INTERSECTIONS SCIENCE FELLOWS SYMPOSIUM

November 1st-3rd, 2021

Intersecting science and diversity to support future leaders in the life sciences

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ISFS PROGRAM
NOVEMBER 1ST – 3RD 2021

DAY 1 – MONDAY, NOVEMBER 1ST

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1:45 - 2:00	**Welcome Address** Dr. Darin Latimore (Dean of Diversity and Inclusion, Yale School of Medicine); Dr. Nancy Brown (Dean, Yale School of Medicine)
2:00 - 3:45	**Session 1: Fellow Research Talks – Neuroscience** *Moderated by Dr. Monica Santisteban & Dr. Baoling Li* Dr. Lillian Brady (Vanderbilt University) *Sex-specific cholinergic regulation of dopamine release mechanisms in the nucleus accumbens* Dr. Diego Fernandez (National Institute of Mental Health) *Retina-brain circuits that process daily changes in ambient light to modulate animal behavior* Dr. Valerie Darcey (NIDDK) *Can your diet influence your behavior?* Dr. Edward Nieh (Princeton University) *Population Neural Dynamics in the Hippocampus and Beyond* Dr. Arnaldo Carreira-Rosario (Stanford University) Structure and function of spontaneous network activity during circuit formation
3:45 - 4:00	*Break*
4:00 - 5:45	**Session 2: Fellow Research Talks – Developmental Biology** *Moderated by Dr. Anil Kumar Ganga & Dr. Jennifer McKey* Dr. Marina Venero Galanternik (NICHD) *Anatomical and Molecular Characterization of the zebrafish meninges* Dr. Marlies Rossmann (Harvard University) *Dissecting metabolic gene regulatory networks in hematopoiesis* Dr. Laura James-Allan (UCLA) *The role of extracellular vesicles in gestational diabetes mellitus* Dr. Chrystian Junqueira Alves (Icahn School of Medicine) *Investigating the force-mediated mechanosignaling for the differentiation of pluripotent stem cells* Dr. Michael Piacentino (California Institute of Technology) *Plasma membrane lipid metabolism controls invasive cellular behavior during development*
5:45 - 6:00	*Break*

	Keynote Speaker
6:00 - 7:00	*Moderated by Rochelle Smith & Dr. Sunny Narayanan* **Dr. Shirley Malcom** Director of the SEA Change Initiative AAAS, Trustee at CalTech & Regent of Morgan State University

DAY 2 – TUESDAY, NOVEMBER 2ND

ET	
11:15 - 12:15	**Panel: Success Stories: Former Fellows Who Are Now Junior Faculty** *Moderated by Dr. Joanna Bandola-Simon & Dr. Danielle Tomasello* Dr. Christina Termini, Dr. Priyanka Verma, Dr. Gamze Gursoy, Dr. Michael Wells
12:15 - 1:00	*Break-* Associates Flash Talk Session Genetics, Biochemistry, Development Biology, Neuroscience
1:00 - 2:45	**Session 3: Fellow Research Talks – Genetics & Genomics** *Moderated by Dr. Michael Fernando & Dr. Dylan Van Kampen* Dr. Longzhi Tan (Stanford University) *Mapping the Dynamics of the Linear and 3D Genome of Single Cells in the Developing Brain* Dr. Shelbi Russell (University of California Santa Cruz) *Cellular mechanisms underlying bacterial symbiont inheritance* Dr. Adrianna San Roman (Whitehead Institute & MIT) *Cell-autonomous effects of sex chromosome constitution on gene expression* Dr. Maria Maldonado (University of California Davis) *Structural insights into plant respiration* Dr. Trevor Sorrells (Rockefeller University) *A persistent behavior state enables sustained predation of humans by mosquitoes*
2:45 - 3:00	*Break*
3:00 - 4:45	**Session 4: Fellow Research Talks – Biophysics** *Moderated by Dr. Chrystal Starbird & Dr. Nathan Beals* Dr. Cristina Rodriguez (UC Berkeley) *Next-generation optical imaging methods for probing the brain and spinal cord* Dr. Jasmine Nirody (Rockefeller University) *Adaptive biomechanics in complex, changing environments* Dr. Claudia Vasquez (Stanford University) *Of Folds & Lumens: How cells build complex 3D structures* Dr. Huong Kratochvil (University of California San Francisco) *Defining proton selectivity through protein design* Dr. Piere Rodriguez Aliaga (Stanford University) Dissecting the structural basis of Huntingtin pathogenesis: one molecule at the time
4:45 - 5:00	*Break*

