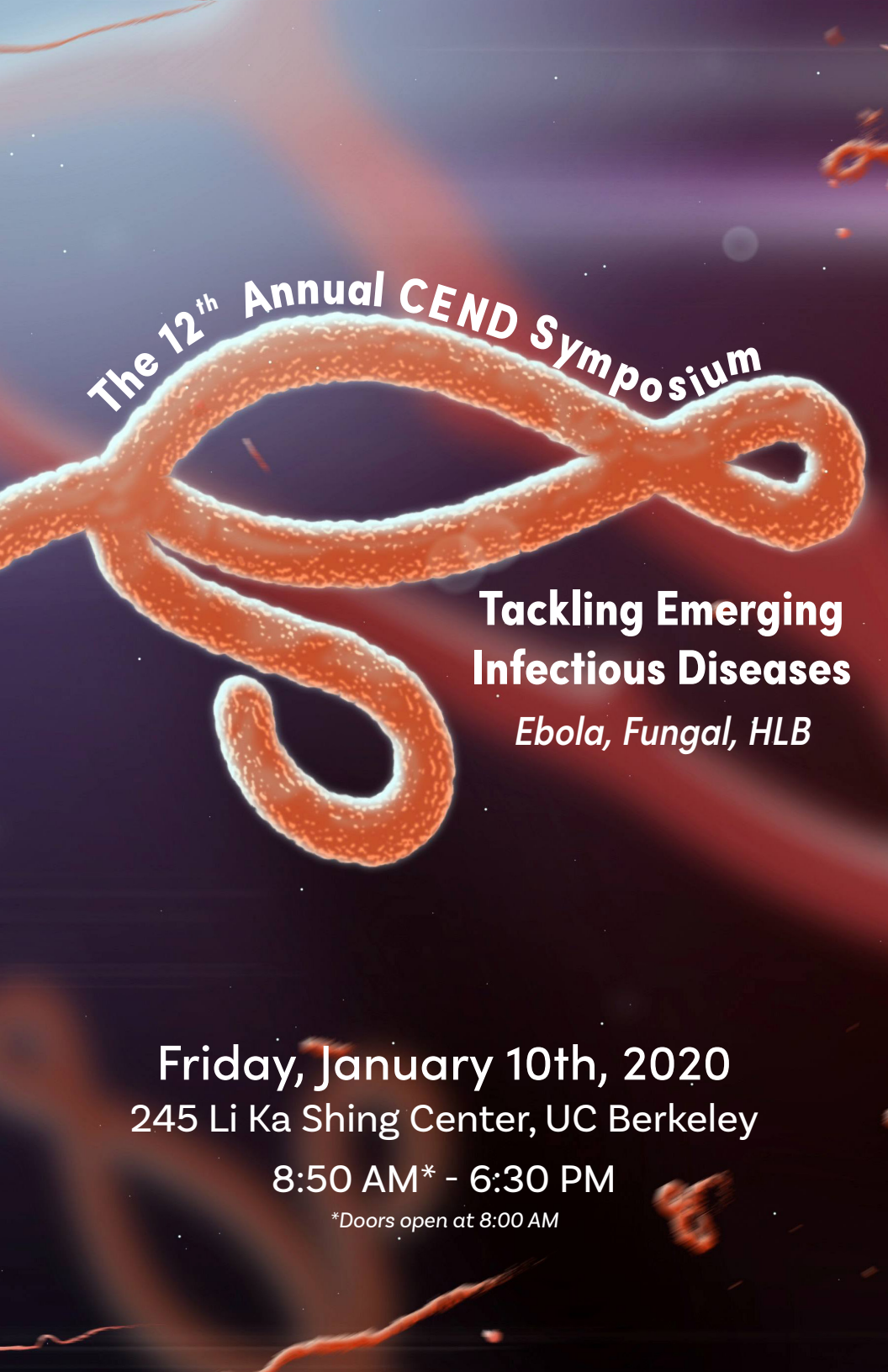
The 12th Annual CEND Symposium
Tackling Emerging Infectious Diseases
Ebola, Fungal, HLB
Friday, January 10th, 2020
245 Li Ka Shing Center, UC Berkeley
8:50 AM* - 6:30 PM
*Doors open at 8:00 AM

