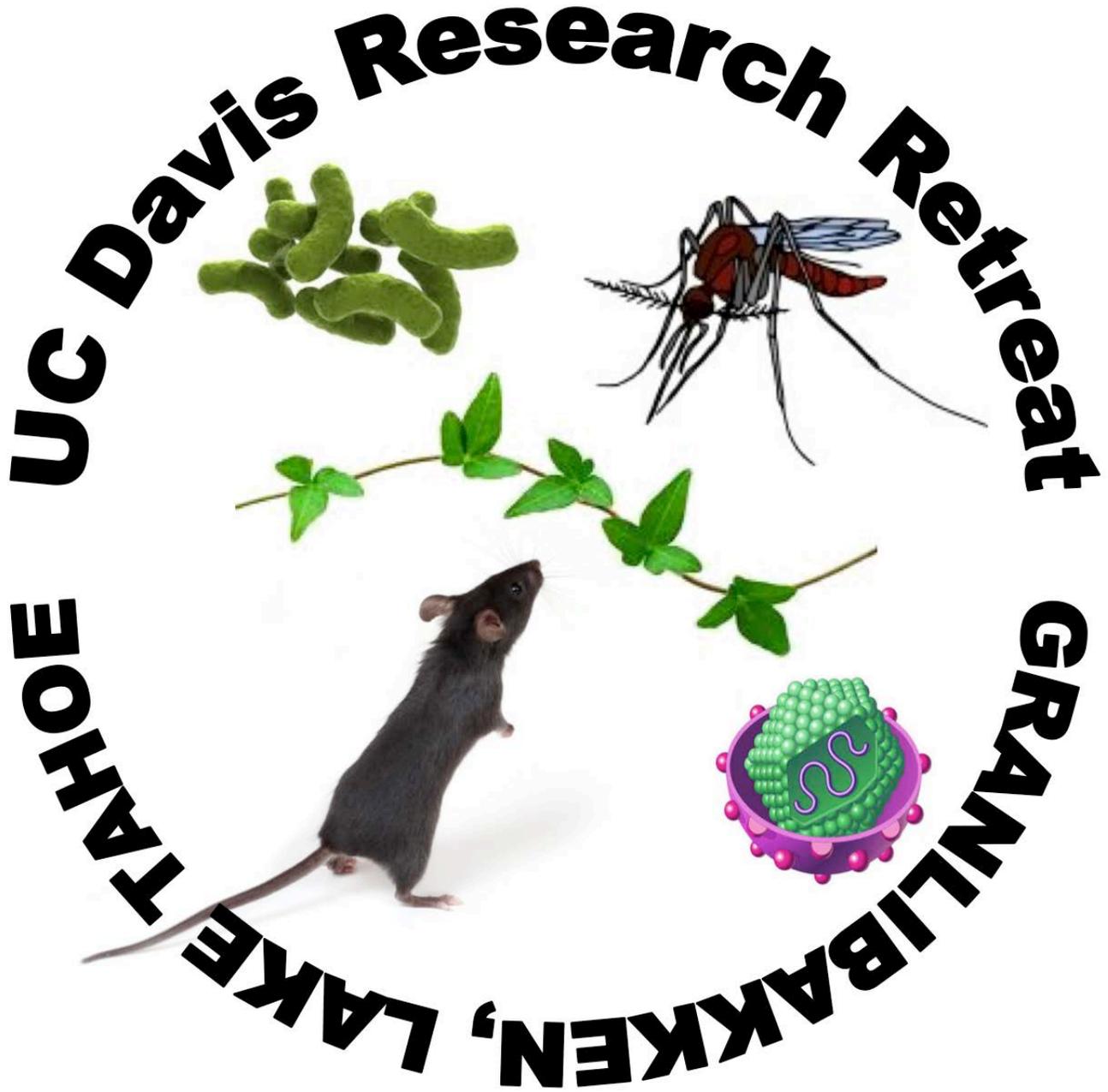


PROGRAM



October 19th to 20th, 2017



***11th Annual UC Davis Research Retreat
on Host Microbe Interaction (HMI)***

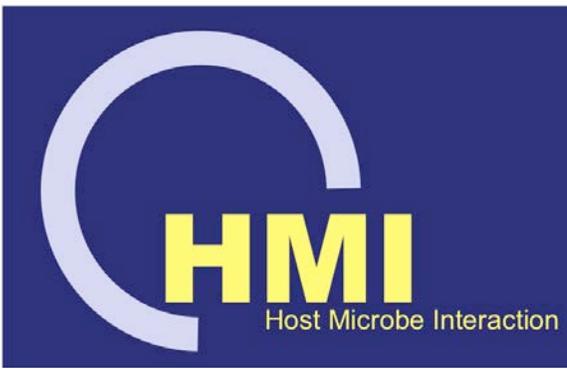
Granlibakken, October 19th-20th, 2017

ORGANIZING COMMITTEE

Co-Chairs:

