

THE 24<sup>th</sup> INTERNATIONAL  
LAKE ARROWHEAD MICROBIAL GENOMICS CONFERENCE

**SCIENTIFIC PROGRAM**

September 15-19, 2024  
UCLA Conference Center  
Lake Arrowhead, California  
909 / 337-2478

SCIENTIFIC PROGRAM ORGANIZERS

Dr. Jeffrey H. Miller  
University of California, Los Angeles, CA

Dr. Ashlee Earl  
The Broad Institute of MIT and Harvard  
Cambridge, MA

Dr. Jonathan Eisen  
University of California, Davis, CA

Dr. Elisabeth Raleigh  
New England Biolabs, Ipswich, MA

Dr. Elinne Becket  
California State University, San Marcos,  
San Marcos, CA

Dr. Gautam Dantas  
Washington University School of Medicine in St. Louis  
St. Louis, MO

Dr. Tanja Woyke  
DOE Joint Genome Institute, Berkeley, CA

Dr. Rachel Dutton  
Arcadia Science,  
Berkeley, CA

## SCIENTIFIC PROGRAM

### SUNDAY, SEPTEMBER 15

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4:00-6:00 pm      Arrival and Check-in at Lake Arrowhead Conference Center

6:30-8:00 pm      Dinner (Dining Patio)

#### **Opening of Meeting** (Pineview Room)

8:05-8:15          Jeffrey H. Miller  
University of California, Los Angeles  
**“Welcome: Introduction to Arrowhead”**

8:15-8:35          Jonathan Eisen  
University of California, Davis,, CA  
**“Arrowhead and Microbial Genomics”**

8:35-9:05          Nandita Garud  
University of California, Los Angeles, CA  
**“Pervasive selective sweeps within and across human microbiomes”**

9:05-9:35          Katrine Whiteson  
University of California, Irvine, CA  
**“Viva la phage evolution revolution”**

9:35 pm            Social (Lakeview)

### MONDAY, SEPTEMBER 16

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8:00-9:00 AM      Breakfast (Dining Patio)

#### **Opening Session** (Pineview Room)

Session I          **Mining Microbiomes, Microbiomes, and Antibiotics**

Session Chair      Ashlee Earl, The Broad Institute of MIT and Harvard

9:00-9:30 am      Betsy Parkinson  
Purdue University, Lafayette, IN  
**“Utilizing biocatalysis and synthetic chemistry to access new natural products”**

9:30-10:00 am	Colin Worby The Broad Institute of MIT and Harvard, Cambridge, MA <b>“Insights into global microbial dynamics via traveler gut metagenomes“</b>
10:00-10:25 am	Eitan Yaffe Stanford University, Palo Alto, CA <b>“Commensals evolve towards ciprofloxacin resistance following a short course of antibiotics”</b>
10:25-10:40 am	Break
10:40-11:10 am	Egon Ozer Northwestern University, Chicago, IL <b>“The genomic basis of antimicrobial resistance in <i>Pseudomonas aeruginosa</i>”</b>
11:10-11:40 am	Ami S. Bhatt Stanford University, Palo Alto, CA <b>“From precision microbial genomics to precision medicine”</b>
11:40-12:05 am	Paul Orwin University of the Pacific, Stockton, CA <b>“Rooting for the antihero: Toxin-Antitoxin systems in <i>Variovorax</i> genome evolution and biofilm formation”</b>
12:05 pm	Lunch (Dining Patio) Free Time
4:00-6:00 pm	Poster Session I (Lakeview Room and Outdoors) Social/Mixer (Lakeview Room and Outdoors)
6:30-8:00 pm	Dinner (Dining Patio)
<b>Session II</b>	<b>Microbial Diversity, Marine Microbiomes</b> (Pineview Room)
Session Chair	Rachel Dutton, Arcadia Science
8:05-8:35 pm	Maggie Sogin University of California, Merced, CA <b>“Leveraging omics to uncover the role of marine microbiomes”</b>

- 8:35- 9:00 pm Alexander Chase  
Southern Methodist University, Dallas, TX  
**“Chemical ecology mediates microbial interactions and governs community structure in marine sediment communities”**
- 9:00-9:15 pm Break
- 9:15-9:35 pm Michael Weinstein  
Zymo Research Corporation, Tustin, CA  
**“Quantifying and managing bias in microbiome analyses”**
- 9:35 pm Reception  
(Dining Patio)

## **TUESDAY, SEPTEMBER 17**

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- 8:00-9:00 am Breakfast (Dining Patio)
- Session III                      Microbial communities; diversity**
- Session Chair                      Gautam Dantas, Washington University School of Medicine
- 9:00-9:30 am Chris Robinson  
Indiana University, Bloomington, IN  
**“Missed Connections: exploring MGE host range variability in the honey bee gut microbiome”**
- 9:25-9:50 am Lilian Caesar  
Indiana University, Bloomington, IN  
**“Her royal phages: dynamics of honey bee queen microbiome and its mobilome under stress”**
- 9:50-10:15 am Daniel Sprockett  
Cornell University, Ithaca, NY  
**“Recent genetic drift in the co-diversified gut bacterial symbionts of laboratory mice”**
- 10:15-10:35 am Break
- 10:35-11:05 am Sydney I. Glassman  
University of California, Riverside, CA  
**“Unraveling the traits that enable microbes to thrive post-fire”**

