

THE 24th 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
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Dr. Jonathan Eisen
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Dr. Elisabeth Raleigh
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Dr. Elinne Becket
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San Marcos, CA

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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



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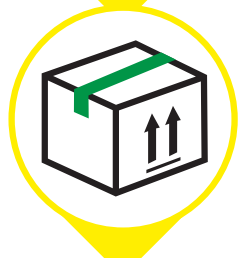


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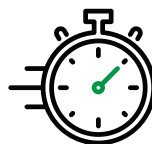


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SCIENTIFIC PROGRAM

SUNDAY, SEPTEMBER 15

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

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
“Insights into global microbial dynamics via traveler gut metagenomes“

10:00-10:25 am Eitan Yaffe
Stanford University, Palo Alto, CA
“Commensals evolve towards ciprofloxacin resistance following a short course of antibiotics”

10:25-10:40 am Break

10:40-11:10 am Egon Ozer
Northwestern University, Chicago, IL
“The genomic basis of antimicrobial resistance in *Pseudomonas aeruginosa*”

11:10-11:40 am Ami S. Bhatt
Stanford University, Palo Alto, CA
“From precision microbial genomics to precision medicine”

11:40-12:05 am Paul Orwin
University of the Pacific, Stockton, CA
“Rooting for the antihero: Toxin-Antitoxin systems in *Variovorax* genome evolution and biofilm formation”

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)

Session II **Microbial Diversity, Marine Microbiomes**
(Pineview Room)

Session Chair Rachel Dutton, Arcadia Science

8:05-8:35 pm Maggie Sogin
University of California, Merced, CA
“Exploring the interactions between seagrasses and their microbiomes”

- 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

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

WEDNESDAY, SEPTEMBER 18

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

THURSDAY, SEPTEMBER 19

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

Session VIII	(Pineview Room)
Session Chair	Elisabeth Raleigh, New England Biolabs
9:-9:25 am	Grace Solini California Institute of Technology, Pasadena, CA “Antimicrobial resistance in hospital wastewater: a systems level approach to decipher gene transfer at the interface of human and environmental microbiota”
9:25 – 9:50 am	Hamza Hajama San Diego State University, San Diego, CA “Genetic Response of <i>Achromobacter xylosoxidans</i> phage therapy in a CF patient”
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