Andreas Bäumler, Ph.D., Professor and Vice Chair of Research, Medical Microbiology and Immunology

Satya Dandekar, Ph.D., Professor and Chair, Medical Microbiology and Immunology



PROGRAM 2017 UC DAVIS HMI RETREAT

October 19

12:00pm **Opening Reception and Lunch (Granhall)**

1:00-3:15pm **Scientific Session 1 (Mountain – Lake Conference Room)**

Moderator: **Charles Bevins**, *Chair, Graduate Group Immunology*

1:00 **Opening Address**

1:15-1:35 **Colin Reardon**

Department of Anatomy, Physiology and Cell Biology

School of Veterinary Medicine

Title: The contribution of T-cell derived acetylcholine to mucosal immunity

1:40-2:00 **Ishita Shah**

Department of Food Science and Technology

College of Agricultural and Environmental Sciences

Title: Microbial cross-feeding precedes Necrotizing Enterocolitis

2:05-2:15 **April (Jun Yuh) Tsai** (Tsolis lab)

Department of Medical Microbiology and Immunology

School of Medicine

Title: The induction of the unfolded protein response by *Brucella abortus* T4SS effector VceC contributes to killing of trophoblasts

2:20-2:30 **Phylicia Robins** (Gelli lab)

Department of Pharmacology

School of Medicine

Title: The fungal pathogen *Cryptococcus neoformans* invades the human blood-brain barrier via the EPH Pathway

2:35-2:45

Tatiana Paredes-Santos (Saeij lab)

Department of Pathology Microbiology and Immunology

School of Veterinary Medicine

Title: Molecular characterization of the pore forming molecules in the parasitophorous vacuole of *Toxoplasma gondii*

2:50-3:00

Sonia Ghose (Eisen lab)

Department of Evolution and Ecology (Genome Center)

College of Biological Sciences

Title: The effects of experimental inoculation of *Rana sierrae* on the skin microbiome

3:00-3:30pm

Break

3:30-5:30pm

Scientific Session 2 (Mountain - Lake Conference Room)

Moderator: **Nicole Baumgarth**, Department of Pathology, Microbiology and Immunology (Center for Comparative Medicine)

3:30-3:50

Bennett Penn

Department of Medicine, Division of Infectious Diseases

School of Medicine

Title: Mapping of Mtb-Human Protein-Protein Interactions Identifies a Role for the Ubiquitin Ligase CBL in Regulating the Balance Between Macrophage Anti-Viral and Anti-Bacterial Responses

3:55-4:15

Yael Litvak

Department of Medical Microbiology and Immunology (Bäumler Lab)

School of Medicine

Title: Mechanism of *Salmonella* colonization in the newborn gut

4:20-4:30

Elizabeth Hammond (Baumgarth lab)

Department of Pathology Microbiology and Immunology

School of Veterinary Medicine

Title: CD4 T cell dysfunction in *Borrelia burgdorferi* infection

4:35-4:45

Meixiang Zhang (Coaker lab)

Department of Plant Pathology

College of Agricultural and Environmental Sciences

Title: The conserved MAP4 kinase SIK1 stabilizes plant pattern-triggered immunity

4:50-5:00

Cintia Helena Duarte Sagawa (Abhaya Dandekar lab)

Department of Plant Biology and Plant Sciences

College of Biological Sciences

Title: Pathogen-secreted virulence factors: Key players in plant disease development

5:00-5:30pm

Break

5:30-6:30pm

AMID T32-sponsored Keynote Lecture

Moderator: **Greg Walker**, AMID T32 Fellow

5:30-6:30

Eric Skaar

Vanderbilt University

Title: The intersection between nutrition and infection at the host-pathogen interface

6:30-8:00pm

Dinner (Granhall)

8:00-10:30pm

Poster Session (Bay Room)

10:30pm-

Social (Ski Hut)

1:00am

October 20

7:30-9:00am Breakfast (Granhall)

9:00-10:50am Scientific Session 3 (Mountain – Lake Conference Room)

Moderator: **Jay Solnick**, Department of Medicine (Center for Comparative Medicine)

9:00-9:20

Priya Shah

Department of Microbiology and Molecular Genetics

College of Biological Sciences

Title: Comparative flavivirus-host protein interaction mapping reveals novel biopathogenesis

