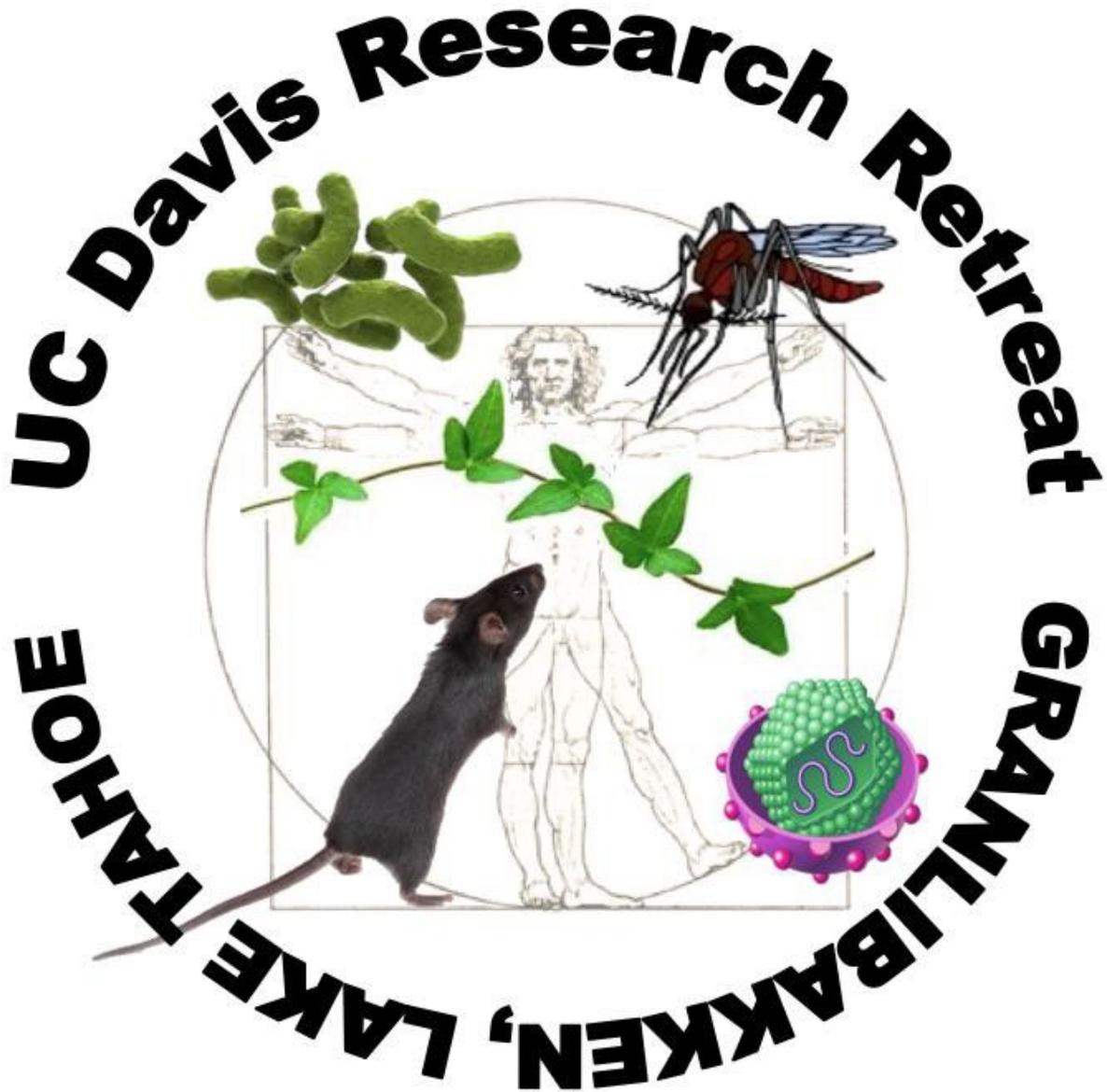


PROGRAM



October 26 to 27, 2023



14th Annual UC Davis Research Retreat on Host Microbe Interaction (HMI)

Granlibakken, October 26-27, 2023

ORGANIZING COMMITTEE

Co-Chairs:



Andreas Bäumler, Ph.D.

Distinguished Professor and Vice Chair of Research, Medical Microbiology and Immunology



Satya Dandekar, Ph.D.

