

Mitigating Zoonotic Threats

The Third Annual Scialog Conference
September 7-10, 2023

scialog2023[®]



Scialog: Mitigating Zoonotic Threats

Objectives

Engage in dialogue with the goal of accelerating high-risk/high-reward research.

Enhance partnerships between USDA and academic scientists to build deeper ties that will expand the research base, knowledge sharing, and expertise required to tackle critical scientific questions relating to zoonotic diseases that impact human and animal health and our society as a whole.

Build a creative, better-networked, collegial community that is more likely to produce breakthroughs.

Form teams to write proposals to seed novel projects based on highly innovative ideas that emerge at the conference.

Most importantly, enjoy the discussions about where this field should go and how we can work together to get there.

Process

Brainstorming is welcome; don't be afraid to say what comes to mind.

Consider the possibility of unorthodox or unusual ideas without immediately dismissing them.

Discuss, build upon and constructively criticize each other's ideas —in a spirit of cooperative give and take.

Make comments concise to avoid monopolizing the dialogue.

Diversity, Inclusion and No Harassment

Research Corporation for Science Advancement fosters an inclusive and respectful environment for listening in which the different identities, backgrounds, and perspectives of all participants are valued, and in which everyone is empowered to share ideas as fellow scientists.

RCSA does not tolerate any form of harassment, which could include verbal or physical conduct that has the purpose or effect of substantially interfering with anyone else's participation or performance at this conference, or of creating an intimidating, hostile, or offensive environment; any such harassment may result in dismissal from the conference.

[Read RCSA's Code of Conduct](#)



Scialog: Mitigating Zoonotic Threats

From the President	2
From the Program Director	3
Conference Agenda	4
Meeting Space Map	6
Keynote Presentations	7
2022 Team Awards	9
2021 Team Awards	10
2023 Proposal Guidelines	12
Conference Attendees	13

Scialog: Mitigating Zoonotic Threats

From the President

Welcome to the 2023 *Scialog: Mitigating Zoonotic Threats* meeting, organized by Research Corporation for Science Advancement and supported by funding from the USDA under award #58-3022-0-005, with additional support from the Walder Foundation. This is the third and last Scialog meeting on this theme. It is wonderful to see so many people returning, as well as some new Fellows joining us for the first time. Take the opportunity to catch up with colleagues you met last year, and to welcome the new Scialog Fellows.



The goal of this Scialog is to think deeply about ways scientists can use their training from across a diverse set of disciplines and methodologies to collaborate on new and innovative projects to accelerate fundamental science addressing zoonotic diseases. We challenge you to think about science that would identify potential zoonotic outbreaks earlier (preferably before spillover occurs) and allow us to respond more quickly and effectively — not if but when the next incident occurs.

Scialog’s overarching purpose is to advance cutting-edge science of great significance to humanity by catalyzing innovative, basic research leading to fundamental discoveries. Our focus is on scientists in the early years of their independent careers. Through the unique Scialog process, we seek to lay the foundation for an ongoing, highly creative, cross-disciplinary community of scientists that will prove adept at identifying exciting areas for research advances for decades to come.

To that end, under the guidance of RCSA Program Directors **Andrew Feig, Richard Wiener, Silvia Ronco and our new addition to the team, Eileen Spain**, and leaders from the USDA including Deputy Administrator **Jeff Silverstein** and Directors **Roxanne Motroni and Suelee Robbe-Austerman**, we hope you will be engaged in passionate discussions with colleagues, many of whom you will have met for the first time at Scialog. We also acknowledge our partnership with the **Walder Foundation**, which is providing additional support across all of the biologically related Scialog initiatives this year. The Scialog process may push you out of your comfort zone with the goal of stimulating new and better ideas. The result, we expect, will be a meeting unlike others that you attend. We are confident that you will find the next few days to be extremely worthwhile.

This is your opportunity to air that wild idea you have been reluctant to share, or to discuss a nagging hunch that does not yet have sufficient supporting data, or to take a leap on a high-impact/high-risk project instead of concentrating all your effort on somewhat more “incremental” studies. This is the time to come up with, and be open to, completely new ideas that may truly change the world and to find new colleagues and collaborators with whom to pursue them.

We hope this meeting yields a crop of outstanding team proposals, which will make our job of determining who receives funding very challenging. I wish you every success in exploring new and compelling ideas over the next few days.

Have a terrific meeting!

Daniel Linzer

President

Research Corporation for Science Advancement

From the Program Director

Research Corporation's highly interactive Scialog meetings aim to catalyze new collaborations based on blue-sky ideas among Scialog Fellows who constitute a highly select group of exemplary early career scientists from the United States and Canada. The emphasis is on dialogue, networking, and building new collaborations to pursue novel, high-risk discovery research. We are pleased to be convening Scialog: MZT for our third year of this important initiative. We hope you are as excited as we are to be together in Tucson this year.



Research Corporation and the USDA launched Mitigating Zoonotic Threats because we believe this critical area of science requires major breakthroughs in fundamental understanding of zoonosis. We began planning for this initiative a year prior to the outbreak of SARS-CoV2, the pandemic has exemplified why this topic is so important. Spillover events will occur again, so we need to muster the combined disciplinary knowledge of chemists and life scientists, human, animal and public health experts, computational biologists and disease modelers, wildlife biologists, and experts in how climate change will impact human and animal migration. Through this effort we also wish to enhance partnerships between USDA and academic scientists to build the deeper ties that will expand the research base, knowledge sharing and expertise required to tackle critical scientific questions that impact human and animal health and our society as a whole.

We have two outstanding speakers to set the stage for breakout discussions: **Sara Cherry** (University of Pennsylvania) and **Suelee Robbe-Austerman** (USDA/APHIS).