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HISTORY AND MISSION

The Henry Wheeler Center for Emerging & Neglected Diseases (CEND) was established as a multi-disciplinary research unit at the University of California, Berkeley in 2008, with the support of a generous donation by Henry H. "Sam" Wheeler, Jr. The mission of CEND is to help UC Berkeley make innovative and substantial contributions to the global responses to emerging and neglected infectious diseases.

CEND TEAM

Dr. Julia Schaletzky
Executive Director

Dr. Jeffery S. Cox
Faculty Director
C.H. Li Endowed Chair of Biochemistry and Endocrinology
Professor of Molecular and Cell Biology

Dr. Laurent Coscoy
Associate Faculty Director
Asociate Professor of Immunology and Pathogenesis

Eddie Wehri
High-Throughput Scientist

Dr. Celine Perier
Grantwriter

Isabelle Charles
Program Manager

Jennifer Kwon
Communications & Outreach Assistant

For more information on CEND and our programs, visit:
cend.globalhealth.berkeley.edu

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WELCOME

Dear Attendees,

On behalf of the entire CEND team, I am pleased to welcome you this year to the Annual Center for Emerging and Neglected Diseases Symposium. Each year, I leave the CEND symposium feeling intellectually stimulated, inspired, and hopeful for the future of scientific research. I hope that you will leave today feeling the same. Now on our 12th year, this annual event is a major part of our larger mission to elevate the importance of infectious disease research and intersectoral collaboration on the UC Berkeley campus and throughout the broader scientific community.

We hope to continue this tradition with this year's symposium on Tackling Emerging Infectious Diseases - the amazing story how both a vaccine and a therapeutic against Ebola was discovered in an international, multidisciplinary effort; the threat of fungal diseases, most recently highlighted through the rapid emergence of Valley Fever in California; and lastly, a bacterial pathogen affecting plants and causing immense economical impact and large-scale use of pesticides and antibiotics in orchards - Hualongbing/Citrus Greening Disease. In addition, we feature two areas affecting the world's most vulnerable and impoverished communities severely neglected and often fatal snakebite envenoming and increasing global research capacity through "frugal science". CEND is proud to feature some of the world's leading thinkers and researchers in these areas to present to you today.

In addition to the presentations, there will be plenty of opportunity for discussions during the Tech show at lunch, poster session and during coffee breaks and the reception. Don't be shy, introduce yourself to whoever is sitting next to you and use the opportunity to exchange ideas and make new connections.

We would like to thank our generous sponsors who make this event possible as a free symposium without registration charges, lowering barriers towards participation of all – Gilead, Vir, Berkeley Vice Chancellor's Research Office, and the Department of Molecular and Cell Biology. We would like to thank our speakers, poster presenters and Tech show participants for sharing their time and knowledge with us. Also we are very grateful to our volunteers, facilities and the CEND team without whom this event would not be possible. With this, we invite you to a day full of exciting talks, discussions and lively exchange!

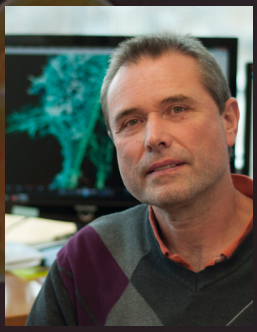
Sincerely,

Julia Schaletzky, PhD
Executive Director, CEND

Jeffery Cox, PhD
Faculty Director, CEND

Speakers

Ebola



Heinz Feldmann, M.D., Ph.D.