5:00 - 6:00	**Fellows Networking Session** **Fellows: Faculty Networking**
6:10 - 7:00	**Networking (All registrants)** Networking rooms with different discussion topics: *Building inclusive labs* *Juggling work-life balance in academia* *Finding mentors and building mentoring relationships*

DAY 3 – WEDNESDAY, NOVEMBER 3RD

ET

12:15 - 1:00	Associates Flash Talk Session Microbiology, Immunobiology, Cancer Biology
1:00 - 2:45	**Session 5: Fellow Research Talks – Immunobiology** *Moderated by Dr. Preeti Thakur & Dr. Christine Daniels* Dr. Victor Cortez (University of California San Francisco) *Defining Type 2 Immune Responses within the Gut during Worm Infection* Dr. Kiel Telesford (Weill Cornell Medicine) *Differential Ethnicity, & Ancestry-associated B cell dynamics in Black/African American and Latino/a Individuals with MS* Dr. Oscar Aguilar Alfaro (University of California San Francisco) *Investigating the role of the CD16 Fc-gamma receptors in Natural Killer cells* Dr. Stephania Libreros (Harvard Medical School) *Role of Specialized Pro-Resolving Mediators (SPMs) in regulating the resolution phase of inflammation* Dr. Joel Babdor (University of California San Francisco) *Learning from success and failure: understanding the factors that control immunomodulation therapy responsiveness*
2:45 - 3:00	*Break*
3:00 - 4:00	**Panel: Diverse Voices - Division of Emotional Labor** *Moderated by Dr. Francesco Cambuli & Dr. Sohini Banerjee* Dr. Abha Rajbhandari, Dr. Antentor Hinton, Dr. Johnna Frierson, Dr. Malu Tansey
4:00 - 4:15	*Break*
4:15 - 6:00	**Session 6: Fellow Research Talks – Biochemistry & Molecular Biology** *Moderated by Dr. Colin Edward Evans & Dr. Anup Parchure* Dr. Rachel Niederer (Yale University) *Uncovering novel translational control elements within 5′-UTRs* Dr. Jaimie Marie Stewart (California Institute of Technology) *Towards programmable RNA Materials* Dr. Jeannette Tenthorey (Fred Hutchinson Cancer Research Center) *How the host fights back: evolutionary landscapes of host-virus arms races* Dr. Evan Lien (MIT) *Low glycemic diets alter lipid metabolism to impact tumor growth* Dr. Ranen Aviner (Stanford University) *Neurotoxic ribosome collisions: a new etiology for Huntington's Disease*

	Closing Remarks
6:00 - 6:30	Dr. Aileen Fernandez (Postdoctoral Fellow, Yale School of Medicine); Dr. Larry Gladney (Phyllis A. Wallace Dean of Diversity and Faculty Development; Professor of Physics, Yale Faculty of Arts & Sciences) Dr. Giovanna Guerrero-Medina (Executive Director of Ciencia Puerto Rico, Director, Yale Ciencia Initiative, Yale University School of Medicine, Assistant Director of Diversity, Equity and Inclusion, Yale's Wu Tsai Institute).

ISFS 2021 FELLOW BIOGRAPHIES

Oscar Aguilar, PhD

oscar.aguilar@ucsf.edu
University of California, San Francisco

Born in Soyapango, a neighborhood in the outskirts of San Salvador, El Salvador whose family was forced to migrate North to escape the violence from a brutal civil war. I was raised in Ottawa, Canada and it is here where I completed my education, ultimately receiving a PhD in Immunology. I have always been fascinated in understanding how our immune system protects us from pathogens. This has led me to study natural killer (NK) cells – specialized cells tasked with destroying pathogenic cells. My goal is to become an academic scientist further discovering the role that NK cells play in diseases, and finding ways that we can harness them therapeutically to improve patient outcomes.