We have a team of terrific discussion facilitators: **Amy Baker** (USDA/ARS), **Sara Cherry** (University of Pennsylvania), **Peter Dorhout** (Iowa State University), **Matt Erdman** (USDA/APHIS), **Roxann Motroni** (USDA/ARS), **Suelee Robbe-Austerman** (USDA/APHIS), **Zac Schultz** (Ohio State University), **Wilfred van der Donk** (University of Illinois at Urbana-Champaign), **William Wilson** (USDA/ARS) and **Michael Wimberly** (University of Oklahoma).

Scialog meetings focus on dialogue and team building with the goal of creating novel strategies and collaborative approaches to tackle important scientific challenges. An important feature is the opportunity for Scialog Fellows to form teams and write proposals to pursue particularly creative ideas that emerge through the dialogue. We hope this competition is exciting, but regardless of which proposals are funded, the primary purpose is to catalyze a deeper and more meaningful exchange of ideas than ordinarily occurs at scientific conferences. Our intent is for this process to help participants gain new insights and connections that significantly advance fundamental science to protect our society from future zoonotic outbreaks, and to be better able to respond to them quickly and effectively.

We hope each participant finds the Scialog experience of great value. Please do not hesitate to provide feedback on how to make the conference better. My fellow Program Directors, **Richard Wiener**, **Silvia Ronco**, and **Eileen Spain**, the RCSA staff, and I are here to help make the meeting a great experience!

Andrew Feig

Senior Program Director

Research Corporation for Science Advancement

Conference Agenda September 7 – 10, 2023

Thursday, September 7

2:00 pm	Registration Opens	Sonoran Foyer
2:00 – 5:00 pm	Snacks & Informal Discussions	Sonoran Foyer
5:00 – 6:30 pm	Poster Session and Reception	Murphey
6:00 – 6:30 pm	Meeting for Discussion Facilitators	Finger Rock I
6:30 – 7:30 pm	Dinner	Murphey/ Murphey Patio
7:30 – 8:30 pm	Welcome Dan Linzer, President, RCSA Jeff Silverstein, Deputy Administrator, USDA/ARS Suelee Robbe-Austerman, Director, NVSL, USDA/APHIS Conference Overview, Outcomes and Proposal Guidelines Introductions	Sonoran
8:30 – 11:00 pm	Starlight Cafe	Murphey/ Murphey Patio

Friday, September 8

7:00 – 8:00 am	Breakfast	Murphey/ Murphey Patio
8:00 – 8:45 am	Keynote Presentation <i>Antiviral Discovery Pipeline for Emerging and Re-emerging Viruses</i> Prof. Sara Cherry – University of Pennsylvania	Sonoran
8:45 – 9:00 am	Breakout Session Overview and Instructions	Sonoran
9:00 – 10:15 am	Breakout Session I	Sonoran, Sunsations, Finger Rock I, II and III
10:15 – 10:35 am	Report Out	Sonoran
10:35 – 11:15 am	Morning Break	Sonoran Foyer
11:15 – 11:45 am	Mini Breakout Session I (Fellows)	All spaces
	Facilitator Meeting (Facilitators)	Sunsations
11:45 – 1:00 pm	Lunch	Murphey/ Murphey Patio
1:00 – 1:45 pm	2022 Progress Reports – Part 1	Sonoran
1:45 – 3:00 pm	Breakout Session II	Sonoran, Sunsations, Finger Rock I, II and III
3:00 – 3:20 pm	Report Out	Sonoran
3:20 – 3:25 pm	Conference Photo	Stairs – Murphey Patio
3:25 – 3:55 pm	Mini Breakout Session II (Fellows)	All spaces
3:55 – 5:15 pm	Afternoon Break	All spaces
5:15 – 6:45 pm	Poster Session and Reception	Murphey
6:45 – 7:45 pm	Dinner	Murphey/ Murphey Patio
7:45 – 8:30 pm	Keynote Presentation <i>Reagents, Isolates and Datasets Maintained by the National Veterinary Services Laboratory</i> Dr. Suelee Robbe-Austerman – Director, NVSL, USDA/APHIS	Sonoran
8:30 – 11:00 pm	Starlight Cafe	Murphey/ Murphey Patio

