbial Sciences (COMS) POM Community Leader and the ASM Microbe POM Track Leader.

President's Forum: The Power of Microbial Sciences to Change the World

5:15 p.m. – 6:30 p.m.

Speakers: **Virginia Miller, Timothy Donohue, Nat Moorman, Emiley Eloie-Fadro**

Join the Microbe 2024 ASM President's Forum for a captivating gathering of top minds in microbial sciences! On June 15 in Atlanta, immerse yourself in dynamic discussions led by ASM President Virginia Miller, Ph.D., along with former ASM President Timothy Donohue, Ph.D., antiviral drug strategist Nat Moorman, Ph.D., and metagenomics expert Emiley Eloie-Fadrosh, Ph.D. Together, they'll dive into the exciting realm of microbes as catalysts for a bio-revolution, the pivotal role of READDI in preparing for the next pandemic and the interconnected ecosystems of microbiome research. Don't miss this thrilling exploration of microbiology's power and be part of the conversation shaping the future—with the biggest names in the microbial sciences community!

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Taking Aim at MDR Gram-negative Bacteria: Priority Pathogens, New Approaches, and New Drugs

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Georgina Cox**

Speaker: **Michael Koehler**

The expansion of multi-drug resistant (MDR) Gram-negative pathogens poses a serious threat to global health. This session will begin by highlighting priority Gram-negative pathogens and difficult-to-treat infections. We will then explore exciting advances and new approaches in the search for the next generation of efficacious agents targeting Gram-negative pathogens.



Multidisciplinary Approach to Clinical Trials

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Man-Wah Tan**

Speakers: **Jessica Howard-Anderson, Rachel Bender Ignacio**

Clinical trials are an essential component in drug applicability and utilization. The completion of clinical trials requires support from multiple disciplines to ensure successful completion for each participant. The goal of this session will be to showcase the importance of these components in Antimicrobial Agent discovery.



Genomic and Wastewater Epidemiology for Pathogen Surveillance

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Lauren Saunders**

Speakers: **Nathan Grubaugh, Kayley Janssen, Smruthi Karthikeyan**

With the advent of Next Generation Sequencing, genomic epidemiology has become more accessible to track the spread of disease. The lessons from this field can be applied to wastewater-based epidemiology (WBE), a new field that has gained prominence with the advent of the SARS-CoV-2 pandemic. The predictive utility of WBE with covid outbreaks has increased interest in using WBE for detection and surveillance of additional human pathogens, antimicrobial resistance, and possibly even outbreaks of novel diseases. This session will discuss progress in sequencing applications for genomic and wastewater epidemiology and how this technology is developing.












Hot Topics in AES

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

This session will present talks from new and exciting submitted abstracts with a focus on early-career scientists. New methods, systems, and findings will be presented.

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Sunday Schedule (continued)

SUNDAY, JUNE 16



Hiding in Plain Sight: Pathogens in Our Environment

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Marisa Nielsen**

Speakers: **Jonathan Sexton, Sunny Jiang, Phyu Thwe**

The air we breathe, the water we jump into on a warm summer's day, and the ground beneath us all contain pathogenic organisms. How do we determine which organisms are truly causing infection when recovered in the clinical microbiology lab? Which organisms should we be aware of and what are the risk factors associated with different environmental pathogens? What should we do to prepare for changes in endemicity of pathogens as our environment changes? In this session you will learn the answers to these questions and more as a multidisciplinary team of scientists comes together to discuss these important organisms.



Keeping Control and Preventing Infections: Hospital Epidemiology and Microbiology Col-Lab-Oration

8:15 a.m. – 10:15 a.m.

CROSS-TRACK PLENARY

Convener: **David Calfee**

Speakers: **Arjun Srinivasan, Tara Palmore, David Calfee**

Health care-associated infections (HAIs) can result in significant morbidity and mortality, and often place additional demands on already limited diagnostic and treatment resources. Furthermore, HAIs can incur financial penalties. Therefore, monitoring and preventing HAIs in the health care environment is essential for patient care and overall community health and is dependent on close interaction between clinical and public health microbiology laboratories and infection preventionists. Through real-world examples, subject matter experts will highlight how HAIs can be reduced and the benefits of collaboration between laboratories and infection preventionists to manage and prevent HAIs.



Legends, Lore, and Evidence Directing Cut-Offs for Workup of Urine and Respiratory Cultures

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Melanie Yarbrough**

Speaker: **Sophonie Oyeniran**

Many cultures encountered in the clinical microbiology laboratory are polymicrobial and can contain a mixture of resident microbiota and pathogenic microbes. For some of these frequently polymicrobial specimen types, such as urine and respiratory specimens, the microbial burden recovered in culture may direct the extent of culture workup and clinical reporting practices. Commonly, this burden is approximated by evaluating colony counts in quantitative cultures. Currently, there is tremendous variability in clinical practice for workup and reporting of urine and respiratory cultures. The purpose of this session is to examine best practices for the workup of urine and respiratory specimens, synthesize literature on the microbial burden in clinical specimens that is associated with disease, and provide guidance on best practices to optimize clinical outcomes while preventing microbial overuse. The session will also highlight references and resources for laboratories to help refine urine and respiratory culture practices.



Malaria: A Disease We Can't Afford to Ignore

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Derrick Chen**

Speakers: **Dawd Siraj, Andrea Morrison**

Malaria is a mosquito-borne disease that was once widespread in the United States. However, thanks to effective public health measures, malaria was largely eradicated from the US by the mid-20th century. For the first time in two decades, there have been several recent cases of locally transmitted malaria in the US, raising concerns about the potential for the disease to re-emerge. This session will discuss the history of malaria eradication in the US and its current state globally. It will also detail CDC's investigation into the locally transmitted cases.