11:05-11:30 am	Georgia Doing The Jackson Laboratory, Bar Harbor, ME <b>“Wrangling genetic and transcriptomic diversity in skin staphylococci”</b>
11:30-11:50 pm	Ivan Liachko Phase Genomics, Seattle, WA <b>“Leveraging a global scale atlas of phage host range to discover novel precision antimicrobials”</b>
12:00 pm	Lunch (Dining Room) Free Time
4:00-6:00 pm	Poster Session (Lakeview Room and Outdoors) Social/Mixer (Lakeview Room and Outdoors)
6:30-8:00 pm	Dinner (Dining Patio)
<b>Session IV</b>	<b>Viral Genome Analysis</b>
Session Chair	Rachel Dutton, Arcadia Science
8:05-8:35 pm	Simon Roux Joint Genome Institute/LBL, Walnut Creek, CA <b>“20 years of viral metagenomics: lessons learned and new perspectives for the next 20”</b>
8:35-9:00 pm	Dallas Mould Yale University, New Haven, CN <b>“Genomic and environmental landscape of bacteriophage efficacy”</b>
9:00-9:15 pm	Break
9:15-9:40 pm	Amit Sinha New England Biolabs, Ipswich, MA <b>“Cappable-Seq technology facilitates the study of meta-transcriptomes and discovery of RNA viruses from the deer tick <i>Ixodes scapularis</i>”</b>
9:40 pm	Reception (Lakeview, Dining Patio)

## WEDNESDAY, SEPTEMBER 18

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8:00-9:00 am Breakfast (Dining Patio)

**Session V Gut, oral microbiomes and their impact**

Session Chair Tanja Woyke, DOE Joint Genome Institute

9:00 - 9:30 am Angela Poole  
Cornell University, Ithaca, NY  
**“Predicting oral and gut microbiota response to carbohydrate consumption”**

9:30-10:00 am Drew Schwartz  
Washington University, St. Louis, MO  
**“Pediatric gut microbiome development and disruption”**

10:00-10:25 am Vanja Klepac-Ceraj  
Wellesley College, Wellesley, MA  
**“The gut microorganisms and their genes are linked with cognition and brain structure in healthy children”**

10:25-10:40 am Break

**Evolution**

10:40-11:10 am Luis Zaman  
University of Michigan, Ann Arbor, MI  
**“The unreasonable effectiveness of evolution”**

11:10-11:40 am Catlin Papperell  
University of Wisconsin, Madison, WI  
**“Low and slow: experimental evolution of difficult bacteria”**

11:40-12:05 pm Anne Farrell  
Dartmouth College, Hanover, NH  
**“Hot genes, cool histories: bacterial adaptation to temperature”**

12:05 pm Lunch (Dining Patio)  
Free Time

**Session VI Viruses, genome evolution**

Session Chair Elinne Becket, California State University San Marcos

4:30-5:00 pm	Laura Hug University of Waterloo, Ontario, Canada <b>“Municipal landfills are hotspots of viral diversity and unusual virus-host dynamics”</b>
5:00-5:30 pm	Pedro Leão Radboud University, Nijmegen, Netherlands <b>“Virus influence on Asgard Archaea genome evolution”</b>
5:30-5:50 pm	TBA Atrandi Biosciences, Denver, CO <b>“TBA”</b>
5:50 – 6:15	Award Presentations
6:30-8:00 pm	Dinner (Dining Patio)
Session VII	<b>Ecology, diversity, bioengineering</b> (Pineview Room)
Session Chair	Elinne Becket, California State University San Marcos
8:00 -8:30 pm	Steven Hallam University of British Columbia, Vancouver, Canada <b>“Restructuring cyanobacterial metabolism for circular carbon capture and conversion”</b>
8:30-8:50 pm	Daniel Portik Pacific Biosciences, Menlo Park, CA <b>“Into the unknown: Genome-resolved metagenomics of soil using PacBio HiFi sequencing”</b>
8:50-9:15 pm	Grace Morales Vanderbilt University, Nashville, TN <b>“50 shades of yellow: Leveraging Urine-isolated <i>E. coli</i> diversity to quantify complex bacterial phenotypes”</b>
9:20pm	Reception/Lakeview (Dining Patio)

#### **THURSDAY, SEPTEMBER 19**

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8:00-9:00 am	Breakfast (Dining Patio)
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<b>Session VIII</b>	(Pineview Room)
Session Chair	Elisabeth Raleigh, New England Biolabs
9:-9:25 am	Grace Solini California Institute of Technology, Pasadena, CA <b>“Antimicrobial resistance in hospital wastewater: a systems level approach to decipher gene transfer at the interface of human and environmental microbiota”</b>
9:25 – 9:50 am	Hamza Hajama San Diego State University, San Diego, CA <b>“Genetic Response of <i>Achromobacter xylosoxidans</i> phage therapy in a CF patient”</b>
9:55-10:15 am	Closing remarks, summary
10:15-10:30 am	Checkout
10:30 am	Loading of first bus for LAX
10:45 am	Departure of bus for LAX
12:00 pm	Lunch
1:00 pm	Departure of second bus for LAX