Fields of Interest

Immunobiology, Microbiology, Molecular Biology, Virology

Talk Title

Investigating the role of the CD16 Fc-gamma receptors in Natural Killer cells

Talk Highlights

- There are key differences between human and mouse NK cell activation through CD16
- The adaptor molecule, CD3zeta is at the center of this difference
- Understanding the role of CD16 in NK cell recognition of viruses and cancer will help us to harness them therapeutically

Ranen Aviner, PhD

ranen@stanford.edu
Stanford University

Ranen received his Ph.D. from Tel Aviv University, Israel, where he worked with Orna Elroy-Stein to investigate the role of translation regulation in cell cycle progression. As a postdoctoral fellow with Judith Frydman at Stanford and Raul Andino at UCSF, he explored mechanisms and outcomes of ribosome remodeling during infectious and neurodegenerative disease. In his independent lab, Ranen plans to combine mass-spectrometry, genetic screens and models from virology and neurobiology to characterize the ribosome-associated proteome—a remarkably complex and dynamic network of biosynthetic factors—and how its disruption underlies human disease. Ranen is a former Rothschild, EMBO and HFSP fellow.

Fields of Interest

Biochemistry, Cellular Biology, Genetics, Molecular Biology, Neuroscience & Virology

Talk Title

Neurotoxic ribosome collisions: a new etiology for Huntington's Disease

Talk Highlights

- Huntington's Disease is a neurodegenerative disorder caused by expansion of a CAG repeat segment in Huntington, generating an aggregation-prone protein
- We find that translation of CAG-expanded Huntingtin is associated with detrimental ribosome collisions, exacerbated by age-dependent depletion of a critical translation factor, resulting in chronic neurotoxic stress
- Pharmacological modulation of ribosome collisions represents an attractive therapeutic strategy in Huntington's patients

Joel Babdor, PhD

joel.babdor@ucsf.edu
University of California, San Francisco

Dr. Joel Babdor, is a senior postdoctoral researcher in the Spitzer lab at UCSF. He uses high-dimensional profiling technologies and systems approach to study the human immune system. His research investigates the variation of response to therapeutic immunomodulation that exist across patients, with an interest that spans across clinical contexts where immunomodulators are used to either inhibit immune activity (immunosuppressants in organ transplantation autoimmunity and) or re/activate immune responses (immunotherapy in cancer and vaccination). Dr. Babdor interrogates the influence of the microbial exposome – the collection of exposures to external microbes and commensal microorganisms that constitute the human microbiome – as one of the factors that may condition immune configurations favorable or refractory to immunomodulation therapies.

Fields of Interest

Computational Biology, Immunobiology, Microbiology, Quantitative Biology

Talk Title

Learning from success and failure: understanding the factors that control immunomodulation therapy responsiveness

Talk Highlights

- Despite decades of use, the effect of established treatments such as immunosuppression on patients with organ transplants are poorly understood and lead to very variable responses across patients.

- Immunosuppressants are responsible for a deep remodeling of the peripheral immune system in all patients, but particular immune subsets present altered temporal trajectories in patients undergoing organ rejection as compared to patients with stable graft. We used a complex immune signature of circulating immune cells that include the distribution of Treg and gamma-delta T cells subsets before the graft to build a model that predicts clinical outcome.

- Patients' peripheral immune set point can be used to predict success or failure of immunosuppression therapy to tolerize kidney transplants.

Lillian Brady, PhD
lillian.j.brady@vanderbilty.edu
Vanderbilt University

Dr. Lillian J. Brady is a postdoctoral research fellow and NIH (NIDA) MOSAIC K99/R00 Scholar at Vanderbilt University in the Department of Pharmacology and the Vanderbilt Center for Addiction Research. Her current research focuses on sex differences in local microcircuit regulation of dopamine release mechanisms in the nucleus accumbens underlying substance use disorder. Lillian is from Jackson, Mississippi and graduated from Alcorn State University (HBCU) with a B.S. in Chemistry and M.S. in Biotechnology. She obtained her Ph.D. in Cell, Molecular, and Developmental Biology from the Department of Neurobiology at the University of Alabama at Birmingham. Dr. Brady in on the way to establishing her independent research program, where her future laboratory will investigate sex-specific pharmacodynamic regulatory mechanisms of drugs of abuse on local neural circuit activity and neurotransmitter release underlying reward learning and behavior.