National Institute of Allergy and Infectious Diseases

Chief of Laboratory of Virology & Disease Modeling and Transmission

Heinz Feldmann graduated from medical school in 1987 (M.D.0 and received his Ph.D. in 1988, both from the University of Marburg, Germany. His postdoctoral research was conducted in the field of virology (filoviruses and hantaviruses) at the Institute of Virology, University of Marburg, Germany, and the special pathogens branch at the Centers for Disease Control and Prevention in Atlanta, where he held a fellowship from the National Research Council. Since 2008, he has been the chief of the Laboratory of Virology and the chief scientist at the RML BSL-4 laboratories. In addition, he is an associate professor with the department of medical microbiology, University of Manitoba. Dr. Feldmann is a laboratory expert on high containment viruses (BSL-4) and serves as a consultant on viral hemorrhagic fevers and related pathogens for the World Health Organization.

Danielle Porter, Ph.D.

Gilead Sciences

Director of Virology

Danielle Porter is a Director of Virology at Gilead Sciences. She obtained her undergraduate degree in biology at Dartmouth College and earned a PhD in virology from Harvard University. After spending several years at Novartis and then Lawrence Livermore National Laboratory, she joined Gilead in 2010. During her time at Gilead, she has worked on clinical trials for novel HIV and RSV therapeutics as well as emerging viral diseases. Most recently, she has been leading the nonclinical program for remdesivir, which was recently studied in a clinical trial of acute Ebola disease in the Democratic Republic of the Congo.

Jonna Mazet, D.VM., MPVM, Ph.D.

University of California, Davis

Professor of Epidemiology and Disease Ecology
Executive Director at One Health Institute

Dr. Mazet is a Professor Epidemiology and Disease Ecology at the University of California, Davis and Executive Director of Davis' One Health Institute. She is active in international One Health research programs, most notably in relation to disease transmission among wildlife, domestic animals, and people and the ecological drivers of disease emergence. She is the Global Director of a $175 million viral emergence early warning project named PREDICT, that has been developed with the US Agency of International Development's (USAID) Emerging Pandemic Threats Program. She was elected to the National Academy of Medicine in 2013 in recognition of her successful and innovative approach to emerging environmental and global health threats, as well as chairs the Academies' One Health Work Group.

Fungal Pathogens

Anders Näär, Ph.D.

University of California, Berkeley

Professor of Metabolic Biology at the Department of Nutritional Sciences & Toxicology

Dr. Näär received a B.S. degree in biochemistry/biotechnology from the University of Lund, Sweden, and a Ph.D in Molecular Pathology with M. Geoff Rosenfeld at UC San Diego/HHMI in 1995, studying nuclear hormone receptor mechanisms of gene regulation. He was a postdoctoral research fellow with Robert Tjian at UC Berkeley/HHMI where he discovered the human Mediator transcriptional coactivator complex. A major focus of his lab is to understand transcriptional and microRNA regulatory mechanisms controlling metabolic homeostasis to guide novel therapeutic strategies for the treatment of cardiovascular disease, obesity, Type 2 diabetes, non-alcoholic fatty liver diseases, age-related macular degeneration, Duchenne muscular dystrophy, multi-drug resistant fungal infections, and numerous types of cancer.

Hailing Jin, Ph.D.

University of California, Riverside

Cy Mouradick Endowed Chair & Professor at the Department of Plant Pathology and Microbiology

Dr. Hailing Jin is the Cy Mouradick Endowed Chair Professor in the Department of Microbiology and of Plant Pathology at the University of California, Riverside in 2004. She has been internationally recognized as the leader in the field of small RNAs and epigenetics in plant-microbial interactions. Her lab discovered cross-kingdom RNAi between plant hosts and fungal pathogens, and unveiled the important role of extracellular vesicles in small RNA trafficking between hosts and pathogens. She was elected a fellow of the American Association for the Advancement of Science in 2015, a CIFAR Fellow (Canadian Institute for Advanced Research) in 2019. She received the Ruth Allen Award from APS in 2017. She was also recognized as a highly cited researcher by Web of Science in 2019.