Sunday Schedule (continued)

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Climate Change and Microbial Ecology

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Lisa Stein**

Speakers: **Ahmed Shibl, Jennifer Glass, Paula Dalcin Martins**

Microbes and their viruses are key players in climate homeostasis: they control greenhouse gas emissions, maintain terrestrial and marine ecology and biogeochemistry, enable plant and animal adaptation and survival, and contribute to crop productivity, among many other roles. Rapid climate change is altering microbial communities and their functions from molecular to ecosystem level, changing rates and fluxes in biogeochemical cycles and interactions between microbes and within host systems. This symposium will feature research across multiple spatiotemporal scales to explore how microbes and their viruses are affected by and are affecting climate change, and the possibility of using microbial ecology to mitigate climate change effects.



Hot Topics in Ecology, Evolution, and Biodiversity (EEB)

8:15 a.m. – 10:15 a.m.

Moderator: **Britt Koskella**

IN-DEPTH SYMPOSIUM

Research within the Ecology, Evolution and Biodiversity Track embodies a wide array of topics within the microbiological sciences. This session will highlight groundbreaking work from trainee submitted abstracts within and beyond the areas emphasized in our in-depth symposia programming.



Hot Topics in Host-Microbe Biology (HMB)

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Moderator: **Kelly Bacht**

Research within the Host-Microbe Biology Track embodies a wide array of topics within the microbiological sciences. This session will highlight groundbreaking work from trainee submitted abstracts within and beyond the areas emphasized in our in-depth symposia programming.



Considerations for Microbiome-Based Therapeutic Success: Colonization and Context (Plenary)

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Michael Abt**

Speakers: **Anna Seekatz, Brendan Kelly, Ami Bhatt**

Microbiome-based therapies represent a new and emerging approach to treat a wide range of human diseases. Before such approaches can be broadly used in the clinics the parameters that define therapy success need to be defined. This session will shed light on the multiple factors (including transplant engraftment efficacy, host immune status, diet consideration, and commensal colonization resistance) that determine whether a microbiome-based therapy will be successful. This session will bring together speakers from the basic and clinical world to present findings on the latest advances in our understanding of how to successfully use microbiome-based therapeutics.

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How to Survive a Phage Apocalypse (Plenary)

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Chris Waters**

Speakers: **Aaron Whiteley, Asma Hatoum, Micah Ferrell**

A primary driver of the evolution and ecology of bacteria is bacteriophage (phage) infection. The last few years have witnessed an explosion of our understanding in how bacteria defend themselves against phage. This session will explore the interaction of bacteria with their phage and how the diverse molecular mechanism by which bacteria defend against phage infection.



Human Leishmaniasis in the United States: Epidemiology, Diagnostic Strategies, and Treatment Updates

9:15 a.m. – 10:15 a.m.

PANEL DISCUSSION

Moderator: **Joshua Lieberman**

Panelists: **Joshua Lieberman, Naomi Aronson, Sheila Peel, Yvonne Qvarnstrom**

The proposed session will include three speakers who will provide an overview of the epidemiology of human leishmaniasis in the United States, options for molecular and culture-based diagnostic testing, how precise taxonomic identification of the infecting parasite influences treatment decisions, and key challenges in the coming decade. Dr. Joshua Lieberman (University of Washington, convener) will introduce the audience to Leishmania epidemiology in the US based on published studies and 2.5 years of molecular testing data from a civilian molecular reference laboratory. He will highlight both advantages and taxonomic limitations of molecular diagnostic strategies. Dr. Sheila Peel (Walter Reed Army Institute of Research) will discuss how highly specific culture-based isoenzyme electrophoresis testing – the gold standard for species-rank identification – guides treatment decisions and the obstacles to obtaining/maintaining this testing in the United States. Dr. Naomi Aronson (Uniformed Services University of the Health Sciences) will close the session with an overview of near-future challenges for this disease in the US, including suboptimal treatment response rates and the need for new and/or combination therapies, disease threats to immunocompromised persons, and risks for increased autochthonous transmission in a changing climate.



Advancing Antibiotic Combination Strategies: Integrating PK/PD, Mechanistic Synergy, and Computational Models for Overcoming Resistance

10:45 a.m. – 11:30 a.m.

TRACK HUB

Moderator: **Ashlan Kunz Coyne**

Speaker: **Cornelia Landersdorfer**

The purpose of the track hub is to educate the audience on the intricate interplay of antibiotic synergy, encompassing the integration of PK/PD profiles, mechanisms of synergy and resistance, and computation models, all vital for the development of optimized combinations therapy to combat antibiotic resistance.



Antimicrobial Resistance and Stewardship in Carceral Settings

10:45 a.m. – 11:30 a.m.

TRACK HUB

Moderator: **Jacinda Abdul-Mutakabbir**

Speaker: **Alysee Wurcel**

The session will provide perspectives on antimicrobial resistance within carceral settings and necessary stewardships interventions to optimize equitable outcomes.

Sunday Schedule (continued)

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Algae for Bioproduction: Extreme Yields

10:45 a.m. – 11:30 a.m.

TRACK HUB

Speaker: **Robin Gerlach**

This session will present new work on using extreme algae to produce biofuels, which highlights novel means of bioproduction/bioconversion.



How to Initiate Industry Sponsored Studies in Your Clinical Laboratory

10:45 a.m. – 11:30 a.m.

TRACK HUB

Moderator: **Lauren Cooper**

Speaker: **Bryan Schmitt**

Industry is in need of more clinical microbiology laboratories to be involved in registration studies (FDA clinical trials) to get new technologies in the hands of laboratorians for the advancement of patient care. Many clinical labs, however, lack the knowledge of how to get involved in studies and are unsure of the resources required to make this happen. They are also unaware of how participating in clinical trials can be beneficial for them. This discussion will give them insight on how and why to get involved in these trials.



What's New in the Clinical Microbiology Procedures Handbook?

10:45 a.m. – 11:30 a.m.