Scialog: Mitigating Zoonotic Threats

Saturday, September 9

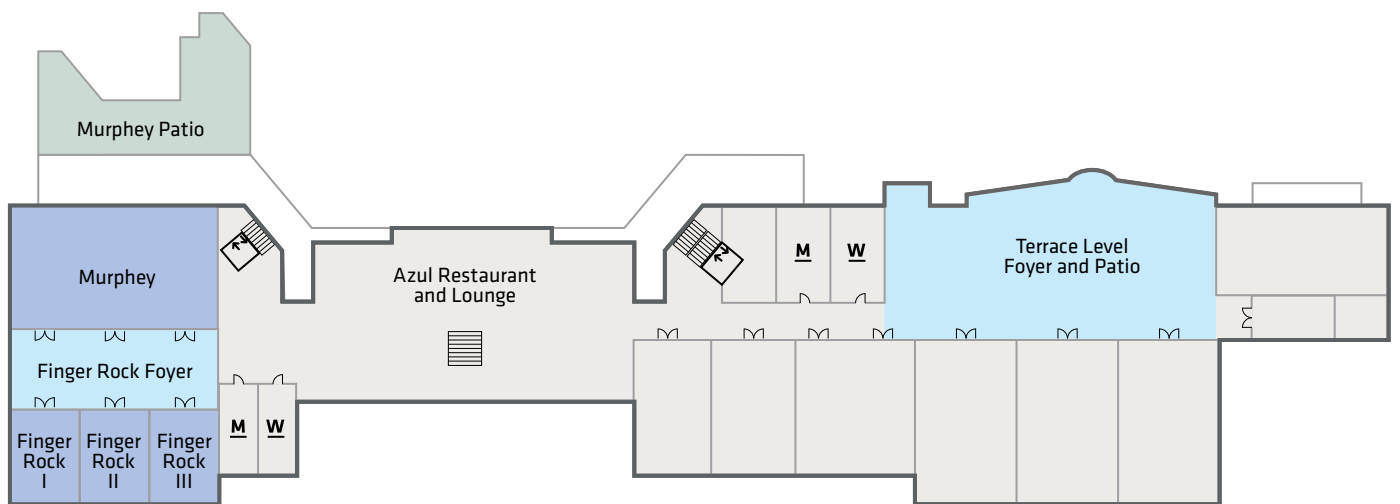
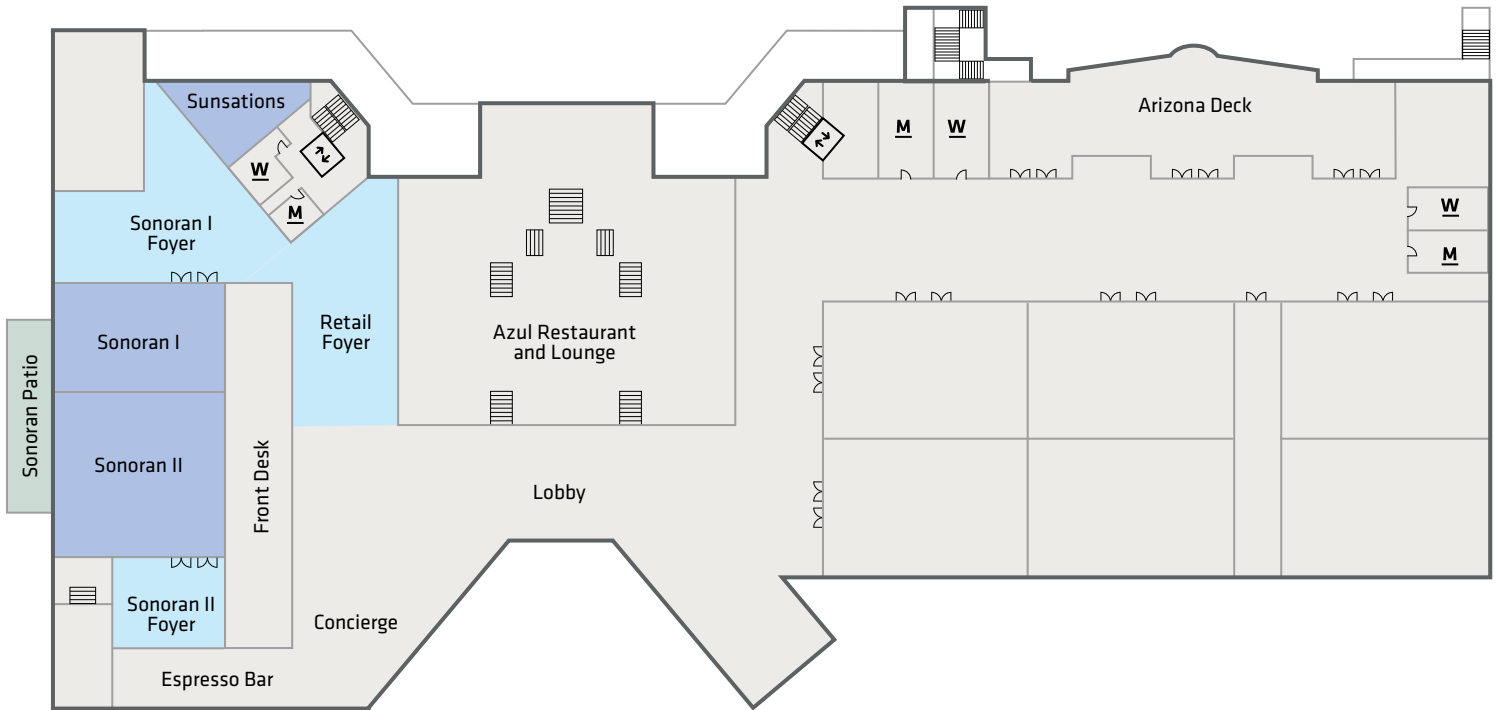
7:00 – 8:00 am	Breakfast	Murphey/ Murphey Patio
8:00 – 8:45 am	2022 Progress Reports – Part 2	Sonoran
8:45 – 9:15 am	Mini Breakout Session III (Fellows)	All spaces
9:15 – 9:45 am	Morning Break	Sonoran Foyer
9:45 – 11:00 am	Breakout Session III	Sonoran, Sunsatations, Finger Rock I, II and III
11:00 – 11:20 am	Report Out	Sonoran
11:20 – 11:50 am	Mini Breakout Session IV (Fellows)	All spaces
	Facilitator and Funding Partners Discussion	Sunsatations
11:50 – 1:00 pm	Lunch	Murphey/ Murphey Patio
1:00 – 5:45 pm	Team Formation, Informal Discussions and Proposal Writing	All spaces
3:00 – 5:00 pm	Afternoon Refreshments	Sonoran
5:45 – 6:30 pm	Reception	Terrace Level Foyer and Patio
6:30 – 7:30 pm	Dinner	Terrace Level Foyer and Patio
7:30 – 11:00 pm	Starlight Cafe	Terrace Level Foyer and Patio

Sunday, September 10

6:30 – 7:30 am	Breakfast	Murphey Patio
7:30 – 10:30 am	Presentation of Proposals	Sonoran
	Assessment Survey and Wrap-up	
10:30 – 12:00 pm	Lunch (available to go)	Sonoran Foyer