Fields of Interest
Neuroscience

Talk Title
Sex-specific cholinergic regulation of dopamine release mechanisms in the nucleus accumbens

Talk Highlights
- Sex-specific regulation of dopamine release mechanisms underlying reward learning and behavior as it relates to substance use disorder, and how the cholinergic system regulates dopamine neurotransmission through nicotinic acetylcholine receptors in a sex-specific manner, has yet to be fully determined.

- The estrogen hormone, estradiol, potentiates dopamine release through nicotinic acetylcholine receptors, rendering them desensitized and unable to modulate behaviorally relevant (phasic) dopamine release.

- It is important to understand how motivational states differ between males and females in order to identify sex-specific mechanisms for more efficacious treatment interventions. This research has the potential to lead to better pharmacotherapeutic approaches for the treatment of substance use disorder.

Arnaldo Carreira-Rosario, PhD

arnaldo@stanford.edu
Stanford University

Dr. Arnaldo Carreira-Rosario is postdoctoral fellow in Tom Clandinin's lab at Stanford University, co-mentored by Chris Doe at the University of Oregon. He obtained his bachelor's degree at the University of Puerto Rico-Mayagüez, and his Ph.D. in Genetics and Development from UTSouthwestern in Michael Buszczak's lab. During his postdoctoral work, he established the Drosophila embryo as a system to study early spontaneous activity during motor circuit formation, identified a mechanism for how this activity is regulated, and demonstrated that this activity shapes motor behavior. His research program aims to reveal the underlying logic of how brains become active, and how early activity influences circuit formation to sculpt mature behaviors.

Fields of Interest

Computational Biology, Developmental Biology, Neuroscience

Talk Title

Structure and function of spontaneous network activity during circuit formation

Talk Highlights

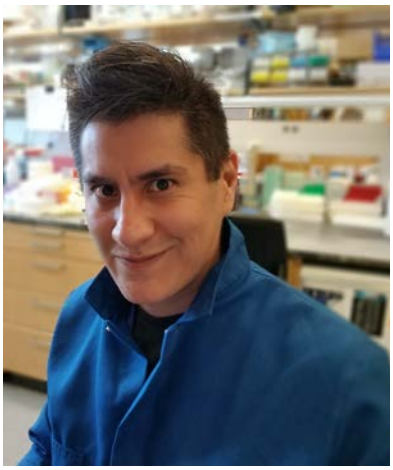
- How does the nervous system of an animal become active for the first time, and how does this initial activity shape nervous system function?

- We found that sensory inputs during development modulate the timing and the strength of initial neural activity and shape subsequent motor behavior.

- Given the intimate link between circuit formation and neurodevelopmental disorders, a deep understanding of how early neural activity shapes circuits and behaviors will provide foundational knowledge to dissect the underpinnings of neurodevelopmental disorders in the future.

Victor Cortez, PhD

victor.cortez@ucsf.edu
University of California, San Francisco



Victor Cortez is a CRI Irvington Postdoctoral fellow in the lab of Dr. Richard Locksley at UCSF. He studies Type 2 immune responses within the gut in the context of acute worm infection, intestinal remodeling, and cancer progression. He performed his graduate and early postdoctoral work in the lab of Dr. Marco Colonna at Washington University in St. Louis, where he studied type 1 innate lymphoid cells across multiple tissues and in tumors. His long-term research goals are to understand how tissue environments imprint immune cells with unique attributes and, how in turn, these immune cells impact tissue biology in health and disease.

Fields of Interest

Immunobiology, Microbiology, Virology

Talk Title

Defining Type 2 Immune Responses within the Gut during Worm Infection

Talk Highlights

- Type 2 immune responses are crucial for the expulsion of helminths from the gut. However, the cellular immune response within the gut has not been fully described during the peak of infection.

- We have found that the magnitude of the innate lymphoid cell response (ILC2) rivals that of the adaptive immune response (Th2) during the peak of infection. Additionally, we have begun to define how distinct tissue signals contribute to type 2 immune responses in a temporal manner

- With studies we have begun to build detailed models of type 2 immunity within the gut during helminth infection and the complex array of tissue signals that contribute to optimal tissue immunity.