TRACK HUB

Moderator: **Carey-Ann Burnham**

Speaker: **Amy Leber**

This is an exciting time to be a clinical microbiologist! We are experiencing an explosion of new tools to support advances in microbiology testing, including phenotypic and genotypic assays. Laboratory methods are changing, and so are our patient populations. A new edition of the Clinical Microbiology Procedures Handbook has recently been published, with extensive revisions in all sections. This text is an SOP-based book to support clinical laboratories in providing evidence-based microbiology testing. The purpose of this session will be to highlight some of the major changes relevant to the practice of clinical microbiology, shared by Section Editors from the text.

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How Far are We Towards Global Hepatitis Elimination in The Post-COVID Era?

10:45 a.m. – 11:30 a.m.

TRACK HUB

Moderator: **Benjamin Liu**

Speaker: **John Ward**

Viral hepatitis is a notorious disease with major global public health concerns, which is responsible for chronic infection in more than ~300 million people and more than 820,000 deaths per year worldwide. Acute viral hepatitis B and C may develop into chronic hepatitis, cirrhosis and liver cancer, which has ranked among the top 20 causes of death. Though there are safe and effective vaccines for prevention of hepatitis A and B, WHO estimates that there are more than 1.5 million new infections each year. Though there are oral antiviral agents for treatment of chronic hepatitis B and C, the currently available antivirals cannot eradicate the viruses from the chronically infected HBV individuals. Efforts to develop novel diagnostic markers and antiviral drugs are urgently needed. While a goal of global elimination of viral hepatitis by 2030 was set up by WHO in 2016, there are major gaps and challenges in research and practice, such as the lack of high-quality epidemiological data, and disparities in access to diagnostic testing with linkage to prevention and care and treatment services. This is especially true in the post-COVID era, in which the attention of the WHO and the world diverted by the pandemic is going back to the “old” and long-lasting public health problem, e.g., viral hepatitis. This session will review the impact of COVID-19 on diagnosis, treatment, and vaccination of viral hepatitis as well as the global hepatitis elimination plan. This session will also discuss new data and timely update which will be helpful for assessment of the status of different countries/regions towards global hepatitis elimination by 2030.



Malaria Diagnostics: Choosing the Right Tool

10:45 a.m. – 11:30 a.m.

TRACK HUB

Moderator: **Sanchita Das**

Speaker: **Michael Aidoo**

Human malaria is caused by one of five plasmodium parasites, *Plasmodium falciparum*, *Plasmodium vivax*, *Plasmodium malariae*, *Plasmodium ovale*, and *Plasmodium knowlesi*. Diagnosis of the infections requires detection of the blood stages of the parasite in infected persons. Malaria diagnosis is commonly done by smear microscopy, antigen-based rapid diagnostic tests (RDTs) but increasingly, also by multiple different molecular methods. The use of each of these tests requires careful consideration of whether they are for primary patient diagnosis, surveillance, or research. Additionally, tests may have performance characteristics and limitations that make them more appropriate in different epidemiologic settings or use cases, requiring specific capacities for implementation.

This session will describe the various tests, best use cases, and considerations for use in specific settings.



Breaking Boundaries in Microbiology: The Impact of Genomic Long Reads

10:45 a.m. – 11:30 a.m.

TRACK HUB

Moderator: **Daniela Mendoza Millan**

Speaker: **Valerie De Anda**

Traditional sequencing methods rely on short reads, limiting the ability to accurately assemble and analyze complex microbial genomes. However, advancements in long-read sequencing technologies have revolutionized the field, enabling researchers to obtain complete genome sequences and delve deeper into the intricacies of microbial diversity, transcriptomics, evolution, and function. In this session, we will showcase cutting-edge studies that leverage genomic long reads to uncover new frontiers in microbiology research. Topics will include the analysis of complex microbial communities, transcriptomics, deciphering mobile genetic elements, understanding antimicrobial resistance mechanisms, and exploring the genomic basis of microbial interactions. We also discuss the current advancements in genomic long reads such as the reduction of sequencing-induced SNPs. Join us as we explore and discover the untapped potential of genomic long reads.

Sunday Schedule (continued)

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Use of Spatial Transcriptomic Analysis and Machine Learning Approaches to Gain a Unified Map of Infection

10:45 a.m. – 11:30 a.m.

TRACK HUB

Moderator: **Matthew Lawrenz**

Speaker: **Mihaela Gadjeva**

Genomic data from *P. aeruginosa* and *E. coli* clinical isolates were collected from the past 20 years and analyzed using comparative genomics to elucidate changes in the core genomes and frequencies of AMR acquisition. The analysis pointed to a staggering 100% increase in the appearance of AMR resistance traits in the clinical strains, tendencies that necessitate development of intervention strategies against ESKAPE pathogens. I will discuss comparative genomics and transcriptomics approaches to generate unified host-pathogen maps of infection which will lead to intervention opportunities. To gain insights into the pathogen behavior within the infected tissues, we developed spatial, pathogen-specific transcriptome profiling and found differential enrichment of pathogen-specific transcripts at distinct anatomical locations. By using machine learning approaches, we correlated pathogen transcriptional features to host responses and found interconnected circuits. Longitudinal spatial transcriptomic analysis uncovered temporal changes in pathogen behavior, consistent with the establishment of chronicity. Cumulatively, our data highlights coordinated spatial and temporal transcriptional interplay between the host and the pathogen that may pinpoint to druggable circuits.



Using Microfluidics to Probe the Inner Life of Bacteria

10:45 a.m. – 11:30 a.m.

TRACK HUB

Moderator: **Randy Morgenstein**

Speaker: **Matthew Cabeen**

Speakers will present about the types of microfluidic technology available to microbiologists and bacterial cell biologists and their applications. We will cover the types of questions that are particularly well suited to microfluidics and what questions can be more easily addressed with other approaches. We will honestly discuss the limitations and challenges of using microfluidics and how microfluidic technology can be made more accessible and user friendly. We will also present data gained using microfluidics and discuss data curation and presentation.












Who's The Boss Here? How to Transition From Academia to Effective Leadership with (Some) Grace.

10:45 a.m. – 11:30 a.m.