Distinguished Professor and Chair, Medical Microbiology and Immunology



PROGRAM 2023 UC DAVIS HMI RETREAT

October 26

12 p.m. Opening Reception and Lunch (Granhall)

1-3 p.m. Scientific Session 1 (Mountain-Lake Conference Room)

Moderator: Renée Tsois, Medical Microbiology, and Immunology and Chair of the Microbiology Graduate Group

1 p.m. Opening Address

1:10-1:30 p.m. Dennis Hartigan-O'Connor

Department of Medical Microbiology and Immunology
School of Medicine

Title: SIV clearance from neonatal macaques following transient CCR5 depletion

1:40-2 p.m. Melanie Gareau

Department of Anatomy, Physiology and Cell Biology
School of Veterinary Medicine

Title: The role of Nod-like receptors in modulating the microbiota-gut-brain axis following neonatal bacterial infection

2:10-2:20 p.m. Matthew Muramatsu (Sebastian Winter ab)

Department of Medicine, Division of Infectious Diseases
School of Medicine

Title: Metabolism of the Gut Microbiota during Health and Disease

2:25-2:35 p.m. Aurore Demars (Renée Tsois lab)

Department of Medical Microbiology and Immunology
School of Medicine

Title: *Salmonella* Typhi: In search of a mouse model

2:40 – 2:50 p.m. **Alana Nguyen** (Stephen McSorley lab)
Department of Anatomy, Physiology and Cell Biology
School of Veterinary Medicine
Title: Systemic immunity protects against mucosal *Salmonella* infection

3-3:30 p.m. Coffee Break

3:30-5 p.m. Scientific Session 2 (Mountain-Lake Conference Room)

Moderator: Sebastian Winter, Medicine

3:30-3:50 p.m. **Maneesh Dave**
Department of Medicine, Division of Gastroenterology and Hepatology
School of Medicine
Title: IBD preclinical models: therapeutics and disease modeling

4-4:10 p.m. **Jee-Yon Lee** (Andreas Baumler lab)
Department of Medical Microbiology and Immunology
School of Medicine
Title: Host-induced nitrate enhances microbiota-derived uremic toxins in chronic kidney disease

4:20-4:30 p.m. **Dylan Relyea** (Satya Dandekar lab)
Department of Medical Microbiology and Immunology
School of Medicine
Title: Microbial Postbiotics Repair Virally Damaged Gut Epithelium *in vivo* Through Epigenetic Regulation

4:40-4:50 p.m. **Ramona Abbattista** (Abhaya Dandekar lab)
Department of Plant Biology and Plant Sciences
College of Biological Sciences
Title: Host induced bioactive lipids as pivotal mediators of immunity against fungal infections

5-5:40 p.m. Break

Set-up for poster session

5:40-6:40 p.m. AMID T32-sponsored Keynote Lecture

Moderator: AMID T32 Fellow **Alana Nguyen** (Stephen McSorley lab)

Manuela Raffatellu

University of California San Diego

Title: New insights on mucosal immunity to *Enterobacteriaceae*

6:45-8 p.m. Dinner (Granhall)

8-9:30 p.m. Poster Session (Bay Room)

9:30-12 p.m. Social (Ski Hut)

October 27

7:30-8:45 a.m. Breakfast (Granhall)

8:45-10:30 a.m. Scientific Session 3 (Mountain-Lake Conference Room)

Moderator: Satya Dandekar, Chair, Medical Microbiology and Immunology

8:45-9:05 a.m.

Hannah Savage

Department of Pathology, Microbiology and Immunology

School of Veterinary Medicine

Title: Replacing Microbiota-derived Signals to Restore a Healthy Gut Environment

9:10-9:30 a.m.

Steven J McElroy

Department of Pediatrics, Division of Neonatology

School of Medicine

Title: The importance of Paneth cell biology in maintaining homeostasis of the immature intestine

9:35-9:55 a.m.

Allison Ehrlich

Department of Environmental Toxicology

College of Agricultural and Environmental Sciences

Title: Aryl hydrocarbon receptor-microbiota interactions link environmental surveillance and immune regulation in NOD mice

10-10:10 a.m.

Eric Nonnecke (Charles Bevins Lab)

Department of Medical Microbiology and Immunology

School of Medicine

Title: Remodeling of the maternal intestine during lactation: a physiological model to explore host-microbe interactions

10:15 -10:25 a.m.