9:25-9:35

Guochun Jiang (Satya Dandekar Lab)

Department of Medical Microbiology and Immunology

School of Medicine

Title: Deep latency of proviral HIV

9:40-9:50

Dustin Heeney (Marco lab)

Department of Food Science and Technology

College of Agricultural and Environmental Sciences

Title: Small peptides with a big future? *Lactobacillus plantarum* bacteriocins and impacts on diet-induced obesity

9:55-10:05

Robert Blundell (Casteel lab)

Department of Plant Pathology

College of Agricultural and Environmental Sciences

Title: Soil health influences tomato resistance to insect vectors of viruses

10:10-10:20

Carly Hennessey (Gareau Lab)

Department of Anatomy, Physiology and Cell Biology

School of Veterinary Medicine

Title: Intestinal Dysbiosis During Neonatal Development Alters the Microbiota-Gut-Brain Axis in Adulthood

10:25-10:35

Esther Rincon-Gila (Collins Lab)

Department of Microbiology and Molecular Genetics

College of Biological Sciences

Title: Systematic analysis of neutrophil chemotaxis by combining CRISPR genetic perturbations with automated live-cell imaging

10:40-11:15am Coffee Break

11:15am-12:30pm Scientific Session 4 (Mountain – Lake Conference Room)

Moderator: **Stephen McSorley**, Department of Anatomy, Physiology and Cell Biology
(Center for Comparative Medicine)

11:15-11:35

Edith Porter

California State University Los Angeles

Title: Antimicrobial Effectors of Epithelial Host Defense

11:40-12:00

Alexander Westermann

University of Würzburg, Germany

Title: Dual RNA-seq unveils noncoding RNA functions in host-pathogen interactions

12:05-12:15

Li-Hung Chen (Stergiopoulos lab)

Department of Plant Pathology

College of Agricultural and Environmental Sciences

Title: Unravelling the molecular basis for the pleiotropic recognition of core effector proteins by single immune receptors

12:20-12:30

Chris Nosala (Dawson lab)

Department of Microbiology and Molecular Genetics

College of Biological Sciences

Title: Giardia sucks: form and function of a parasite attachment organelle

12:35-12:45

Dennis Hartigan-O'Connor (Hartigan O'Connor lab)

Department of Medical Microbiology and Immunology

School of Medicine

Title: Evolution of T Cell Responses to RhCMV-Vectored SIV Vaccine in Previously RhCMV-Negative and -Positive Young Macaques

12:45-2:00pm Lunch (Granhall)

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Poster Judges:

Yael Litvak, Medical Microbiology and Immunology

Melanie Gareau, Anatomy, Physiology and Cell Biology

Hirota Hiyoshi, Medical Microbiology and Immunology

Ishita Shah, Department of Food Science and Technology

Alexander Westermann, Institute for Molecular Infection Biology, Würzburg Germany

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

1. *Comparative analysis of sixty-nine complete Xanthomonadaceae genomes reveals seven effector protein families with diverse adaptive and evolutionary* **Renata Assis**
2. *Regulation of antiviral humoral immunity by secreted IgM* **Rebecca Blandino**
3. *Salmonella Anaerobic β -Oxidation operon (ydiQRSTD) confers a fitness advantage in vivo* **Denise Bronner**
4. *Epithelial hyperplasia links Western Diet and dysbiosis* **Austin Byndloss**
5. *Microbiota-activated PPAR- γ signaling inhibits dysbiotic Enterobacteriaceae expansion* **Mariana Byndloss**
6. *PD-1 / PD-L1 Monoclonal Antibody Development for Canine Cancer Therapy* **Jin Wook Choi**
7. *The Growing Feather as an "In Vivo Test Tube": Modification of a Novel Immune Assay for use in Wild Birds* **Andrea DeRogatis**
8. *A Novel Strategies for Multigenerational Silencing on HIV* **Maher Elsheikh and Shuang Hu**
9. *Fungal infections mimicking lung cancer: Development of an antibody-based diagnostic platform for Coccidioidomycosis* **Javier Garcia**
10. *Landscape Genomics of the Vernal Pool Fairy Shrimp (Branchinecta lynchi)* **Samuel Garza**
11. *Typhoidal Salmonella serovars evade the phagocyte respiratory burst through mechanisms acquired by convergent evolution* **Hirota Hiyoshi**
12. *Expansion and antiviral activity of FcR γ -deficient NK cells* **Suyeon Hong**
13. *Microbial Community Analysis of Vascular Tissue in Grapevine* **Aaron Jacobson**
14. *HrpX activates expression of RaxX that mimics a plant peptide hormone in Xanthomonas* **Anna Joe**
15. *Restriction of human gamma interferon response by the protozoan parasite Toxoplasma gondii* **Shruthi Krishnamurthy**
16. *Dissecting Protective Memory After Genital Tract Infection with Chlamydia Muridarum* **Jasmine Labuda**
17. *Animal models to inform clinical research: vitamin A supplementation to combat invasive non-typhoidal Salmonella infection* **Annica Stull-Lane**
18. *Generation of Chlamydia muradarum-specific T-cell receptor retrogenic mice* **Bokyung Lee**
19. *Generation of memory-like NK cells in rhesus following primary RhCMV infection* **Jaewon Lee**
20. *Association of NFATs with enhanced functional activity in human memory-like NK cells* **Tae Hyung Lee**
21. *Different availability of electron acceptors determines discrete niches for Salmonella and E. Coli growth in the gut* **Megan Liou**
22. *The gut microbiome and resistance are significantly altered in cattle during their entire life* **Jinxin Liu**
23. *Generation of memory-like NK cells in bone marrow transplant patients undergoing cytomegalovirus infection* **Weiru Liu**
24. *Type I secretion and processing of a bacterial peptide required to trigger XA21-mediated immunity* **Dee Dee Luu**
25. *Understanding molecular mechanisms of Huanglongbing disease in Citrus through meta-analysis of RNA-seq data* **Federico Martinelli**