TRACK HUB

Speaker: **Frances Valencia-Shelton**

The primary goal of academic training is to obtain a mastery of your skill and put it to work immediately following your achievement. This is typically demonstrated by obtaining that ideal position, securing funding or salary, and maybe even leading a team to accomplish key goals. However, one essential skill that tends to get missed in our training is the skill of leadership. Whether it wasn't taught, or it just wasn't applied to real life experience. Natural born leaders are naturally born to work on their leadership skills, anyone can become an effective leader with the right preparation for their individual needs. In this session you will hear how one PhD trainee went from medical microbiology fellowship trained to be a director to management and then into the role of director. You will hear of the different skill sets that would have been missed or taken many years more to learn had the management experience not been ascertained. You will learn how it is possible to prepare prior to management from someone who has learned following 5 years of management and now 3 years of directorship with a management team.

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Sunday Schedule (continued)

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Training Under-represented Minorities to Become Super Scientists: Lessons From The HBCUs

12:45 p.m. – 1:30 p.m.

CAREER TALK

Speaker: **Karl Thompson**

This session will allow for the audience to garner insights from the training of a critical mass of under-represented minority students at HBCUs. HBCUs are woefully under-resourced yet are very successful at preparing students for advanced training in the areas of medicine, law, and science. There is a hunger amongst HBCU STEM majors to pursue excellence in STEM areas. Yet, under-exposure to science in minority communities inhibits the development of a proper perspective and mindset for a research career. Additionally, issues pertaining to science literacy and technology aversion create additional barriers for proper preparation of underrepresented minorities to obtain a thriving STEM career.

We have discovered that creating a proper perspective on the role and value of science in society, as well as a systematic laboratory training plan can mitigate the abstraction associated with considering and preparing for a career in science. The learner should attend this session to see what it is that under-resourced HBCUs can do in training budding under-represented minority scientists that may be informative for efforts to broaden science participation in different institutions.



Antimicrobial Peptides Against Gram-negative Bacteria

12:45 p.m. – 1:30 p.m.

TRACK HUB

Moderator: **Ashlan Kunz Coyne**

Speaker: **Berthony Deslouches**

Antimicrobial peptides (AMPs) are small peptides that have antibacterial and/or anti-biofilm activity against bacteria. AMPs are part of the innate immune system and can also be synthetically designed. AMPs represent a potentially new type of antimicrobial agent against bacteria. In this session, we will focus on AMPs with activity against gram-negative bacteria, and especially against multi-drug resistant and biofilm forming bacteria.



Decoding Microbiomes: Mechanistic Insights via Metabolomics and Lipidomics

12:45 p.m. – 1:30 p.m.

TRACK HUB

Moderator: **Patrick Videau**

Speaker: **Sneha Couvillion**

Microbial communities play a central role in the health and functioning of various ecosystems- environmental and human associated. Comprehensive, systematic profiling of small molecules, including metabolites and lipids, in microbial communities can offer valuable insights into their functions, interactions, and responses to environmental conditions. This session focuses on how metabolomics and lipidomics are being leveraged to advance our understanding of microbial communities across ecosystems.



Creutzfeldt-Jakob Disease and Other Prion Diseases

12:45 p.m. – 1:30 p.m.

TRACK HUB

Speaker: **Brian Appleby**

The role and value of neurodegenerative markers and real-time quaking induced conversion testing will be discussed.

Sunday Schedule (continued)

SUNDAY, JUNE 16



One Thousand Genomes for Syphilis

12:45 p.m. – 1:30 p.m.

TRACK HUB

Moderator: **Lisa Stempak**

Speaker: **Alex Greninger**

This session will give an overview of insights gleaned from the first 1000 genomes of *T. pallidum*, and how sequencing is informing our understanding of evolution, public health response, and functional aspects of this mercurial pathogen.



Evolutionary Limits of Microbial Populations

12:45 p.m. – 1:30 p.m.

TRACK HUB

Moderator: **Will Harcombe**

Speaker: **Luis Zaman**

This track hub will focus on how interactions and the type of selection impact rates of evolution and the evolution of complexity.



Bacterial Lipids- Advances in Structural Analysis and Function using Mass Spectrometry

12:45 p.m. – 1:30 p.m.

TRACK HUB

Convener: **Matthew Lawrenz**

Speaker: **Robert Ernst**

Microbes contain a number of characteristic lipids and lipoproteins. These molecules are crucial not only for membrane integrity but also for signaling, responding to environmental stresses, propagation, antibiotic resistance, and pathogenesis. The characteristics, structure, and specific mechanisms leading to bacterial lipid synthesis and regulation represent long-standing questions requiring the latest technologies that improve the resolution of microbial lipidomics. Mass spectrometry has become a method of choice for meeting many of these challenges, thanks to advances in instrumentation, methodology, and the ability to directly analyze without the need for *ex vivo* growth.



BamA: A Story of Antibiotic Discovery at Genentech

12:45 p.m. – 1:30 p.m.

TRACK HUB

Moderator: **Jan-Ulrik Dahl**

Speaker: **Kelly Storek**

This presentation aims to offer participants a comprehensive understanding of the drug discovery process from an industry perspective. Addressing antibiotic-resistant bacterial infections represents a critical worldwide issue. Gram-negative bacteria in particular are challenging because of the hurdle of penetrating both membranes. To overcome this hurdle we at Genentech concentrated efforts on an essential target in the outer membrane, BamA. This presentation will start with an introduction to challenges in Gram-negative antibiotic discovery, then share the steps of discovering a new drug target by using BamA as a case study. The talk will conclude with thoughts on the future of drug discovery and how to overcome barriers.

AAR	AES	CIV	CPHM	EEB	HMB	MBP	POM	Additional Fee
Antimicrobial Agents and Resistance	Applied and Environmental Science	Clinical Infections and Vaccines	Clinical and Public Health Microbiology	Ecology, Evolution and Biodiversity	Host-Microbe Biology	Molecular Biology and Physiology	Profession of Microbiology	

Sunday Schedule (continued)

SUNDAY, JUNE 16



Support for International Post-Graduate Trainees in Healthcare Settings

12:45 p.m. – 1:30 p.m.