Valerie Darcey, PhD

vdarcey@gmail.com
National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)

Dr. Darcey is a neuroscientist and Registered Dietitian interested in exploring how diet might influence the function of brain structures underlying our habits and goal directed behaviors. For her doctoral work, Dr. Darcey studied the relationship between omega-3 fatty acids and development of prefrontal cortex-mediated impulse control assessed using fMRI in adolescents. Now as a postdoctoral fellow, Dr. Darcey uses PET neuroimaging to study both the relationship between body weight, striatal dopaminergic function and habit-driven eating as well as the causal influence of macronutrients on dopaminergic function in humans. Outside of the lab, Dr. Darcey is an avid runner who loves to experiment in the kitchen too!

Fields of Interest

Cognitive science, Metabolism, Neuroscience

Talk Title

Can your diet influence your behavior?

Talk Highlights

- Trying to achieve a new goal necessitates overriding previously established, habitual behaviors. The brain's prefrontal cortex (PFC) and striatum govern these behaviors, respectively, and their function may be affected by nutritional factors.

- My early work demonstrates a link between levels of an essential fatty acid (Omega-3), PFC function via fMRI, and goal-directed impulse control in adolescents. Currently, I am investigating how body weight and dietary fat vs carbohydrate influence striatal dopamine function via PET in adults. This work demonstrates that while reduced dopamine levels are observed in adults with obesity, a reduced fat (but not reduced carb) diet increases tonic levels of striatal dopamine and may increase interest in highly palatable foods in the short term.

- Our ability to adhere to a new behavioral goal may be facilitated or hampered by dietary and nutritional factors.

Diego Fernandez, PhD
diegofil3@gmail.com
National Institute of Mental Health

Diego Fernandez is an Argentine neuroscientist investigating how neuronal circuits process environmental stimuli to modulate animal behavior. After obtaining his Ph.D. from the University of Buenos Aires, Argentina, he started his postdoc at Johns Hopkins University with the support of the Pew Latin American fellowship. During this stage, he characterized parallel retina-brain circuits that drive ambient light signals to affect learning and mood in mice. He then joined the NIMH, where he has been studying the impact of retinal innervation over circuits that timely modulate metabolism and behavior. Collectively, his findings have important implications for the study of retina-brain connectivity, circadian rhythms, and affective behavior, offering new conceptual approaches to study sensory perception.

Fields of Interest
Cellular Biology, Developmental Biology, Neuroscience, Physiology

Talk Title
Retina-brain circuits that process daily changes in ambient light to modulate animal behavior

Talk Highlights
- Exposure to irregular light schedules has become more prevalent in modern society, however, the mechanisms underlying light-mediated alterations on physiology are largely unknown.

- Parallel retina-brain channels encode and drive photic information to control distinct aspects of behavior.

- Delineating the different retina-brain circuits process photic signals becomes instrumental in generating innovative strategies to ameliorate human health deficits caused by aberrant environmental stimuli.

Laura James-Allan, PhD
laurajamesallan@hotmail.co.uk
University of California, Los Angeles

Dr. James-Allan is currently a postdoctoral fellow with the Devaskar group in the Department of Pediatrics at UCLA. Her research focuses on the role of extracellular vesicles in complications of pregnancy, including gestational diabetes mellitus, with a particular interest in the mechanistic role of the placenta. Dr James-Allan obtained her PhD at St George's University of London, after which she began a postdoctoral position in the Jansson/Powell laboratory at The University of Colorado. Dr James-Allan is seeking an academic faculty position, where she can develop and expand upon her research interests in extracellular vesicles in pregnancy, specifically regarding their role in maternal adaptations to pregnancy and fetal growth and development. She is also passionate about translating her research to the clinic, by developing early diagnostics and therapeutics for complications of pregnancy.

Fields of Interest
Cellular Biology, Computational Biology, Developmental Biology, Metabolism, Molecular Biology

Talk Title
The role of extracellular vesicles in gestational diabetes mellitus

Talk Highlights
- The incidence of gestational diabetes mellitus (GDM) is increasing worldwide leading to short-and long-term complications for both the mother and child. However, the underlying mechanisms underpinning GDM remain poorly understood. We hypothesize that small extracellular vesicles (sEVs) in the maternal circulation regulate glucose homeostasis and play a role in the pathogenesis of GDM.