Scialog: Mitigating Zoonotic Threats

The Westin La Paloma Resort



Keynote Presentations

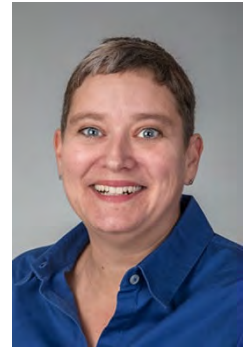
Antiviral Discovery Pipeline for Emerging and Re-emerging Viruses

Dr. Sara Cherry

John W. Eckman Professor of Medical Sciences

Department of Pathology and Laboratory Medicine, University of Pennsylvania

Sara Cherry is the John W. Eckman Professor of Medical Science in the department of Pathology and Laboratory Medicine at the University of Pennsylvania. She received her undergraduate degree in Chemistry from UC Berkeley working with Dr. Peter Schultz, and her PhD in Biology from MIT under the guidance of Dr. David Baltimore. She was a postdoctoral fellow in the laboratory of Dr. Norbert Perrimon at Harvard Medical School, Genetics. She was then recruited to the University of Pennsylvania and has since established the High-Throughput Screening Core, became the Director of the Program for Chemogenomic Discovery, and is leading the RNA Therapeutics Group at the Institute for RNA Innovation. Sara's research focuses on the interface between viruses and hosts. She has pioneered the use of high-throughput cell-based screening to study viral infections focusing in emerging RNA viruses. This includes arthropod borne viruses such as dengue and West Nile Virus, and more recently respiratory viruses such as SARS-CoV-2 and influenza. Her lab has discovered host proteins that promote infection and innate immune mechanisms by which cells sense and respond to infection. In addition to identifying cellular factors involved in infection, her lab is using high-throughput screening to identify antivirals active against these diverse RNA viruses. Recently, the Cherry lab has extended their studies to precision medicine and oncology and has developed a pipeline to test patient tumor cells for sensitivities to chemotherapeutics in an effort to personalize treatments.



Reagents, Isolates and Datasets Maintained by the National Veterinary Services Laboratory

Dr. Suelee Robbe-Austerman

Director, National Veterinary Services Laboratories

Animal & Plant Health Inspection Service (APHIS), US Department of Agriculture

The USDA has several resources available for researchers and scientists to utilize in studies and projects. The goal of this talk is to describe what products and services are available, how to request materials and ways to contact USDA researchers and potential collaborators.



2022 Team Awards

Measuring and Modeling Mosquito Flight and Movement Behavior at High Spatiotemporal Resolution

Guillaume Bastille-Rousseau, Cooperative Wildlife Research Lab, Southern Illinois University,
Gonzalo Vazquez-Prokopec, Environmental Sciences, Emory University

Identifying and Engineering Broadly Neutralizing Antibodies Against African Swine Fever Virus

Gisselle Medina, National Bio and Agro-Defense Facility, USDA/ARS
Angad Mehta, Chemistry, University of Illinois at Urbana-Champaign

Impact of Climate Variability on Foreign Animal Disease: Forecasting Highly Pathogenic Avian Influenza

Nicholas DeFelice, Environmental Medicine and Public Health, Icahn School of Medicine at Mount Sinai
Kimberly A. Lehman, Diagnostics and Biologics, USDA/APHIS Veterinary Services
Sen Pei, Environmental Health Sciences, Columbia University

Incorporating Human Behavioral Systems in Insecticide Resistance Management for Mosquito-Borne Diseases

Pilar Fernandez, Paul G. Allen School for Global Animal Health, Washington State University,
Silvie Huijben, Life Sciences, Arizona State University

Metagenomic-guided Tests of Zoonotic Pathogen Diversity in Migratory Wildlife

Daniel Becker, Biology, University of Oklahoma
Claudia Herrera, Tropical Medicine, Tulane University
Steven M. Lakin, National Bio and Agro-Defense Facility, USDA/APHIS

Impact of Synonymous Mutation on Translation Speed and Protein Folding During Host Adaptation

Kristin Koutmou, Chemistry, University of Michigan
Gisselle Medina, National Bio and Agro-Defense Facility, USDA/ARS
Lars Plate, Chemistry and Biological Sciences, Vanderbilt University

A Sensitive Lateral Flow Assay for Point-of-Care Testing of Emerging Zoonotic Diseases

Claudia Herrera, Tropical Medicine, Tulane University
Dana Mitzel, National Bio and Agro-Defense Facility, USDA/ARS
Xiaohu Xia, Chemistry, University of Central Florida

2021 Team Awards

Darwin's Naturalization Conundrum Predicts Inter-species Pathogen Transmission Potential

Tavis Anderson, Virus and Prion Research Unit, USDA

Cheryl Andam, Biological Sciences, University at Albany, SUNY

Nicole Eikmeier, Department of Computer Science, Grinnell College

Enabling Comprehensive Immunoprofiling in Animals through a Combination of Xenosurveillance and Highly-multiplexed Serology

Bethany McGregor, Arthropod Borne Animal Diseases Research Unit, USDA

Paola Boggiatto, Infectious Bacterial Diseases Research Unit, USDA

Jason Ladner, Department of Biology, Northern Arizona University

Employing Color-Changing Nanomaterials to Improve Vector-borne Disease Surveillance

Laurene Tetard, Department of Physics/Nanoscience Technology Center, University of Central Florida

Bethany McGregor, Arthropod Borne Animal Diseases Research Unit, USDA

Invasion Ecology and Genomics of Emerging Tick Borne Arboviruses: Predicting Niche Expansion of Heartland Virus Following the Invasion of Asian Longhorned Ticks in the U.S.