TRACK HUB

Moderator: **Rachel Denyer**

Speaker: **Tomislav Mestrovic**

International medical graduates (IMGs) are vital to the US Healthcare system comprising about a quarter of the physician workforce and contributing to the diversity of the medical workforce in the United States, including in Microbiology, Public Health and Infectious Diseases. This session will review the challenges faced by IMGs and other international graduates participating in post-graduate training in US settings. The session will discuss actions that faculty, mentors and peers can take to better support international trainees in US healthcare and medical settings.



Top Ten Papers in Beta-lactamases

1:45 p.m. – 3:45 p.m.

PANEL DISCUSSION

Moderator: **Robert Bonomo**

Panelists: **Timothy Palzkill, Robert Bonomo, Alessandra Carattoli**

This is an all-encompassing legacy session on the most prevalent enzymatic resistance mechanism present in Gram-negative bacteria: beta-lactamases. The top 10 papers published from July 2023-June 2024 in the field of beta-lactamases will be reviewed. This includes epidemiology of current and novel beta-lactamases, the clinical relevance of these beta-lactamases on treatment, including novel therapies, as well as studies on the biochemistry of beta-lactamases with beta-lactams and inhibitors and other aspects that impact activity of these important enzymes.



New Agents

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Alexeim Savchenko**

Antimicrobial Resistance is a growing global public health threat. Thus, there is an urgent need to develop and utilize novel therapeutics that are able to evade typical mechanisms of resistance.



Environmental Factors in Antimicrobial Resistance

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Erin Lipp**

Speakers: **Elizabeth Ottesen, Latania Logan**

Infection control efforts have made progress in reducing healthcare-associated infections with antimicrobial resistant (AR) pathogens. However, environmental and community transmission of AR pathogens and antimicrobial resistance genes has proven more difficult to combat. This session seeks to present recent progress in understanding environmental sources and sinks of AR genes and AR pathogens, including the role of wastewater conveyance and treatment infrastructure in mediating human-environment exchange of AR genes and AR bacteria. In addition, we are exploring the role of the human commensal microbiome as a potential mediator of bacterial and gene exchange between humans and the environment. Together, these topics are key to understanding the emergence and persistence of AR genes and AR pathogens.

Sunday Schedule (continued)

SUNDAY, JUNE 16



Plant Microbiomes for Sustainable Agriculture

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Ivelisse Irizarry**

Speakers: **Adam Rivers, Robin Choudhury**

Plants are hosts to a vast diversity of microbes that comprise plant microbiomes. Plant microbiomes influence host gene expression, metabolism, and health. This in-depth symposium will highlight research in plant microbiology, plant microbiomes, and plant-microbe interactions in relation to sustainable agriculture. Attendees will learn about the functions of plant microbiomes while networking with other researchers to foster and strengthen collaborations between diverse research groups across sectors. Having an in-depth symposium on plant microbiology and its relation to sustainable agriculture will increase participation from researchers in this area.



Direct Detection of Sepsis Pathogens from Blood: What Are We Waiting for?

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Linoj Samuel**

Speakers: **Rajesh Krishnamurthy, Valeria Fabre**

This session would discuss the challenges facing development of direct from blood sepsis diagnostics. Despite the fact that there is a pressing need for better methods to detect bloodstream pathogens, there is only one FDA approved assay for this purpose and none that are widely used. This session would include lab directors and industry scientists to discuss the challenges both in sepsis diagnosis and in the development of better tools to directly detect pathogens in blood during sepsis. Speakers would address the clinical needs, practical laboratory challenges, technical challenges, clinical/cost justification and hurdles that currently hold back development/adoption. The session could conclude with a short panel discussion to address audience questions.



Microbiological Perspectives on Gender-Affirming Care, STIs, and Health Disparities










1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Sarah Wondmeneh**

Speakers: **Sarah Wondmeneh, Adam Burgener, Jessica Prodger**

For many transgender and gender-diverse people, the onset of genital symptoms marks the start of numerous clinic appointments, inconclusive culture results and treatment based on research conducted in people with different anatomies, gender identities and hormone levels (i.e., cisgender people). This is because health research—including microbiology research—has historically and systemically excluded transgender and gender-diverse people. Microbiology research that is inclusive of transgender populations is essential to address this health disparity. This session will explore the need for such research and inclusive clinical practices and research.

 AAR Antimicrobial Agents and Resistance	 AES Applied and Environmental Science	 CIV Clinical Infections and Vaccines	 CPHM Clinical and Public Health Microbiology	 EEB Ecology, Evolution and Biodiversity	 HMB Host-Microbe Biology	 MBP Molecular Biology and Physiology	 POM Profession of Microbiology	 Additional Fee
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Sunday Schedule (continued)

SUNDAY, JUNE 16



Hot off the Bench: Research from Trainees in Clinical Microbiology

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Carey-Ann Burnham**

One of the primary reasons to attend ASM Microbe is to gain knowledge on state-of-the-art diagnostic methods for the clinical laboratory. Trainees in clinical microbiology, such as CPEP fellows, are frequently the individuals conducting this state-of-the-art research. This research may be focused on a number of topics, such as laboratory process improvement, evaluation of new diagnostic methods, or investigation of the epidemiology or virulence of pathogenic microbes that infect humans. This is a fast-paced session where outstanding abstracts from trainees, representing high quality work relevant to clinical microbiology will be presented. This session will provide trainees with a wonderful opportunity to network and celebrate their work, and it benefits ASM Membership to hear about the advances in the field being developed by these trainees.