Emel Akdogan (Sean Collins lab)

Department of Microbiology and Molecular Genetics

College of Biological Sciences

Title: Genome-Wide CRISPR/Cas9 Screens Reveal Multiple Endocytic Pathways for the Chemoattractant Receptor FPR1 in a Human Neutrophil Model

10:30 -11 a.m. Coffee Break

11 a.m.-12:35 p.m. Scientific Session 4 (Mountain Conference Room)

Moderator: Johan Leveau, Plant Pathology

11-11:10 a.m. Awards for poster presenters

11:10-11:30 a.m. **Jonathan Eisen**

Department of Evolution and Ecology

College of Biological Sciences

Title: TBD

11:35-11:55 a.m. **Priya Shah**

Department of Chemical Engineering

College of Engineering

Department of Microbiology and Molecular Genetics

College of Biological Sciences

Title: Let's get physical: flavivirus-host protein interactions in replication and disease

12-12:10 p.m. **Tina Truong** (Bennett Penn lab)

Department of Medicine, Division of Infectious Diseases

School of Medicine

Title: Investigating CBL-dependent regulation of innate immunity during *M. tuberculosis* infection

12:15-12-35 p.m. **David Mills**

Department of Food Science and Technology

College of Agriculture and Environmental Sciences

Title: The lessons of weaning: Synbiotic strategies to promote health

12:40-2 p.m. Lunch (Granhall)

POSTER SESSION (Lake Room - 8-9:30 p.m.)

Thank you to our Poster Judges

Derek Bays
Hirota Hiyoshi
Matthew Kazuyuki Muramatsu
Eric Nonnecke
Bennett Penn

SIZE OF POSTER BOARDS: 4'x8'; POSTER SIZE: 4'x4'

SET-UP FOR POSTER SESSION, October 26 - 5:10 – 5:40 p.m.

POSTER JUDGING: 8:15 – 9:15. Judges have five minutes per poster for judging – please be on time and prepared for a five minute or less poster presentation with assigned judge

Abby Ray, Mtb-human protein-protein interactions modulate bacterial virulence and host immune responses

Adam Fishburn, Assessing the role of the NS4A-ANKLE2 interaction in Zika virus replication

Alana Nguyen, Systemic immunity protects against mucosal *Salmonella* infection by inducing hepatic tissue resident memory (TRM) CD4 T cells

Alfredo 'Freddy' Chavez-Arroyo, Mechanisms of *E. coli*-mediated colonization resistance to *Salmonella* Typhimurium

Anais Larabi, Sulfur metabolism enables *S. Typhimurium* to compete more successfully with close relatives during gut inflammation

Andrew Rogers, *Salmonella* Typhimurium Expands in the Large Intestine prior to Microbiota Remodeling by Employing a Fermentative Metabolism

Brianna Ramirez, SARS-CoV-2 Infection Dynamics in Transgenic B6.Cg.Tg(K18-hACE2) and Wildtype C57BL/6 Mice

Clancy Lee, Displaying HIV Fusion Peptide on Resurfaced Adenovirus Capsids

Clarisa Martinez, Microbiome-AhR interactions underlying AhR-mediated CD4+ T cell differentiation

Dino Sbardellati, Characterizing the bacteriophage of honey and bumble bee gut symbionts

Dylan Lanser, Applying a 3D Blood-Brain Barrier Organoid Model to Investigate Dissemination of *Cryptococcus neoformans* to the Central Nervous System

Eduardo Ruiz, Modeling the effect of leaf surface nutrient distribution on bacterial population growth

Felipe Rodriguez, Determining how the detection of *Toxoplasma gondii* by human PBMCs leads to the production of interferon gamma

Gillian Bergmann, Overlap between stigma and seed bacterial communities of watermelon (*Citrullus lanatus*)

Jefferson Breitenbuecher, The role of alveolar macrophages in the pathogenesis of chronic lung diseases in aging populations and HIV-infected individuals using a Rhesus macaque model

POSTER SESSION (Lake Room - 8-9:30 p.m.)

Thank you to our Poster Judges

Derek Bays, Medical Microbiology and Immunology
Hiroataka Hiyoshi, Medical Microbiology and Immunology
Matthew Muramatsu, Internal Medicine, Infectious Diseases
Eric Nonnecke, Medical Microbiology and Immunology
Bennett Penn, Internal Medicine, Infectious Diseases

SIZE OF POSTER BOARDS: 4'x 8'; POSTER SIZE: 4'x 4'

SET-UP FOR POSTER SESSION, October 24 - 3:30 – 6 p.m.