- Circulating sEVs regulate maternal glucose homeostasis in pregnancy and may contribute to the attenuated islet insulin secretion and pronounced glucose intolerance in GDM as compared to healthy pregnancy.

- Results suggest that sEVs play a key role in the maternal metabolic adaptations to pregnancy and participate in the pathogenesis of GDM. Therefore, sEVs could be a potential early biomarker for the prediction of GDM.

Chrystian Junqueira Alves, PhD

chrystian.junqueira-alves@mssm.edu
Icahn School of Medicine, Mount Sinai

Dr. Chrystian Junqueira Alves, a senior Postdoc in the Departments of Neuroscience at the Icahn School of Medicine at Mount Sinai, New York, is fascinated about neurons. Since he was a young student, he asks himself: What is the nature of neurons? What makes them so special? Where do they come from? How do they know what kind of neuron they will become? Dr. Junqueira Alves is studying how to develop novel strategies to facilitate the differentiation of stem cells by manipulating intrinsic cell mechanics. His work has a great potential to accelerate the generation of subtype-specific neurons to facilitate central nervous system disease modeling, drug screening, and eventual cell replacement therapy.

Fields of Interest

Biophysics, Cellular Biology, Developmental Biology, Neuroscience, Physiology

Talk Title

Investigating the force-mediated mechanosignaling for the differentiation of pluripotent stem cells

Talk Highlights

- Plexins are axon guidance receptors that predate the appearance of nervous systems. In fact, Plexins originated in unicellular organisms greater than 600 million years ago.

- I found that Plexin-B2 function goes beyond axonal guidance and orchestrates multicellular dynamics of human embryonic stem cells (hESCs) and human neuroprogenitor cells (hNPCs) by controlling collective cytoskeletal dynamics and tensional forces. This in turn affects the maturation of adhesive complexes at cell-cell and cell-matrix junctions, thereby impacting membrane-association of β-catenin, focal adhesion and integrin activation, leading to alteration of cell morphology and tissue geometry, as well as stem cell behaviors. I further showed that Plexin-B2 signaling domains regulates RAP1/2 small GTPases, and the signaling relationship with the mechanosensitive transcription factor YAP (Yes-associated protein), thus providing a mechanistic link between Plexin-B2 signaling in stem cell physiology and in multicellular organization using cerebral organoids. Striking, I discovered that Plexin-B2-deficient human neuroprogenitors undergo spontaneous neuronal differentiation due to low cytoskeletal tension.

- As an independent investigator, I will develop novel strategies to accelerate the differentiation of stem cells by manipulating intrinsic cell mechanics. I will extensively

explore how a force-dependent rearrangement of the nuclear envelope can lead to epigenetic changes that promote neuronal differentiation. My research has a great potential to accelerate the generation of subtype-specific neurons to facilitate central nervous system disease modeling, drug screening, or eventual cell replacement therapy.

Huong Kratochvil, PhD
huong.kratochvil@ucsf.edu
University of California, San Francisco

Huong Kratochvil got her B.S. in Chemistry from the University of Texas at Austin. In 2016, under the supervision of Prof. Martin T. Zanni, she got her PhD in Physical Chemistry from the University of Wisconsin-Madison. Her graduate research focused on applying ultrafast vibrational spectroscopy to address complex biophysical questions concerning mechanisms of ion conduction in potassium ion channels. She continued her research on ion channel biophysics in the lab of Prof. William F. DeGrado at the University of California-San Francisco. Here, she is studying the fundamental roles of hydrophobic gaskets and water networks in proton channel function through the study of a natural proton channel from the influenza A virus and design of novel proton channels from scratch. Her research on proton channels has led to several fellowships including the NIH F32 and the K99 awards. In her future work, she will use protein design to: 1) test mechanistic hypotheses in membrane protein structure and function, and 2) define new protein–protein interactions for engineering novel protein-based materials and therapeutics.