Little Things Cause Big Trouble in Developing Brains: Emerging and Re-merging Viral CNS Infections in Children

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Benjamin Liu**

Speakers: **Benjamin Liu, Rangaraj Selvarangan**

Recent decades have witnessed the emergence and re-emergence of numerous medically important viral pathogens that can cause CNS infections in children, including Zika virus, West Nile virus, enteroviruses and human parechoviruses. Viral invasion into CNS, especially in neonates, can cause meningitis, encephalitis, and long-term neurodevelopmental sequelae. Rapid and accurate detection of these viruses from CSF is essential for diagnosis of CNS diseases and for preventing inappropriate and costly treatments. Conventional microbiology/virology methods play an important role in routine diagnosis of CNS infections. Multiplex meningitis/encephalitis panels and metagenomic next-generation sequencing assays for pan-pathogen detection have been demonstrated as useful additions to a suite of molecular assays for detection of viral pathogens in CSF. However, there are still a variety of challenges in implementation, utilization and interpretation of these assays in clinical settings. In this session, we will discuss the advances and challenges in the laboratory diagnosis of pediatric viral CNS infections due to emerging and/or re-emerging neurotropic viruses. We will also analyze unmet needs in this field and discuss future directions towards optimization of the laboratory diagnosis of pediatric CNS infections due to these viruses.



Cyanobacteria in Marine and Terrestrial Systems: From Genomes to Biocrusts to Blooms

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Conveners: **Daniel Phillips, Mary Ann Bruns**

Speakers: **Estelle Couradeau, Anders Kiledal**

Cyanobacterial biocrusts fix carbon and nitrogen and stabilize surfaces of drylands, which account for more than 40% of Earth's continental area. Biocrusts make dryland systems more resilient to global change, but every minute, up to 23 hectares of vegetated land are subject to desertification. Biocrust coverage is predicted to decline by 25-40% within 60 years, and efforts of biocrust restoration by cyanobacterial inoculation of newly desertified lands are underway. Characterization of biocrusts leads to discovery of new cyanobacterial species and functions to expand our understanding for biocrust restoration.



Drivers, Constraints and Consequences of Microbial Recombination

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Cheryl Andam**

Speakers: **Cheryl Andam, Louis-Marie Bobay**

Genetic recombination allows a microbial cell to acquire novel traits through incorporation of DNA fragments from other organisms into its own genome. The consequences of recombination within and between species are vast. This session will highlight current work and new insights on how various mechanisms of microbial recombination influence standing diversity, niche expansion, emergence and spread of unique phenotypes, rapid adaptive changes, and the nature of speciation and species boundaries. Emphasis will also be placed on the ecological, mechanistic, and adaptive barriers to recombination and how these are overcome.

Sunday Schedule (continued)

SUNDAY, JUNE 16



Integrating in Silico Models in Host-Microbe Biology

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Alison Criss**

Speakers: **Aimee Potter, Ophelia Venturelli**

Systems biology approaches are becoming widely used to better understand microbes in their environments. Genome-scale modeling of microbial physiology and metabolism is one such approach, but to date its application to host-microbe interaction studies has been limited. This in-depth symposium will bring together systems biologists and host-microbe biology experts to showcase how in silico models can reveal new biology about microbes in their host environments. In doing so, this symposium will enable learners from all areas of microbiology and systems biology to gain perspective on this interdisciplinary area of research.



Single Cell Contributions to Host-associated Microbial Community Dynamics

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Ryan Hunter**

Speakers: **Connie Chang, Shumin Tan**

Traditional approaches towards the study of host-pathogen interactions are, by necessity, targeted at the “bulk-level” microbial population. As a result, contributions of individual community members (i.e., single cells) to pathogenesis and how they respond to antimicrobial therapy can be masked by the emergent properties of our complex microbiota. This symposium will highlight novel, high-throughput, and much-needed approaches towards the study of the structural and functional heterogeneity of our microbiota at the level of individual cell, and how a deeper understanding of microbial states in vivo can be exploited therapeutically.



A Coordinated Effort: The Dynamic Inner Lives of Bacterial Cells










1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Gregory Harrison**

Speakers: **Hualiang Pi, Emily Armbruster**

The bacterial cell was once considered to be a bag of enzymes devoid of order or organization. Decades of work have challenged this notion, revealing that subcellular organization governs a myriad of fundamental processes in bacteria, including cell division, metabolism, and stress responses. With our speakers we will examine how bacteria coordinate multiple subcellular machines to divide, to sporulate, and to respond to their environment. This session will continue to unravel the “bag of enzymes” hypothesis, featuring exciting new discoveries in bacterial cell shape and organization.

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Sunday Schedule (continued)

SUNDAY, JUNE 16



Regulatory RNAs in Bacteria: Prevalent and Relevant

1:45 p.m. – 3:45 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Philip Adams**

Speakers: **Gisela Storz, Michael Gebhardt**

RNA-mediated regulation allows bacteria to quickly adapt to environmental stress conditions, finetune the expression of many different genes, and are critical for pathogenesis. Regulatory RNAs are diverse, both in modes of their biogenesis and action. Broadly, these regulators have been classified into cis- or trans-acting. Cis-acting RNAs are encoded in the 5' untranslated regions (UTRs) of mRNAs and regulate downstream gene expression by altering RNA secondary structure, often by binding metabolic byproducts (riboswitches) or temperature changes (RNA thermometers). Trans-acting RNAs are typically small (less than 300 nt) and base pair with target RNAs to elicit a regulatory effect. This in-depth symposium will highlight new discoveries in bacterial regulatory RNAs and their intricate regulatory mechanisms.



Shifting Industries: Alternative Careers for Clinical Microbiologists

3:15 p.m. – 4:15 p.m.

PANEL DISCUSSION

Moderator: **Andrea Prinzi**

Panelists: **Priyanka Uprety, Allison McMullen, Pushker Raj**

This session will explore the role of clinical and public health expertise within the in vitro diagnostics industry and the importance of scientific collaboration between the clinical, public health, and industry sectors. Experts from clinical microbiology, public health, and industry will discuss considerations and unexpected obstacles of career choices outside the laboratory and the value of microbiology expertise within these roles. Additionally, this session will highlight the role of medical and scientific affairs and how clinical microbiologists in industry can help drive innovation. Finally, public health and in-vitro diagnostic industry collaboration opportunities will be discussed.