Citrus Greening

Melanie Barnett, Ph.D.

Stanford University

Senior Research Scientist in the Biological Sciences

Melanie Barnett is a Senior Research Scientist in Professor Sharon R. Long's group at Stanford University (Department of Biology). For over 30 years, Dr. Barnett's research has focused on the molecular biology, genetics, and genomics of the symbiotic, nitrogen-fixing alpha-proteobacterium, Sinorhizobium meliloti. Drs. Barnett and Long recently completed a project using S. meliloti as a heterologous host to screen for inhibitors of the destructive citrus pathogen, Ca. Liberibacter asiaticus. Dr. Barnett currently serves on the Editorial Board of the Journal of Bacteriology and was an Associate Editor for Molecular-Plant Microbe Interactions from 2007-2010. She received her BA in Molecular Biology & Biochemistry from the University of California, Santa Barbara and her PhD in Biology from Stanford University.

Carolyn M. Slupsky, Ph.D.

University of California, Riverside

Professor of the Department of Nutrition/Department of Food Science & Technology

Dr. Slupsky is an NMR spectroscopist, with a B.Sc. and Ph.D. in Biochemistry from the University of Alberta, Canada. Her research background includes metabolomics, protein structure and function, receptor-ligand and protein-protein interactions, structure-aided drug design, and software development. She previously led metabolomics translation research at the University of Alberta for several years, focusing on diagnostics in infectious and pulmonary disease, gastroenterology and oncology, and is now engaged in research at UC Davis to understand the role of bacteria in health and the onset and progression of disease.

Gitta Coaker, Ph.D.

University of California, Davis

Professor in the Department of Plant Pathology

Dr. Gitta Coaker received a B.S. in 1998 from the University of Arizona and PhD in 2003 from The Ohio State University. Dr. Coaker was hired as an Assistant Professor in 2007 and is currently a Full Professor at the University of California, Davis in the Department of Plant Pathology. Dr. Coaker's research program focuses on the interaction between bacterial pathogens and plants. Specifically, her laboratory is interested in understanding plant immune receptor activation and pathogen effector targets in both model and crop plants, including citrus.

Innovation

Manu Prakash, Ph.D.

Stanford University

Associate Professor of Bioengineering

Dr. Manu Prakash is a physicist working at the molecular scale to try and understand how the world really works. He earned a BTech in computer science and engineering from the Indian Institute of Technology in Kanpur before moving to the United States. He did his master's and PhD in applied physics at MIT before founding the Prakash Lab at Stanford, where his lab group focuses their research on algorithmic self-assembly, frugal science and global health, organismic biophysics, and soft-matter physics.

Matthew Lewin, M.D., Ph.D.

Ophirex

CMO, CSO, President & Founder

Dr. Lewin is an internationally recognized expert in the practice of emergency medicine and wilderness medicine, earning his M.D. & Ph.D. degrees from the University of Texas Medical School and MD Anderson Cancer Center in Houston, Texas. He completed his residency in Emergency Medicine through the University of California in 2003. He has served as a doctor on major scientific expeditions funded by the American Museum of Natural History, the Field Museum, and National Geography. His current research is focused on the development of venom agnostic antidotes to the world's deadliest snake bites.

AGENDA

8:00 AM - 8:50 AM: **Check in/ Breakfast**

8:50 AM - 9:00 AM: **Opening Remarks | Julia Schaletzky, PhD, Executive Director of CEND**

Ebola

9:00 AM - 9:35 AM: **Ebola: From Discovery to Intervention | Heinz Feldmann, MD, National Institutes of Health**