Fields of Interest

Biophysics, Biochemistry, Computational Biology, Quantitative Biology

Talk Title

Defining proton selectivity through protein design

Talk Highlights

- Several mechanisms have evolved for precise movement of protons across cellular membranes, which is critical for many bioenergetic and biocatalytic processes. One such mechanism involves the instantaneous formation and dissipation of linear chains of water within otherwise apolar regions of the channel lumen. This experimentally-elusive transient water wire hypothesis supposes that these water wires are crucial to defining the selectivity of these channels for protons over all other ions.

- We successfully designed and characterized several proton-selective channels by introducing polar Gln mutants to key positions in the apolar pore of a non-conductive pentameric helical bundle. Molecular dynamics simulations of the six channels using their X-ray crystallographic structures indicate that the introduction of the polar Gln mutants lowered the energy barrier for water penetration into the pore, enabling formation of transient water networks that can allow for proton conduction within the channel lumen. Results from liposomal flux assays suggest that our designed channels are extremely selective for protons over all other ions, including K+ and Na+.

- Our work demonstrates for the first time that these hydrophobic gaskets and transient water wires define proton channel selectivity and conductivity: these short-lived networks allow for the movement of protons across membranes with high precision and fidelity.

Stephania Libreros, PhD

slibreros@bwh.harvard.edu
Harvard Medical School

Stephania Libreros is an Instructor in Anesthesia at Harvard Medical School, where she is conducting her NIH K99/R00 Pathway to Independence training. Stephania received a BS in Molecular Cell Biology with honors followed by a Ph.D. in Immunology from Florida Atlantic University. Stephania's research focuses on the innate immunological signals during acute inflammation and its resolution. Her long-standing interest is to determine: What are the molecular mechanisms that activate or disrupt the natural resolution of inflammation in humans? Her career goals include securing a tenure-track faculty position at a leading research institution and establishing an academic research program that elucidates endogenous host resolution mechanisms to accelerate the breakthrough of novel therapies to combat chronic inflammation. She is also strongly committed to mentoring future generations of aspiring students, scientists, and clinician-scientists, especially underrepresented minorities (URMs), to pursue an academic career in science.

Fields of Interest

Cellular Biology, Immunology, Metabolism, Molecular Biology

Talk Title

Role of Specialized Pro-Resolving Mediators (SPMs) in regulating the resolution phase of inflammation

Talk Highlights

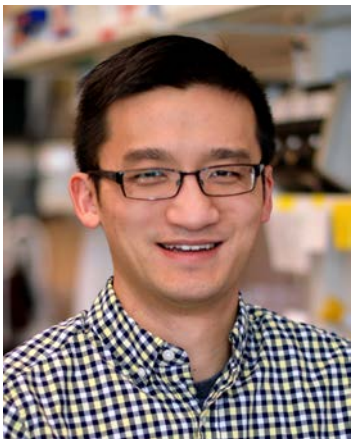
- SPMs play a fundamental role in the resolution of acute inflammation by governing the temporal and spatial regulation of leukocyte traffic and pro-inflammatory mediators.

- We identified a new resolvin, resolvin E4 (RvE4), under physiologic hypoxic conditions that potently stimulates the efferocytosis of both senescent erythrocytes and apoptotic neutrophils and the resolution of hemorrhagic exudates in vivo.

- 3. These results indicate that physiologic hypoxic environments including bone marrow and spleen as well as sites of inflammation activate novel resolvin biosynthetic circuits that in turn stimulate resolution, tissue protection, and evoked clearance of both senescent leukocytes.

Evan Lien, PhD

elien@mit.edu
Massachusetts Institute of Technology



Evan Lien's research focuses on how genetic and environmental factors regulate cancer metabolism. As a graduate student in Dr. Alex Toker's lab at Harvard Medical School, he studied how oncogenic PI3K signaling regulates antioxidant metabolism to support breast cancer cell proliferation. Evan is currently a postdoctoral fellow in Matthew Vander Heiden's lab at the Koch Institute for Integrative Cancer Research at MIT, where he is studying how diet-mediated changes to nutrient levels in the tumor microenvironment impact tumor metabolism and progression. Evan's future academic goal is to run an independent research lab that studies metabolic mechanisms by which different dietary interventions impact tumor progression that can be leveraged to therapeutically target the metabolic vulnerabilities of tumors.