26. *Salmonella Typhimurium* consumes GABA in the inflamed mouse gut **Brittany Miller**
27. Identifying the Contribution of Trogocytosis to Pathogenesis and Immune Modulation **Hannah Miller**
28. Mechanism of Salmonella enteritidis colonization in the newborn gut **Henry Nguyen**
29. Enhancing Delivery of Attenuated Salmonella Therapy through Surface Display **Benjamin Nittayo**
30. Glucose, Iron and ER Stress Contribute to Brucella abortus Growth and Pathogenesis in the Placenta **Vladimir Diaz Ochoa**
31. Probing for Antimicrobial Interaction Between Airway Peptides and Lipids **Kevin Parducho**
32. Examining the role of ER stress-induced inflammation during Chlamydia infection **Oanh Pham**
33. NOD Receptors are Important in the Regulation of the Microbiota-Gut-Brain Axis in Mice **Matteo Pusceddu**
34. Enterobacteriaceae Exploit Vacant Carbohydrate Nutrient Niche After Single-Dose Streptomycin Treatment **Erin Olsan**
35. Tolerance to microbial self: investigating antigen-specific T cell responses to a commensal bacteria **Jordan Rixon**
36. Subclinical CMV infection associates with altered host immunity and increased abundance of butyrate-producing microbiota in the outdoor but not in the indoor environment **Clarissa Santo Rocha**
37. Galectin 9 is a novel cytoplasmic sensor for tuberculosis **Isaac Shaker**
38. CagY-dependent regulation of type IV secretion in Helicobacter pylori **Emma Skoog**
39. Infant gut dominance by Bifido bacteria correlates with Reduced antimicrobial resistance gene therapy **Diana Taft**
40. Synergy between milk and probiotics for gastrointestinal health **Cristina Torres Fuentes**
41. T and B cell receptor repertoires during Newcastle Disease Virus infection in chickens **Karen Tracy**
42. The induction of the unfolded protein response by Brucella abortus T4SS effector VceC contributes to killing of trophoblasts **(April) Jun Yuh Tsai**
43. Flucytosine resistance in two Cryptococcus bacillisporus clinical isolates is indirectly mediated by the FCY2-FCY1-FUR1 pathway **Kiem Vu**
44. Malaria reduces colonization resistance to non-typhoidal Salmonella through alterations to the intestinal microbiota **Greg Walker**
45. Dual RNA-seq of pathogen and host **Alexander Westermann**
46. Importance of exuT gene in Glucuronate utilization in E.coli and Salmonella **Bradley Yin**
47. Synergy between probiotic Lactobacillus casei and milk to maintain epithelial barrier integrity **(Miles)Zhengyuan Zhai**
48. Modification of LPS by EptB Inhibits Intelectin Binding and Increases Systemic Inflammation During Salmonella Infection **Lillian Zhang**