Ebola virus was discovered in 1976 as a second member of the family Filoviridae. From then until early 2000 filoviruses were considered neglected tropical diseases. Biothreat raised the profile of rare emerging/re-emerging highly pathogenic pathogens such as Ebola in the first decade of the new millennium. Latest since the 2013-2016 West African outbreaks, however, Ebola is considered a public health threat of regional importance and international concern. Basic virus biology has made enough progress since the early 1990s allowing for establishing rapid diagnostics and the development of vaccines and therapies. Countermeasure development was intensified in the early 2000 accumulating in multiple approaches shown to be successful in pre-clinical studies. However, only the West African Ebola outbreak moved the most promising strategies into clinical trials. Efficacy trials are still lacking for most of the developed countermeasures, but some of them, such as the VSV-EBOV vaccine, monoclonal antibodies and nucleotide analogs (i.e. remdesivir), are currently used in the outbreak in the Democratic Republic of the Congo. The development of the VSV-EBOV vaccine will be discussed as an example here. The lessons learned from the recent outbreaks are still being debated but several initiatives have been started (i.e. CEPI) to build and maintain cutting-edge future outbreak response capabilities.

Work on Ebola and other filoviruses is supported by the Intramural Research Program of the NIAID, NIH.

9:35 AM - 10:10 AM: **Broad Spectrum Antiviral Remdesivir for the Treatment of Emerging Viral Infections with High Outbreak Potential | Danielle Porter, PhD, Gilead**

Remdesivir (GS-5734) is a nucleotide prodrug with potent in vitro activity against multiple emerging virus families with high outbreak potential including filoviruses, coronaviruses and paramyxoviruses. The mechanism of remdesivir's antiviral activity is through delayed chain termination of viral RNA transcription following the incorporation of the active intracellular nucleoside triphosphate metabolite into RNA as shown in biochemical assays using recombinant Ebola, Nipah, and respiratory syncytial virus (RSV) RNA dependent RNA polymerases. Remdesivir has demonstrated in vivo efficacy against Ebola virus in non-human primates which has led to its inclusion in clinical studies evaluating the effects of remdesivir treatment in acute Ebola virus disease (EVD) as well as in male EVD survivors with prolonged viral shedding in semen. The efficacy of remdesivir against other emerging viral infections has been demonstrated in animal models for Marburg virus, Nipah virus, sudden acute respiratory syndrome (SARS) coronavirus, and Middle East respiratory syndrome (MERS) coronavirus. Together, the current preclinical and clinical profiles of remdesivir support its further development as a broad spectrum antiviral to manage emerging viral infections with high mortality and significant outbreak potential.

10:10 AM - 10:45 AM: **Enhancing filovirus surveillance, detection, and response in transmission hotspots | Jonna Mazet, DVM, MPVM, PhD, University of California, Davis**

Recent Ebola virus epidemics have raised awareness regarding the importance and need for a One Health approach to investigate and reduce transmission events, enabling multidisciplinary collaborations to efficiently target high consequence pathogens and create strong national and regional health networks. The PREDICT Project has been implemented in over 30 countries over the past decade to strengthen capacities for zoonotic viral surveillance and discovery. We sampled 145,000 individuals (humans, wildlife, and domestic animals), while training more than 6,000 people to empower a global One Health workforce. Overall, greater than 1,000 potentially zoonotic viruses have been identified, approximately 80% representing novel detections. Our recent discoveries show that filoviruses, such as ebolaviruses and Marburg virus (MARV), circulate in bats in West Africa, but ongoing efforts are needed to improve the world's understanding of virus-host ecology and mechanisms of virus spillover, amplification, and spread if we are to mitigate future epidemics and prevent pandemics.