POSTER JUDGING: 8:15 – 9:15. Judges have five minutes per poster for judging – please be on time and prepared for a five minute or less poster presentation with assigned judge

Jiaying Liu, Sustentacular Cell-Specific SARS-CoV2 Infection in Mouse Olfactory Epithelium

Keegan Malany, Interactions Between Aryl Hydrocarbon Receptor and the Microbiome Regulate Intestinal Macrophages and Type 1 Diabetes Disease Progression in Non Obese Diabetic Mice

Kohei Yamazaki, Development of SARS-CoV-2 Vaccine using *Salmonella*

Lauren Radlinski, D-amino acid catabolism powers *Salmonella* Typhimurium persistence in the inflamed gut

Leticia Lazaro-Anton, *Brucella abortus* replication in the placenta takes place primarily in the extracellular space and requires the ability to acquire glucose

Lisa Repetto, Investigating the Genetic Basis of *Ralstonia* Host Range

Mindy Fernandez, Host PKR Inhibition by *Lepiropoxvirus* M156 Protein Inhibitors

Natasha Tanner, *Salmonella* Typhimurium utilization of glycolic and glyceric acid confers a fitness advantage during gut infection

Nathalie Aoun, Adaptive Mechanisms Underlying Plant Colonization by Pathogenic *Ralstonia*

Nick Bates, Investigating mechanisms of stress induced antibiotic tolerance in pathogenic *Mycobacteria*

Patrawin Wanakumjorn, Enhanced antiviral gut mucosal immunity and viral clearance following mesenchymal stem cell therapy in the SIV-infected non-human primate model of HIV/AIDS due to rapid restoration of B lymphoid follicles and NK T cell activation

Paolo Zaini, Loss of epidermal integrity in the walnut-*Phytophthora* interaction triggers oxylipin-mediated inflammatory responses and reprogramming of tyrosine metabolism

Pavel Morales, Elucidating the mechanism by which the *Toxoplasma gondii* effector TgWIP promotes parasite dissemination

Renata Assis, Enhancing rootstock mediated immunity against Pierce Disease in grafted Chardonnay

Scott Mahan, Chemotaxis receptors McpB and McpC promote *Salmonella* growth in the inflamed intestine

POSTER SESSION (Lake Room - 8-9:30 p.m.)

Thank you to our Poster Judges

Derek Bays, Medical Microbiology and Immunology
Hirotaaka Hiyoshi, Medical Microbiology and Immunology
Matthew Muramatsu, Internal Medicine, Infectious Diseases
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POSTER JUDGING: 8:15 – 9:15. Judges have five minutes per poster for judging – please be on time and prepared for a five minute or less poster presentation with assigned judge

Sebastian Perez-Orozco, Systematic analysis of *Enterobacteriaceae* amino acid metabolism during colitis and ileitis

Terza Brostoff, Characterization of a novel feline infectious peritonitis mRNA vaccine in vitro and in vivo

Thaynara Parente de Carvalho, Role of the female reproductive tract microbiota in protection against *Chlamydia trachomatis*

Tina Truong, Investigating CBL-dependent regulation of innate immunity during *M. tuberculosis* infection

Vienna Elmgreen, Investigating the Genetic Basis of *Ralstonia* Phylotype IIB-4 Host Range

Vivian Rojas, Gene Regulation of Tartrate Meta

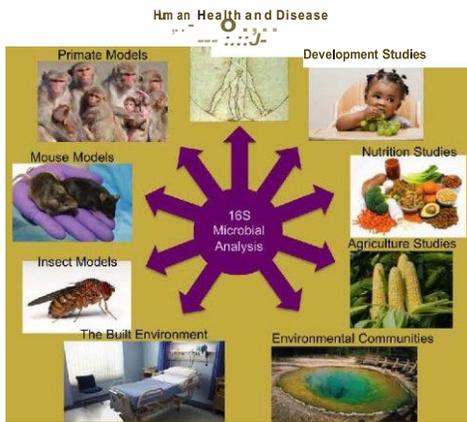
Host-Microbe Systems Biology Core

Department of Medical Microbiology and Immunology, University of California, Davis, CA

ucdmc.ucdavis.edu/medmicro/hmsbcore

530-754-7850

Microbial community analysis of biologically relevant models utilizing high-throughput sequencing

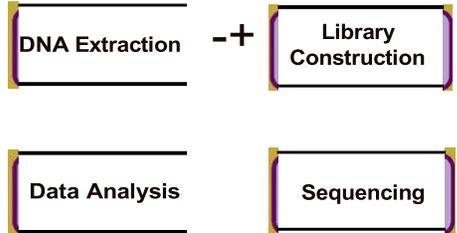


Expertise in DNA extraction methods including low input samples and those with inhibitory elements



- Skin Swabs
- Bronchoalveolar Lavage
- Soil/Environmental
- Gut Contents/Fecal

Complete start to finish workflows including DNA extraction, library preparation, sequencing in collaboration with DNA Tech Core, and preliminary analysis of microbiota



Further analysis options in collaboration with Bioinformatics Core