Gonzalo Vazquez-Prokopec, Department of Environmental Sciences, Emory University

Tavis Anderson, Virus and Prion Research Unit, USDA

Host Adaptation of Mycobacterium bovis: A Comparative Transcriptomics Study of M. bovis Infection in a Multi-host System

Paola Boggiatto, Infectious Bacterial Diseases Research Unit, USDA

Liliana Salvador, Infectious Diseases & Institute of Bioinformatics, University of Georgia

Characterizing the Socio-ecological Spillover Interface by Xenosurveillance of Pathogen Metacommunities Using a Novel Insect Group

Pilar Fernandez, Paul G. Allen School for Global Animal Health, Washington State University

Matthew Hopken, National Wildlife Research Center, USDA

Estimating Aedes aegypti Spillover Potential and Evaluation of Current Mitigation Strategies

Crystal Hepp, School of Informatics, Computing, and Cyber Systems, Northern Arizona University

Silvie Huijben, School of Life Sciences, Arizona State University - Tempe Campus

Kezia Manlove, Department of Wildland Resources and Ecology Center, Utah State University

Discovering How RNA Epigenomic Modifications Impact Flavivirus Replication Speed and Fidelity

Joyce Jose, Department of Biochemistry & Molecular Biology, Pennsylvania State University

Kristin Koutmou, Department of Chemistry, University of Michigan

2021 Team Awards *Continued*

Zoonotic Implications of Host Genetics, Immunity, and Virome in Bats

Hannah Frank, Ecology and Evolutionary Biology, Tulane University

Daniel Becker, Department of Biology, University of Oklahoma

Jason Ladner, Department of Biology, Northern Arizona University

Efrem Lim, School of Life Sciences, Arizona State University - Tempe Campus

Understanding Viral Factors Responsible for Vector Adaptation and Spillover for Surveillance and Mitigation of Zoonotic Flaviviruses with Pandemic Potential

Dana Mitzel, Foreign Arthropod-Borne Animal Disease Unit, USDA's National Bio and Agro-Defense Facility

Joyce Jose, Department of Biochemistry & Molecular Biology, Pennsylvania State University

2023 Proposal Guidelines

1. Awards are intended to provide seed funding for teams of two to three Scialog Fellows formed at this conference for high-risk, high-impact projects. Teams may include up to two USDA scientists so long as they are from different agencies and must also include at least one non-USDA member.
2. The application package should be submitted as a single PDF file through the PRISM system. Pages one and two should describe the project and role of each team member. A third page may be used for references. No budget is necessary.
3. Awards will be in the amount of \$50K direct funding per team member, plus indirect costs. The indirect cost rate for a given awardee will be dependent upon the awardee institution type since these will be processed as subawards from USDA prime award #58-3022-0-005. Grant duration will be one year.
4. We encourage USDA scientists to join teams that initiate collaborations with academic scientists. APHIS and ARS have set aside USDA funds to cover the agency side of collaborations initiated through the Scialog proposal competition.
5. No Scialog Fellow may be a member of more than two teams. If a Scialog Fellow is a member of two teams, other members of the teams must be different. No team may submit more than one proposal.
6. No Scialog Fellow who previously has won a Scialog MZT Collaborative Award may be a member of more than one team. The other team members must be different from the members of the previously awarded team. (Applies to Years 2 & 3.)
7. Typically, Scialog Fellows who have received two Scialog Awards in prior years are ineligible to be funded members on teams. For Fellows from academic institutions, this remains the case and if you join a team, it can only be in the capacity of an unfunded collaborator. For USDA Scialog Fellows, if you have completed both projects, you may submit as part of a single Scialog team project this year.
8. Teams may not include members who have previously collaborated with one another. If you are unsure of your status (e.g., prospective team members were part of a large collaboration but did not significantly interact), please check for clarification with an RCSA program director.
9. Teams are encouraged (but not required) to:
 - a. Include members with different research approaches and methods.
 - b. Include members from different disciplines.
 - c. Include collaborators from USDA and academic laboratories.
10. Proposals must be submitted electronically by **6:30 a.m. PST Sunday, September 10, 2023**. Instructions for submission will be provided at the meeting.
11. Awards are anticipated to start around **December 15, 2023**.

Scialog Fellows

Cheryl Andam candam@albany.edu

Biological Sciences, University at Albany SUNY
I study the genomic, population, epidemiological and evolutionary drivers of antibiotic resistance, transmission across the One Health continuum, and disease outbreaks.

Tavis Anderson tavis.anderson@usda.gov

USDA/ARS, Virus and Prion Research Unit
I am interested in understanding how RNA viruses evolve as they are transmitted among hosts and across complex landscapes.

Angela Arenas aarenas@cvm.tamu.edu

Veterinary Pathobiology, Texas A&M University
My interests are mainly in the development of improved countermeasures to stop the disease spread (i.e. diagnostic tests and vaccines) for endemic pathogens. Mainly bacterial in origin.

Guillaume Bastille-Rousseau gbr@siu.edu

Cooperativa Wildlife Research Lab, Southern Illinois University Carbondale
My research group focuses on studying animal movement and space-use, including interindividual interactions such as disease transmission and predator-prey interactions.

Paola Boggiatto paola.boggiatto@usda.gov

USDA/ARS
My interests are improved diagnostics and vaccination strategies for livestock and wildlife. I primarily study two chronic bacterial infections that cause disease in cattle and various wildlife species.

Patricia Calvo pcalvo@ksu.edu

Chemistry, Kansas State University
My research focuses on leveraging polymer chemistry to solve real-world problems. We use organic and polymer synthesis to create well-defined functionalized polymers that find applications in various fields, including drug-delivery, antimicrobials and agriculture.