10:45 AM - 11:00 AM: **Ebola Panel Discussion**

11:00 AM - 11:30 AM: **Coffee break**

Emerging Fungal Pathogens

11:30 AM - 12:05 PM: **Targeting Fungal Multidrug Resistance | Anders Näär, PhD, University of California, Berkeley**

Drug-resistant fungal infections (e.g. Candida strains) have emerged in recent years, driving life-threatening invasive fungal infections. Approximately 1.5 million mortalities are attributed to fungal infections per year, with Candida bloodstream infections affecting >250,000 individuals resulting in excess of 50,000 deaths annually. Antifungal resistance is already a problem in the more common Candida species like *Candida albicans* and *Candida glabrata*,

but it is an even bigger concern for the emerging fungus *Candida auris*. Since its emergence in 2009, numerous outbreaks worldwide in clinical and long-term care settings have raised widespread concern. It readily sweeps through the blood stream of the patient, colonizes different sites in the body (such as skin, rectum, axilla) and can severely contaminate hospital and care facility environments with difficult to eradicate fungal infestations. Treatment options for fungal infections are highly limited. The most widely used antifungal drugs available to treat systemic fungal infections are azoles (e.g. fluconazole, voriconazole) that target ergosterol biosynthesis. This limited arsenal of antifungals is heavily used in clinics and agriculture, which fuels the development of multidrug- and intrinsically-resistant strains, restricting treatment options and patient management, and novel antifungals are urgently needed.

We have investigated molecular mechanisms of gene regulation from fungi to human, and identified a convergent evolutionary pathway by which organisms control drug resistance. Our studies revealed a structurally conserved transcriptional regulatory mechanism in fungi that can be targeted by small molecules to inhibit MDR (Thakur et al. Nature 2008). We recently reported (Nishikawa et al. Nature 2016) the discovery of a small molecule, termed 'iKIX1', that efficiently re-sensitizes azole-resistant *Candida glabrata* to fluconazole treatment in vitro and in mouse models of disseminated and urinary tract *Candida glabrata* infection. We have since found that iKIX1 (and analogs generated through medicinal chemistry efforts) exhibit intrinsic antifungal activity, in all Candida species tested, including in *Candida glabrata*, *Candida albicans*, and *Candida auris*. Excitingly, in collaboration with the US C.D.C., we have found that all 100 clinical isolates of Candida auris from all 4 clades worldwide are highly sensitive to iKIX1, regardless of their MDR status (unpublished).

Our findings suggest that iKIX1 and related molecules targeting the fungal Gal11p/MED15 KIX domain represent a novel class of pan-Candida antifungals that also target the underlying mechanism of MDR. The development of iKIX1 and derivatives as a new class of antifungals therefore represents not only the development of a new chemical scaffold, but these compounds also exhibit an entirely new mechanism of action.

12:05 PM - 12:40 PM: **Cross-kingdom RNAi and small RNA trafficking between plants and fungal pathogens** | **Hailing Jin, PhD, University of California, Riverside**

Small RNAs (sRNAs) are short non-coding RNAs that mediate gene silencing in a sequence-specific manner. We discovered that some sRNAs from eukaryotic pathogens, such as *Botrytis cinerea*, can be transported into host plant cells and suppress host immunity genes for successful infection (Weiberg et al., Science 2013). We further demonstrated that such cross-kingdom RNAi is bi-directional. Plants can also send sRNAs into pathogens using extracellular vesicles to silence fungal virulence genes as part of its immune responses (Cai et al., Science 2018). We found that plants have multiple classes of extracellular vesicles, and exosome is the major class responsible for sRNA delivery.

Furthermore, we also discovered that many fungal pathogens can take up double-stranded RNAs (dsRNAs) and sRNAs from the environment. Applying sRNAs or dsRNAs that target *Botrytis Dicer* genes on the surface of fruits, vegetables and flowers significantly inhibits grey mold disease (Wang et al,, Nature Plants, 2016). Such pathogen gene-targeting RNAs represent a new generation of fungicides that are durable and eco-friendly.