DNA Technologies and Expression Analysis Cores

UC Davis Genome Center, Lutz Froenicke

Lab Phone: 530-754-9143

Email: dnatech@ucdavis.edu

website: dnatech.genomecenter.ucdavis.edu

Host Microbe Systems Biology Core

Medical Microbiology & Immunology Department, **Matt Rolston**

Business Phone: 530-754-7850

Email: mrolston@ucdavis.edu

website: www.ucdmc.ucdavis.edu/medmicro/hmsbcore

UC Davis Proteomics Core

UC Davis Genome Center, Brett Phinney

Business Phone: 530-754-9474

Email: bsphinney@ucdavis.edu

website: www.proteomics.ucdavis.edu

DNA Technology and Expression Analysis Cores

dnatech.genomecenter.ucdavis.edu

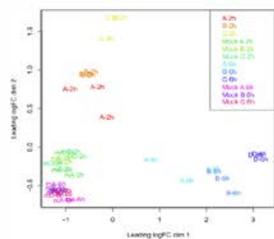
High-Throughput Sequencing and Genotyping with all the options of **Illumina**, **Pacbio**, **10X Genomics** & **Fluidigm** Technologies



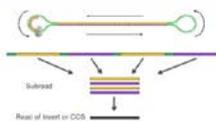
In collaboration with the **Bioinformatics Core**:

- Metagenomic sequencing and analyses
- Finished genome assemblies for bacteria and fungi
- Differential Gene and Transcript Expression analyses

High-throughput expression analysis with 3'-Tag-Seq



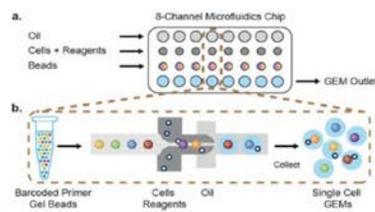
PacBio long-read sequencing for highest quality genome assemblies



In collaboration with the **HMI-Core**:
Coming:
- **Full-length-16S** PacBio sequencing for species level identification from amplicons

RNA-Seq Workshops

Single-Cell RNA-seq (scRNA-seq) 10X Genomics

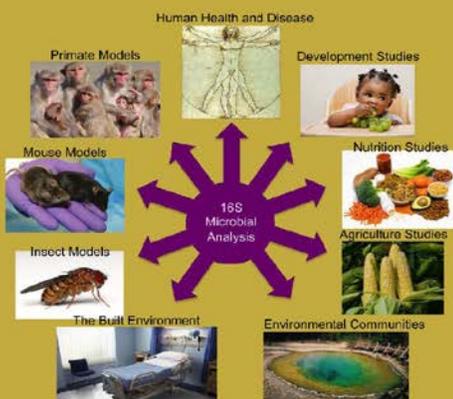


Host-Microbe Systems Biology Core

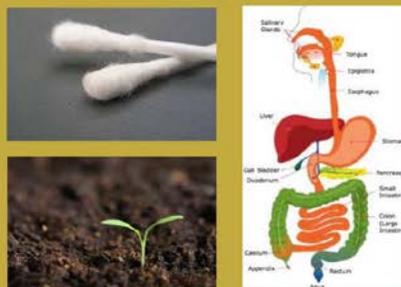
Department of Medical Microbiology and Immunology, University of California, Davis, CA

ucdmc.ucdavis.edu/medmicro/hmsbcore (530) 754-7850

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

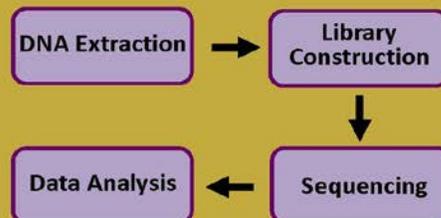


Expertise in DNA extraction methods including low input samples and those with inhibitory elements



- 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

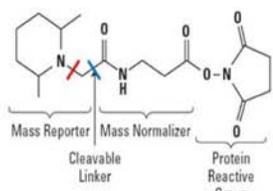


Further analysis options in collaboration with Bioinformatics Core

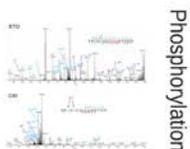
Proteomics Core Facility

UC Davis Genome Center

proteomics.ucdavis.edu Twitter = UCDProteomics



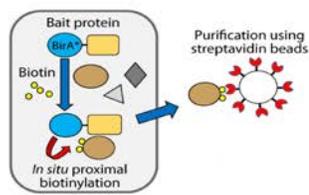
TMT quantitation



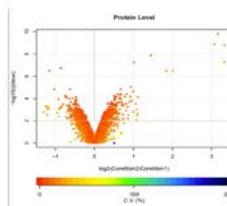
Phosphorylation



N-term sequencing



Proximity labeling
BioID / Apex2



Profiling 1000's of proteins



Amino Acid Analysis

New Equipment



Training classes

