

THE 21<sup>st</sup> INTERNATIONAL  
LAKE ARROWHEAD MICROBIAL GENOMICS CONFERENCE

**SCIENTIFIC PROGRAM**

September 18-22, 2016  
UCLA Conference Center  
Lake Arrowhead, California  
909 / 337-2478

**SUNDAY, SEPTEMBER 18**

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

6:15-7:45 pm      Dinner (Dining Room)

**Opening of Meeting (Pineview Room)**

8:00-8:05 pm      Ashlee Earl  
The Broad Institute of MIT and Harvard, Cambridge, MA  
**“Welcome”**

8:05-8:25 pm      Jeffrey H. Miller  
University of California, Los Angeles, CA  
**“Introduction to Arrowhead”**

8:25-9:00 pm      Jonathan Eisen  
University of California, Davis, CA  
**“Arrowhead and Microbial Genomics; Update on the Tree of Life”**

9:00 pm            Reception (Iris Room)

**MONDAY, SEPTEMBER 19**

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7:45-8:30 am      Breakfast (Dining Room)

**Opening Session (Pineview Room)**

8:45-9:00 am Introduction/Announcements

**Session I Microbial Communities I: Microbiomes; Biodiversity**

Session Chair Ashlee Earl, Broad Institute MIT and Harvard, Cambridge, MA

9:00-9:30 am Julia Oh  
Jackson Laboratory for Genomic Medicine, Farmington, CT  
**“The Human Skin Microbiome: Metagenomes to Therapeutics”**

9:30-10:00 am Huiying Li  
University of California and The David Geffen School of Medicine  
Los Angeles, CA  
**“The Skin Microbiome”**

10:00-10:30 am Elaine Hsaio  
University of California, Los Angeles, CA  
**“The Gut Microbiome and Human Brain Disease”**

10:30-10:50 am Break

10:50-11:20 am Parag A. Vaishampayan  
Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA  
**“Differences in the Breast Duct Microbiome in Healthy Women Compared to Women with a History of Breast Cancer”**

11:20-11:50 am Tami Lieberman  
Massachusetts Institute of Technology, Cambridge, MA  
**“Microbial Diversification Within Individual People”**

11:50-12:20 am Jessica Mark Welch  
Marine Biological Laboratory, Woods Hole, MA  
**“Spatial Organization of Human Microbiomes at the Micron Scale”**

12:30 pm Lunch (Dining Room)

4:00-6:00 pm Poster Session (Lakeview Room)  
Social/Mixer (Lakeview Room)

6:15-7:45 pm Dinner (Dining Room)

**Session II Pathogens/Antibiotic Resistance/Evolution**

7:45-8:40 pm **Key Note Speaker**

Jeffery F. Miller

University of California and The David Geffen School of Medicine

Los Angeles, CA

**“Accelerated Protein Evolution by Diversity-Generating Retroelements”**

8:40-9:00 pm Break

9:00-9:30 pm

Yonatan Grad

Harvard School of Public Health, Boston, MA

**“The emergence and Spread of Antibiotic Resistant *N. gonorrhoeae* in the US”**

9:30-9:50 pm

Tatum Mortimer

University of Wisconsin, Madison, WI

**“An Ancient Emerging Infection as a Cause of Maternal Sepsis in Late Byzantine Troy”**

**TUESDAY, SEPTEMBER 20**

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7:45-8:30 am Breakfast (Dining Room)