12:40 PM - 12:50 PM: **Fungal Pathogen Panel Discussion**

12:50 PM - 2:00 PM: **Lunch/Tech Show**

Citrus Greening/HLB

2:00 PM - 2:35 PM: **A high-throughput system to identify inhibitors of Liberibacter asiaticus transcription regulators** | **Melanie Barnett, PhD, Stanford University**

Melanie J. Barnett[1], David E. Solow-Cardero[2] and Sharon R. Long[1]
[1]Department of Biology, Stanford University, Stanford, California, USA
[2]High-Throughput Bioscience Center, Stanford University, Stanford, California, USA

The insect-disseminated bacterium *Liberibacter asiaticus* causes citrus greening disease (also known as huanglongbing), a devastating incurable disease of Citrus. Management of infected trees includes use of broad-spectrum antibiotics, which have disadvantages. An alternate approach seeks inhibitors of transcription regulators, based on a premise that at least some regulators control expression of genes necessary for virulence. Using the closely related model bacterium, *Sinorhizobium meliloti*, we developed a synthetic, high-throughput system to screen more than 120,000 compounds for those that inhibited *L. asiaticus* regulator activity, but not growth, demonstrating that an *S. meliloti* host can be used for preliminary identification of candidate inhibitory molecules.

2:35 PM - 3:10 PM: **The use of multi-omics approaches to understand the effects of CLas on citrus and its insect vector Diaphorina citri** | **Carolyn Slupsky, PhD, University of California, Davis**

Laurynne Coates[1], Emily Padhi[1], Johan Leveau[1], Michelle Heck[2], **Carolyn M Slupsky**[1]
[1]University of California, Davis
[2]Boyce Thompson Institute, Cornell University

'*Candidatus Liberibacter asiaticus*' (CLas) putatively causes the disease Huanglongbing (HLB) in all citrus varieties. Its insect vector, Diaphorina citri (the Asian Citrus Psyllid, or ACP) is responsible for transmitting the disease. To date, no effective measures to prevent the spread of the pathogen or treat citrus once infected has been found. To more fully understand the biology of CLas-citrus or CLas-ACP interactions, we used a combination of transcriptomics, proteomics, metabolomics, as well as 16S rRNA sequencing of the endosymbiotic communities to compare the impact of CLas on male and female ACP. We also compared the effect of CLas on lemon and navel scions grafted onto Carrizo rootstock. We found that CLas differentially impacted several metabolic pathways as well as the endosymbiont community structure in male compared to female insects. Moreover, CLas differentially impacted citrus metabolism and the the root microbiome depending on variety. Our findings suggest that insect sex and citrus variety should be considered when developing novel ways to treat the disease or prevent ACP transmission of CLas.

3:10 PM - 3:45 PM: **Host manipulation by phloem-limited bacteria | Gitta Coaker, PhD, University of California, Davis**

Huanglongbing (HLB) is currently the most devastating disease of citrus. HLB is a vector-borne disease associated with the phloem-limited bacterium *Candidatus Liberibacter asciaticus* (CLas). In order to grain greater insight into CLas biology and genetic diversity, we have initiated genome sequencing and comparative analyses of HLB-associated bacteria from diverse geographical regions. We have identified conserved CLas proteins likely involved in virulence and bacterial survival and analyzed their expression in their plant host and insect vector. CLas is able to mask multiple immunogenic MAMP epitopes and individual SEC-dependent effectors exhibit differential expression in plants and psyllids. We also identified papain-like cysteine proteases as virulence targets of the SDE1 effector. These data indicate that CLas attempts to evade plant immune perception and differentially expresses effectors for host and vector manipulation.

3:45 PM - 4:00 PM: **Citrus Greening Panel Discussion**

4:00 PM - 4:20 PM: **Coffee Break**

Frontiers of Innovation

4:20 PM - 4:55 PM: **Manu Prakash, PhD, Stanford University**

The Prakash lab is a curiousity driven research group working in the field of engineering and physical biology, probing biological systems with an engineering and physics outlook. The approach brings together experimental and theoretical techniques from soft-condensed matter physics, fluid dynamics, theory of computation and unconventional nano-fabrication to problems in biology from organismal to cellular to the molecular scale. To do so, they design and build precision instruments that perturb biological machines and their synthetic analogues. Along the way, they invest novel technologies with clinical applications with a current ffocus on low resource settings.