Nsa Dada nsa.dada@asu.edu

School of Life Sciences, Arizona State University
I am a vector biologist and microbial ecologist interested in how microbes shape mosquito biology and mosquito-borne disease transmission. I currently lead pioneering research on microbe-mediated evolution of insecticide resistance in mosquito populations.

Nick DeFelice nicholas.defelice@mssm.edu

Environmental Medicine and Public Health, Icahn School of Medicine
I am an interdisciplinary engineer researching the relationship between public health interventions and health outcomes, with a goal of informing public health priorities to promote healthy communities.

Pilar Fernandez pilar.fernandez@wsu.edu

Paul G. Allen School for Global Health, Washington State University
As a disease ecologist my research focuses on the eco-epidemiology of zoonotic diseases, particularly, vector-borne diseases as complex socio-ecological systems, combining methods from epidemiology and ecology.

Scialog Fellows *Continued*

Hannah Frank hkfrank@tulane.edu

Ecology and Evolutionary Biology, Tulane University
I'm interested in the ecology and evolution of bat-pathogen interactions, especially human influences on host disease and immunity, pathogen-driven host evolution, and the diversity and evolution of adaptive immunity, particularly B and T cell receptors.

Jenna Guthmiller

jenna.guthmiller@cuanschutz.edu

Immunology and Microbiology, University of Colorado Anschutz Medical Campus
My group studies how early life exposure to influenza viruses shapes the development of broadly protective humoral immunity, including how exposure to human and zoonotic influenza viruses shape this process.

Matt Hopken matt.w.hopken@usda.gov

USDA/APHIS, National Wildlife Research Center
My research is focused on using population genetics, phylogenetics, molecular diagnostics, and metagenomics for conservation, disease ecology, and wildlife population management.

Diego Huet diego.huet@uga.edu

Pharmaceutical and Biomedical Sciences, University of Georgia
I am a molecular parasitologist studying the divergent metabolic adaptations of apicomplexan parasites, a group of single-celled eukaryotes of veterinary importance which also cause morbidity, mortality and substantial economic loss worldwide.

Silvie Huijben shuijben@asu.edu

School of Life Sciences, Arizona State University
I am interested in the evolutionary forces acting upon xenobiotic resistant and susceptible organisms under various ecological contexts, most particularly malaria parasites and mosquitoes, with the overall aim to develop of evidence-based resistance management strategies.

Joyce Jose jxj321@psu.edu

Biochemistry & Molecular Biology, Pennsylvania State University
Understanding the virus-vector and virus-host interactions in the replication, assembly, and transmission of zoonotic flaviviruses such as tick-borne Powassan, deer tick, and mosquito-borne Zika, and dengue using molecular genetics, proteomics, and live-cell imaging approach.

Jason Ladner jason.ladner@nau.edu

Biological Sciences, Northern Arizona University
My research utilizes highly-multiplexed serology and genomics to study the emergence, spread and evolution of infectious diseases. This includes the development of novel, open source bioinformatic software packages.

Steven Lakin steven.lakin@usda.gov

USDA/ APHIS
My research focuses on big data in the life sciences, applying cutting-edge mathematical, statistical, and computer science techniques to veterinary infectious disease and public health. I am particularly interested in pathogen agnostic surveillance and biodefense methodologies.

Scialog Fellows *Continued*

Kim Lehman kimberly.lehman@usda.gov

USDA/ APHIS

My research interests focus on animal health and the intersection with human health, specifically the areas of diagnostic testing for infectious diseases such as tuberculosis and brucellosis. I am interested in the One Health approach and its application in veterinary medicine.

Jenny Maloney jenny.maloney@usda.gov

USDA/ARS

My research centers on the detection and characterization of zoonotic and emerging pathogens important in food safety. My lab works to address the major challenges associated with the study of zoonotic parasites to better understand their epidemiology and improve public health.

Bethany McGregor Bethany.McGregor@usda.gov

USDA/ARS

My research focuses on the ecology of vectors and vector-borne diseases, including interactions between insects and their hosts, viruses, and the environment. My goal is to identify ways in which these interactions can be used to control vectors and prevent disease outbreaks.

Gisselle Medina gisselle.medina@usda.gov

USDA/ARS

My research focuses on understanding the molecular mechanisms underlying virus-host interactions. My research utilizes a variety of tools including transcriptomics and proteomics to develop novel live attenuated vaccines and biotherapeutics to control disease.

Angad Mehta apm8@illinois.edu

Chemistry, University of Illinois at Urbana-Champaign

My lab is working on developing novel platforms to combat emerging viruses on two fronts: (i) develop methods to stop entry of viruses within cells (e.g., antibody engineering) and (ii) develop methods to stop viral replication within cells (e.g., target viral RNA capping).

Dana Mitzel dana.mitzel@usda.gov

USDA/ARS, Foreign Arthropod-Borne Animal Disease Research Unit

I am interested in understanding the virus-vector interactions important for the replication, transmission and pathogenicity of arboviruses.

Louise Moncla lhmoncla@upenn.edu

Pathobiology, University of Pennsylvania

Our lab is interested in how viruses emerge in human populations and transmit between them. We draw on tools from phylodynamics, virology, and population genetics to study viral evolution and transmission from the scale of an individual host to across space and host species.

Dan Peach daniel.peach@uga.edu

Savannah River Ecology Lab and Infectious Disease, University of Georgia

Mosquito ecology, biogeography, and taxonomy.

Alex Perkins taperkins@nd.edu

Biological Sciences, University of Notre Dame

My research applies mathematical, computational, and statistical approaches to answer basic and applied research questions about the ecology and epidemiology of infectious diseases. This work is focused primarily, but not exclusively, on mosquito-borne diseases of humans.