**Session III Metagenomics/Pathogens/Antibiotics /Evolution**

9:00-9:30 am

Esther Singer

DOE Joint Genome Institute, Walnut Creek, CA

**“Metagenomics to reveal correlations between switchgrass ecotypes and their microbial communities”**

9:30-10:00 am

Daria Van Tyne

Harvard Medical School, Boston, MA

**“Changes in Antibiotic Use Drive Enterococcal Evolution During a Hospital Outbreak”**

10:00-10:30 am

Kostas Konstantinidis

Georgia Institute of Technology, Atlanta, GA

**“Toward Microbial Diagnosis Using Metagenomics: A Case of the Runs”**

10:30-10:50 am

Break

- 10:50-11:20 am Stephen Nayfach  
University of California, San Francisco, CA  
**“An Integrated Metagenomics Pipeline for Strain Profiling Reveals Novel Patterns of Transmission and Global Biogeography of Bacteria”**
- 11:20-11:50 am Henry L. Schreiber IV  
Washington University, St. Louis, MO  
**“Regulation is Key – Understanding the Paradox of Genetic Diversity in Uropathogenic *E. coli*”**
- 11:50-12:20 pm Katrine Whiteson  
University of California, Irvine, CA  
**“Microbial Fermentation Products as Indicators and Instigators in Cystic Fibrosis”**
- 12:30 pm Lunch (Dining Room)
- 4:00-6:00 pm Poster Session (Lakeview Room)  
Social/Mixer (Lakeview Room)
- 6:15-7:45 pm Dinner (Dining Room)
- Session IV                      Genome Analysis**
- 7:45-8:15 pm Shuiquan Tang  
Zymo Research Corporation, Irvine, CA  
**“Standardizing Microbiomics – Removing Bias from Sample Collection through Analysis”**
- 8:15-8:45 pm Tanja Woyke  
DOE Joint Genome Institute, Walnut Creek, CA  
**“Identification of Taxonomic Blind Spots Using Single Cell Approaches”**
- 8:45-9:00 pm Break
- 9:00-9:30 pm Adam Phillippy  
National Institutes of Health, Bethesda, MD  
**“How to Compare and Cluster Every Known Genome and Metagenome”**
- 9:30-10:00 pm Lawrence Etweiller  
New England Biolabs, Ipswich, MA  
**“Transcription Start Sites at Single Base resolution in a Model Prokaryote and the Gut Microbiome”**

## WEDNESDAY, SEPTEMBER 21

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7:45-8:30 am Breakfast (Dining Room)

### **Session V Analysis of Microbial Communities: The Built Environment**

9:00 - 9:30 am Rachel Dutton  
University of California San Diego, La Jolla, CA  
**“Genetics and Genomics of the Simple Microbial Communities from Cheese”**

9:30-10:00 am Elizabeth Hénaff  
Weill Cornell Medicine, New York, NY  
**“The Microbiome of the Gowanus Canal, Brooklyn’s Hippest SuperFund”**

10:00-10:30 am Roxana Hickey  
University of Oregon, Eugene, OR  
**“Microbial Interactions Between Humans and the Built Environment”**

10:30-10:50 am Break

10:50-11:20 am David Coil  
University of California, Davis, CA  
**“Microbiology of the Built Environment Network: Building Community and Public Engagement”**

11:20-11:50 am Gautam Dantas  
Washington University School of Medicine, St. Louis, MO  
**“Antibiotic Resistance Reservoirs”**

11:50-12:10 am Alyssa Kent  
University of California, Irvine, CA  
**“Increased Biofilm Formation During Evolution to High Temperature in the Widespread Marine *Roseobacter*”**

12:30 pm Lunch (Dining Room)

### **Session VI Human Genome and Microbiota Products and Elements, Synthetic Biology**

4:30-5:00 pm Michael Fischbach  
University of California, San Francisco, CA  
**“Small Molecules from the Human Microbiota”**

- 5:00-5:30 pm Ilano Britto  
Cornell University, Ithaca, New York  
**“Transmission of Mobile Elements and Microbes in the Human Genome”**
- 5:30-6:00 pm Mary Anne Moran  
University of Georgia, Atlanta, GA  
**“Cryptic Interactions in the Ocean Microbiome”**
- 6:15-7:45 pm Dinner (Dining Room)
- Session VII Genomics, Virus Evolution, Signaling**
- 7:45-8:00 pm **Awards Presentations**
- 8:00 -8:30 pm Pradeep Singh  
University of Washington, Seattle, WA  
**“Population Genomics of Pseudomonas”**
- 8:30-9:00 pm Elodie Ghedin  
New York University, New York, NY  
**“The Human Virome in Lung Dysbioses”**
- 9:00-9:30 pm Chris Waters  
Michigan State University, East Lansing, MI  
**“Elucidating and Targeting Cyclic di-GMP Signaling”**
- 9:30 pm Reception/Party (Iris Room)

**THURSDAY, SEPTEMBER 22**

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- 7:30-8:30 am Breakfast (Dining Room)
- Session VIII SPECIAL LECTURE**
- 9:00-9:30 am Jordan Moberg Parker  
University of California, Los Angeles, CA  
**“Microbiome Course-based Undergraduate Research Experiences Benefit Students and Faculty”**
- 9:30-9:50 am Matthew R. Olm  
University of California, Berkeley, CA  
**“Identical Bacterial Populations Colonize Premature Infant Gut, Skin, and Oral Microbiomes and Exhibit Different *in situ* Growth Rates”**

9:50-10:10 am	Sean Conlan National Human Genome Research Institute, Bethesda, MD <b>“Plasmid Dynamics During Long-Term Colonization with bla<sub>KPC</sub>-positive <i>Klebsiella pneumoniae</i>”</b>
10:15-10:25 am	Closing remarks
10:25-10:50 am	<b>Checkout</b>
11:00 am	<b>Departure of Bus for LAX</b>
12:00 noon	<b>Lunch</b>
1:00 pm	<b>Departure of Bus for LAX</b>