4:55 PM - 5:30 PM: **How Expeditions Drive Clinical Research: Snakebike | Matthew Lewin, MD, PhD, Ophirex**

Snakebite is an ancient scourge that still maims and kills more than 500,000 of the millions bitten each year. 75% of deaths by snakebite occur before patients reach the hospital and 98% of victims live in poverty. Antivenom, invented more than 135 years ago, remains the only known treatment but is often inadequate, poorly matched, too expensive or simply unavailable in timely fashion. In India, the cost of treating a snake's bite can cost four to 12 year's income. Bringing safe, inexpensive, easy to use medicines to the victims of snakebite has been an elusive goal of modernizing snakebite treatment. Lack of awareness, lack of funding and lack of interest from the pharmaceutical industry have been barriers to innovation. Understanding the barriers and facilitators of access to treatment and repositioning small molecule therapeutics already tested by the pharmaceutical industry for other purposes has been our economical approach to targeting biochemical factors common to virtually all snake venoms. One drug candidate has stood out for its attributes and accelerated development has brought us to the cusp of clinical trials. A viable solution to quickly and effectively mitigate illness and injury inflicted by accidental encounters with snakes is on the horizon.

5:30 PM - 5:40 PM: **Pushing the Frontiers of Innovation Panel Discussion**

5:40 PM - 6:30 PM: **Reception and Poster Session**

POSTERS LIST

1. How to use the existing egg-based manufacturing enterprise for rapid response to any emerging pathogen. Blyden, E. Avril Biopharma.

2. Developing a subunit vaccine against Ebola using self-assembling protein nanoparticles. Powell, A. Stanford University.

3. Unbiased metagenomic sequencing for microbial detection and identificaiton using the IDseq platform. Mwakibete, Lusajo. Chan Zuckerberg Biohub.

4. Determining the trigger of anti-phage excision in Vibrio cholerae. Nguyen, M. University of California, Berkeley.

5. Cocoa-Eye: improving Rural Health by Combining Human Health, Animal Health, and Environmental Health at the Community Level in Liberia. Uchtmaan, N. & Uchtmaan, N. Cocoa-Eye.

6. Structural mechanisms of the interaction between the chlamydial protein CT226 and a host complex during Chlamydia trachomatis infection. Diallo, A. University of California, San Francisco.

CEND FELLOWSHIP OPPORTUNITIES

The Center for Emerging and Neglected Diseases offers several fellowships throughout the year. These opportunities provide not only financial support but also the chance to engage in exciting research and gain useful experiences in infectious diseases and global health.

Thomas C. Alber Science & Engineering for Global Health Fellowship

Dr. Tom Alber, Professor of Molecular and Cell Biology and founding Faculty Director of CEND believed that scientists from across UC Berkeley campus have the potential to make an impact on our understanding of diseases that disproportionately affect the world's poor as evidenced by his own contributions to the tuberculosis and HIV fields in his career as a structural biologist. In Dr. Alber's honor, this fellowship program provides a total of $5,000 and supports select research and professional development opportunities for graduate students.

Irving H. Wiesenfeld and Kathleen L. Miller Graduate Fellowship

The purpose of the Irving H. Wiesenfeld and Kathleen L. Miller Graduate Fellowships is to provide research support to UC Berkeley graduate students of high distrinction involved in the study of emerging and neglected infectious diseases, including basic science, discovery of effctive treatments, diagnostics, and vaccines, or policy, law, economics in national or global health. The fellowship can be used to support reserach expenses, euipment, travel, and scientific or scholarly exchange between UC Berkeley and researchers in disease-endemic countries. Through the fellowship- awards of up to $5,000 will be made to qualified individuals.

Applications for the Alber, Miller and Wiesenfeld Fellowships will open February 24th, 2020 and will close April 24th, 2020.


To learn more, visit:
cend.berkeley.edu
Henry Wheeler
CEND
Center for Emerging & Neglected Diseases