Scialog Fellows *Continued*

Catalina Picasso picasso.2@osu.edu

Veterinary Preventive Medicine, Ohio State University

I use quantitative epidemiology in combination with knowledge on laboratory procedures, host immunity, and Bayesian statistics to optimize field use of diagnostic tests for the advance on the surveillance and control of infectious diseases.

Lars Plate lars.plate@vanderbilt.edu

Chemistry, Biological Sciences, Vanderbilt University
Developing mass spectrometry and chemical biology tools to study dynamic protein interactions. We aim to understand and target protein folding processes at the host-virus interface and in protein misfolding diseases.

Crystal Reid crystal.m.reid@usda.gov

USDA/APHIS; Center for Veterinary Biologics
Our laboratory is interested in characterizing cell lines used for culture and generating reporter cell lines and viruses, immortalizing primary cell lines, and generating multiplexed qPCR for detection of cultured viruses in veterinary biologics.

Karla Saavedra

Karla.Saavedra_Rodriguez@colostate.edu

Microbiology, Immunology and Pathology, Colorado State University
I am interested in the molecular basis of biological traits associated with vectorial capacity in mosquitoes, ticks and kissing bugs and in developing biomarkers that allow hypothesis testing of the evolution of these traits under different environmental conditions.

Liliana Salvador lilianasalvador@arizona.edu

School of Animal and Comparative Biomedical Sciences, University of Arizona

Ecology and evolution of infectious diseases; evolutionary dynamics; molecular epidemiology, bacterial phylodynamics, animal movement, human-livestock-wildlife interactions, One Health.

Danae Schulz dschulz@g.hmc.edu

Biology, Harvey Mudd College

We use African trypanosomes as a model system to address how organisms modulate their transcriptional programs to adapt to a particular environment. We use bench science and computational approaches to delineate modulations in chromatin that drive this adaptation.

Michael Schulz mdschulz@vt.edu

Chemistry, Virginia Polytechnic Institute and State University

Our research focuses on synthesizing antiviral and antimicrobial polymers, and studying polymer-pathogen interactions.

Stacey Scroggs stacey.scroggs@usda.gov

USDA/ARS, Arthropod-Borne Animal Disease Research Unit

My research uses a combination of experimental evolution, in vivo models, and bioinformatics tools to study the evolution of arthropod-borne viruses within a host in response to various selection pressures.

Becky Smith rlsdvm@illinois.edu

Pathobiology, University of Illinois at Urbana-Champaign

My research focuses on the epidemiology and control of infectious diseases, with a focus on One Health, including vector-borne disease, antimicrobial resistance, and COVID-19.

Scialog Fellows *Continued*

Tim Smyser timothy.j.smyser@usda.gov

USDA/ APHIS

I lead the Feral Swine Genetic Archive with a current research focus of using genomic tools to map the anthropogenic movement of invasive wild pigs. Additionally, I have worked on the delivery of medicinal baits to raccoons and other mesocarnivores to mitigate disease risk.

Yun Tao yuntao@uga.edu

Institute of Bioinformatics, University of Georgia *My current focus is on developing mathematical and computational frameworks for modeling large-scale ecological and movement patterns, predicting transient dynamics in contact structure and zoonotic outbreaks, and informing response strategies in advance of novel outbreaks.*

Gonzalo Vazquez Prokopec gm vazqu@emory.edu

Environmental Sciences, Emory University

Disease ecology, with specific interest in the sources of heterogeneity in the transmission of vector-borne diseases.

Nicholas Wu nicwu@illinois.edu

Biochemistry, University of Illinois at Urbana-Champaign

My research focuses on the molecular interaction between antibodies and viruses.

Anni Yang anni.yang@ou.edu

Geography and Environmental Sustainability, University of Oklahoma

My research holds a unique place in the field because I have worked on different domains of geography, epidemiology, and ecology, such as medical and health geography, spatial epidemiology, spatial disease ecology, and one health over the past 10 years.

Sara Zimmer szimmer3@d.umn.edu

Biomedical Sciences, University of Minnesota Twin Cities

I explore the organellar molecular biology and biochemistry of a group of flagellated protists, some of which have dual hosts and cause insect-transmitted diseases such as Chagas disease. I am primarily a mitochondrial RNA biologist.

Discussion Facilitators

Amy Baker amy.l.baker@usda.gov

USDA/ARS, Virus and Prion Research Unit
Influenza A virus and the human and swine interface.

Sara Cherry cherrys@penncmedicine.upenn.edu

Pathology and Laboratory Medicine, University of Pennsylvania

Since starting my lab at Penn, I have focused on discovering how emerging viral pathogens infect humans and cause disease. I have uncovered antivirals active through distinct mechanisms and identified synergies between antivirals that may be leveraged for treatment.

Peter Dorhout dorhout@iastate.edu

Chemistry, Iowa State University

Materials chemistry focused on nuclear materials for power generation, medicine.

Matt Erdman matthew.m.erdman@usda.gov

USDA/ APHIS

Veterinary vaccines and diagnostics.

Roxann Motroni roxann.motroni@usda.gov

USDA/ARS

As National Program Leader for Animal Health at USDA ARS, I oversee the animal health research program with particular interest in livestock and poultry bacterial and parasitic diseases. My research interests include finding novel tools to control these diseases.

Suelee Robbe-Austerman suelee.robbe-austerman@usda.gov

USDA/ APHIS, National Veterinary Services Laboratories

My research interests are associated with the diagnosis of disease, validation of test methods, reducing error in diagnostic testing and communicating diagnostic results in an effective manner.