Challenges in MIC Testing of New Drugs: Stories from a Public Health Laboratory

4:15 p.m. – 5:15 p.m.

MEET-THE-EXPERT

Speaker: **David Lonsway**

This session will take a case-based approach on understanding the limitations of testing new antimicrobial agents for bacterial isolates. It will provide guidance on validation and verification used for establishing methods for MIC testing on newly approved antibiotics that most clinical laboratories do not routinely test for.



AES Meet the Editor

4:15 p.m. – 5:15 p.m.

MEET-THE-EXPERT

Moderator: **Patrick Videau**

Speaker: **Gemma Reguera**

Attendees will hear updates on new initiatives from ASM publishing and have the chance to interact with ASM journal editors.

Sunday Schedule (continued)

SUNDAY, JUNE 16



The Exciting World of Toxin-Antitoxin Systems

4:15 p.m. – 5:15 p.m.

MEET-THE-EXPERT

Moderator: **Seema Mattoo**

Speaker: **Michael Laub**

Toxin-Antitoxin (TA) systems are ubiquitous genetic modules found in bacteria and archaea, consisting of a toxin that inhibits cell growth and an antitoxin that neutralizes its effects. These systems play crucial roles in stress response, plasmid stabilization, and persistence mechanisms. More recently, roles for TA systems have been identified in promoting bacterial pathogenesis and in phage defense. Combined with the discovery of novel TA systems in previously "dark"/unknown portions of bacterial and archaeal genomes, understanding the precise biological functions of TA systems and their regulatory mechanisms remains a significant challenge.



Swimming in the Time of Cholera: Flagellar Synthesis in *Vibrio cholerae*

4:15 p.m. – 5:15 p.m.

MEET-THE-EXPERT

Moderator: **Pamela Brown**

Speaker: **Karl Klose**

Many bacteria produce flagella that allow them to swim, and motility is typically intimately associated with their lifestyle. *Vibrio cholerae*, the bacteria that cause the life-threatening disease cholera, produce a single flagellum that allows them to swim. *V. cholerae* motility is associated with their ability to cause disease, as well as their ability to form biofilms in the marine environment. How *V. cholerae* (and other *Vibrios*) build a flagellum and how this appendage relates to their ability to cause disease and persist in the environment will be discussed.

Science and Society Lecture with Dr. Peter Hotez

5:30 p.m. – 6:45 p.m.

Moderator: **Jonathan Capehart**

Speaker: **Dr. Peter Hotez**

The ASM Microbe "Science and Society" keynote lecture is a series that highlights the importance of new scientific discoveries and their impact on our community. Through this series, featuring world-renowned speakers and in-depth discussions on cutting-edge topics, ASM will showcase how microbes are essential in our lives and, through innovative technologies, can solve the world's most pressing public health concerns.

At ASM Microbe 2024, MSNBC's Jonathan Capehart will take the stage to moderate the annual Science & Society Keynote with renowned scientist Dr. Peter Hotez.

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Monday Schedule

MONDAY, JUNE 17



Advancements in Antibody-Based Therapies Against Multidrug Resistant Pathogens

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Jacinda Abdul-Mutakabbir**

Speaker: **James Crowe**

This session will be focused on the development and eventual utilization of vaccines against multidrug resistant pathogens, including non-fermenting organisms.



New Insights into Molecular Mechanisms of AMR

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Peter Stogios**

Speakers: **Daniel Wilson, Timothy Barnett**

Elucidation of the molecular mechanisms of antimicrobial resistance (AMR) is important for fundamental/basic understanding of this phenomenon, tracking and surveillance of resistance determinants, understanding of the liabilities of antimicrobials in terms of resistance, and discovery of new antimicrobials.

In recent years, important advances have been made in the elucidation of the action of multiple classes of AMR proteins, including the ribosome-acting ABC-F family and 16S methyltransferase family of proteins, and anti-folate resistance proteins.

In this symposium, speakers will discuss their work on discovery and characterization of mechanisms of AMR. The approaches and perspectives include biochemistry, structural biology, molecular biology, chemistry and genomics. The speakers were selected from their recent high-profile papers in this field which have provided fundamental insights into mechanisms of resistance to a diverse set of antibacterials.



Harnessing Microbes for Sustainability in Mining

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Michaeline Albright**

Speakers: **Na Wei, N. Cecilia Martinez-Gomez**

The mining industry is facing unique challenges that require creative solutions. Renewed focus on mitigating global climate change is increasing pressure for “green” energy and driving market demand for the raw materials needed to provide products such as steel and batteries. Concurrently, societal, and regulatory pressures for providing these raw materials with less environmental impact than conventional methods are at an all-time high. As the rate of advance of chemical and physical technologies wanes, biology is emerging as the new frontier for solutions in the mining industry. In this session, we will explore the potential for microbiology to mitigate waste and create value in mining applications ranging from metal recovery to impurity removal to bioleaching to carbon dioxide sequestration.



Diagnostic Parasitology: Best Practices and Future Directions

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Marc Couturier**

Speakers: **Anisha Misra, Blaine Mathison, Marc Couturier**

Diagnostic parasitology is a critically important part of the clinical microbiology laboratory. Many laboratories have conceded to relegating this testing menu to regional or national reference labs, especially after experiencing staffing losses post-COVID. An unfortunate result of these realities is collectively: decreasing visibility and expertise in parasitology, a drift toward decreased knowledge and errors, lack of understanding of best practices, and decreasing general awareness of parasitic diseases. This session will take a deep dive into notable parasitic diseases in the United States and beyond, with a focus on best practices, common mistakes made by non-experts, and future advancements and modifications that can help more labs to reengage with the fine art of parasite detection. Specific areas of focus will be gastrointestinal parasites, blood parasites, gross helminths and arthropods. New and underutilized technologies will be discussed such as multiplex NAAT testing, sequencing, histopathologic identification, and artificial intelligence/machine learning using image analysis.