Zac Schultz schultz.133@osu.edu

Chemistry, Ohio State University

My research interests are in developing label-free, optical, and non-invasive methods to detect and image molecules at trace concentrations and in complex samples. We adapt and build instruments to address these measurement challenges in diverse applications.

Wilfred van der Donk vddonk@illinois.edu

Chemistry, University of Illinois at Urbana-Champaign

Genome mining for natural products with antibiotic activities; mode of action studies of antimicrobial natural products; engineering of reagents that prevent viral infections.

Bill Wilson william.wilson2@usda.gov

USDA, NBAF

I am interested in virus-vector-host interactions and is developing novel strategies for detection, characterization, and mitigation of arboviral pathogens. This includes cooperative projects with several national and international partners.

Mike Wimberly mchwimberly@ou.edu

Geography and Environmental Sustainability, University of Oklahoma

My research combines ecological models with satellite Earth observations data to address scientific questions and create applications for public health and natural resource management. Interests include the effects of land use and climate on vector-borne disease transmission.

Guests

Danny Abrams dmabrams@northwestern.edu

Engineering Sciences & Applied Mathematics,
Northwestern University

My interests relevant to this Scialog are focused on how new scientific collaborations are established, and in particular the role conferences may play in that process.

Michelle Colby michelle.colby@usda.gov

USDA/NIFA, Division of Animal Systems

I am the National Program Leader for Animal Biosecurity in the Division of Animal Systems, USDA NIFA. I provide leadership for biosecurity related programs including the National Animal Health Laboratory Network and Agricultural Biosecurity (A1181).

Jeff Silverstein jeff.silverstein@usda.gov

USDA, Office of National Programs

My research background is animal genetics and breeding. My interests are very broad from genetics of the host and pathogen to understanding pathogenesis, disease transmission and epidemiology to countermeasure development.

Scialog: Mitigating Zoonotic Threats

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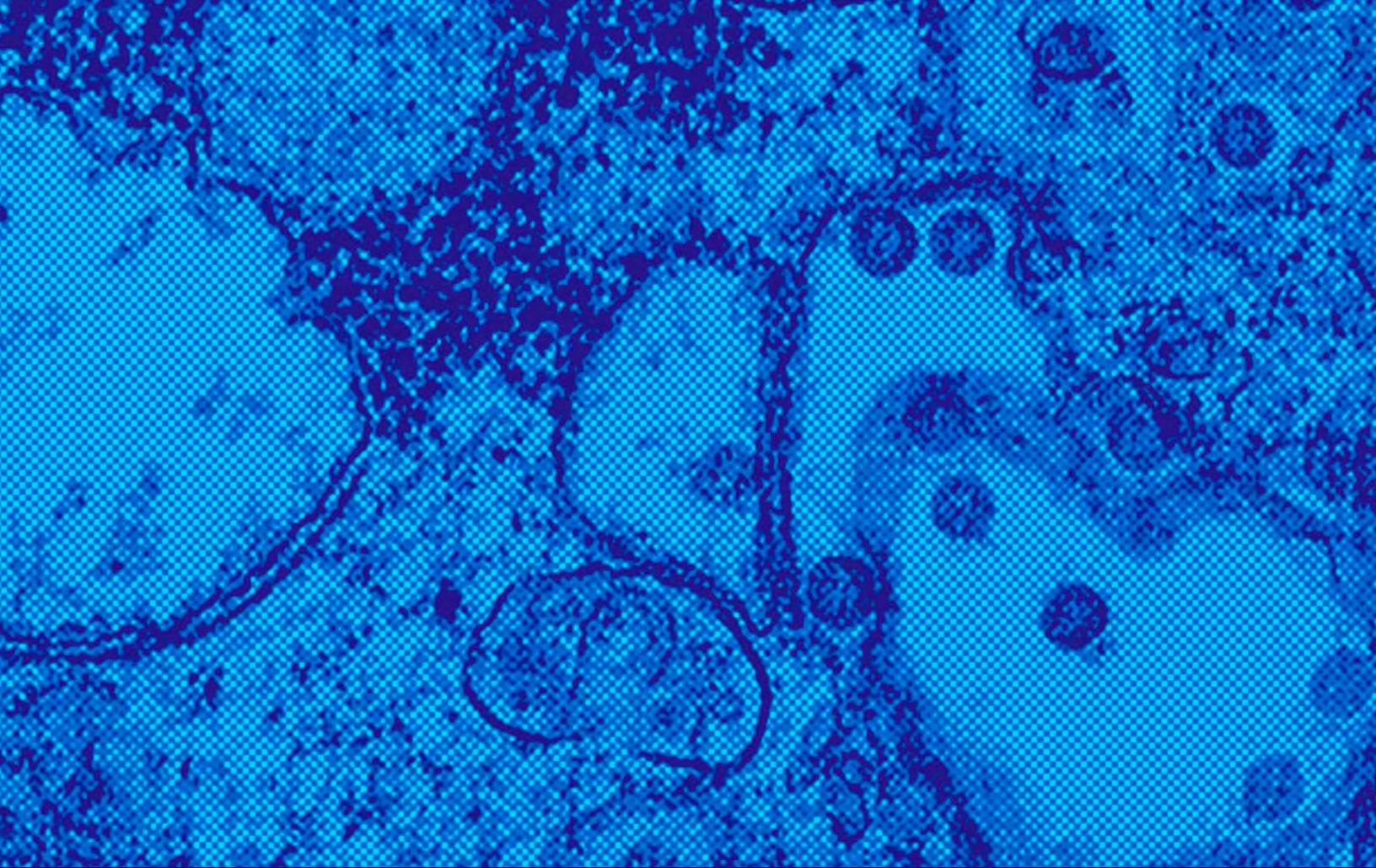
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