Monday Schedule

MONDAY, JUNE 17



Immune Responses to Viral Vaccine Platforms: Comparison of Live, mRNA, and Protein Subunit Vaccines

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Michael Lieberman**

Speakers: **Beth-Ann Collier, Norbert Pardi, Axel Lehrer**

Recent events have placed a spotlight on viral vaccines and the various platforms used. This session will provide an in-depth analysis of the humoral and cell-mediated immune responses, the durability of the immune responses, and the potential immune correlates of protection elicited by each vaccine platform. At the conclusion of the session the attendees should have knowledge of the advantages and limitations of each platform relative to the others.



Microbial Nutrient Encryption

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Will Ludington**

Speakers: **Darcy McRose, Zachary Hallberg**

Encryption makes information available only to those with the decoding key. Microbes, living in a chemical environment, encrypt nutrients, thereby making them available only to those with the decoding enzymes, such as their kin. Examples of encrypted nutrients include cobamides, which are expensive to make and valuable for microbial fitness. Hosts also encrypt nutrients to encourage desirable colonizers. For instance, plant root exudates and breast milk oligosaccharides encourage beneficial microbes. This session will explore different examples of nutrient encryption in microbial communities and host contexts.



Our Microbial Organ: Impact of Microbiota Metabolites in Host Health

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Mariana Byndloss**

Speakers: **Wenhan Zhu, Elizabeth Johnson**

Our microbial organ, the gut microbiota, plays a critical role in supporting host health. This session will shed light into how microbiota-derived metabolites affect host immune status, early-life development, and commensal colonization resistance against enteric pathogens. Additionally, the session will focus on factors that may determine whether a microbiome-based therapy will be successful.

AAR	AES	CIV	CPHM	EEB	HMB	MBP	POM	Additional Fee
Antimicrobial Agents and Resistance	Applied and Environmental Science	Clinical Infections and Vaccines	Clinical and Public Health Microbiology	Ecology, Evolution and Biodiversity	Host-Microbe Biology	Molecular Biology and Physiology	Profession of Microbiology	

Monday Schedule

MONDAY, JUNE 17



Welcome to The Jungle: Microbial Interactions in Polymicrobial Communities

8:15 a.m. – 10:15 a.m.

IN-DEPTH SYMPOSIUM

Convener: **Sheyda Azimi**

Speakers: **Jessica Mark Welch, Rosana Ferreira**

Many bacteria live in dynamic polymicrobial communities. For example, chronic infections are often co-infected with multiple species of bacteria or several lineages that emerged from a single infecting strain. This session will explore how microbial population heterogeneity impacts bacterial physiology and community functions and describe novel approaches to study these communities.



Local Insight, Global Impact: Collaborative Strategies for Clinical Microbiology Laboratory Capacity Building in Resource-Limited Settings

9:15 a.m. – 10:15 a.m.

PANEL DISCUSSION

Moderator: **Rose Lee**

Panelists: **Wes Kim, Justine Michel, Rachel Idowu**

Explore the intersection of local wisdom and international cooperation in 'Local Insight, Global Impact: Collaborative Strategies for Laboratory Capacity Building in Resource-Limited Settings.' This session assembles a panel of three distinguished speakers: Thomas Vidal, a Médecins Sans Frontières field implementer of the Mini-Lab program; Dr. Rachel Idowu, the US Centers for Disease Control Country Director for Liberia; and Wes Kim, Director, Global Public Health Programs for ASM's involvement in global health laboratory capacity development. The discussion will focus on two main themes: identifying the challenges and gaps in resource-limited settings and exploring both existing and needed solutions. Key aspects to be discussed include best practices for capacity building and training and inclusion of local stakeholders, ethical considerations, promotion of interdisciplinary collaboration, and strategies for funding and sustainability. The session will conclude with a Q&A segment, offering attendees the opportunity to engage directly with the panel on these vital issues.



Stress Responses in Microbial Education: Adapting Education for Current and Future Challenges

9:30 a.m. – 2:00 p.m.

MINI-CONFERENCE

Convener: **Roger Greenwell**

Speakers: **Adronisha Frazier, Miriam Segura-Totten, Roger Greenwell**

This mini-conference will serve as a sampling of the ASM Conference on Undergraduate Educators. We will cover curriculum guidelines, student assessment, the challenges posed with undergraduate student research experiences, and increasing STEM literacy. These areas will also be addressed with regard to the impact of artificial intelligence, climate change, and scientific disinformation.

Monday Schedule

MONDAY, JUNE 17



Funding Your Research in Microbiology: Navigating the Federal Grants Application Process

10:30 a.m. – 12:00 p.m.

PANEL DISCUSSION

Moederator: **Rebecca Yee**

Panelists: **Rebecca Burgess, Trisia Shannon, Mamta Rawat**

One of the most difficult steps in developing a sustainable academic career as an investigator in microbiology is understanding the application process to get your lab funded. There are many pathways and grant opportunities from federal agencies that can support your research. This session will provide insights on how to navigate the complexities of the application process and the different pieces needed to obtain funding for your research. Scientific and Program officers will provide the do's and don'ts for a successful grant funding application from federal agencies (NIH and CDC).



Beyond Academia: Fulfilling Microbiology Careers Outside the Tenure Track

10:30 a.m. – 12:00 p.m.

IN-DEPTH SYMPOSIUM

Convener: **Joe James**

Speakers: **Ninecia Scott, Susanna Harris**

It's estimated that 10-30% of PhD recipients will get a permanent position in academia. Often described as "alternative tracks," sectors outside of the tenure track model are where the large majority of graduates make their careers. Despite this, many programs do not have sufficient knowledge or training for these jobs. Our panelists will discuss their paths to success outside academia, and the knowledge and skills they use that aren't always emphasized in academic training.

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