Fields of Interest

Biochemistry, Cellular Biology, Metabolism, Molecular Biology

Talk Title

Low glycemic diets alter lipid metabolism to impact tumor growth

Talk Highlights

- Dietary interventions can change metabolite levels in the tumor microenvironment, which can then affect cancer cell metabolism to alter tumor growth

- Low glycemic diets, such as caloric restriction and the ketogenic diet, alter tumor lipid availability and tumor fatty acid metabolism to mediate their effects on tumor growth

- Studying molecular mechanisms that describe relationships between diet and cancer can provide insights into the metabolic demands of tumors and suggest how dietary interventions could be tested to improve patient care

Maria Maldonado, PhD

mmaldo@ucdavis.edu
University of California, Davis

Dr María Maldonado is a postdoctoral researcher in the Letts lab at the University of California-Davis, where she studies the structure and function of plant respiratory complexes. As a graduate student, María studied the regulation of chromosomal segregation with Dr Tarun Kapoor at the Rockefeller University. María's goal as an independent investigator is to understand how the respiratory chain of photosynthetic organisms works at the molecular scale. To do this, she will leverage her expertise in bioenergetics, membrane-protein biochemistry as well as molecular and structural biology to examine the function and structure of respiratory complexes of ecologically, evolutionary and agriculturally relevant organisms.

Fields of Interest

Biophysics, Biochemistry, Molecular Biology

Talk Title

Structural insights into plant respiration

Talk Highlights

- Plants are the foundation for human society. To survive, they need photosynthesis and respiration. Our knowledge of the biochemical and structural basis plant respiration has been very limited, precluding our ability to fully understand and manipulate plant metabolism.

- Applying novel biochemical and structural approaches, I obtained the first high-resolution structures of three respiratory complexes from the plant kingdom. These structures revealed plant-specific features, solved existing controversies on subunit compositions and dismantled long-held functional beliefs.

- This first atomic snapshot of plant respiration lays the foundation to test new mechanistic hypotheses, develop improved agricultural inhibitors and devise novel respiration-based strategies for crop improvement.

Rachel Niederer, PhD
rachel.niederer@yale.edu
Yale University

Fundamentally, I am interested in how RNA features affect biological processes. As an undergraduate I studied how rRNA modifications impacted translational fidelity. For my PhD I determined that telomerase RNA alone can adopt it's catalytically competent conformation, and that loss of telomerase function initiates a starvation response in yeast, causing an upregulation in autophagy and inducing hypersensitivity to oxidative stress. My postdoctoral work made foundational discoveries and developed powerful tools to answer the question that drives my current and future work: What determines the translational output of an mRNA? My research focuses on regulatory features found within 5'-untranslated regions (5'-UTRs), which are sufficient to cause thousand-fold differences in protein output per mRNA.

Fields of Interest
Biochemistry, Genomics, Molecular Biology

Talk Title
Uncovering novel translational control elements within 5′-UTRs

Talk Highlights
- A wealth of biochemical, genetic and structural data for specific cellular and viral 5'-UTRs reveal how certain elements work and highlight the enormous diversity of 5'-UTR regulatory mechanisms that remain to be explained.

- During my postdoctoral work I established Direct Analysis of Ribosome Targeting (DART) as a transcriptome-wide assay to specifically measure ribosome recruitment to >10,000 defined 5'-UTR sequences in parallel

- My work increased the number of validated translational control elements by 100-fold and established the power of DART to pinpoint translational control elements even down to single nucleotide differences in 5'-UTR sequence.

Edward Nieh, PhD
enieh@princeton.edu
Princeton University

I am honored and excited to be selected as an ISFS Fellow. I received my B.S.E. and M.S.E. in Bioengineering from the University of Pennsylvania working in Dr. Brian Litt's lab designing machine learning algorithms for seizure detection. I received my Ph.D. in Neuroscience from the Massachusetts Institute of Technology, where I studied the neural mechanisms behind feeding and other motivated behaviors in Dr. Kay Tye's lab. I am currently a postdoc in the labs of Drs. David Tank and Carlos Brody, where I've combined cellular-resolution imaging with state-of-the-art computational techniques to study population neural dynamics in the hippocampus. My future goal is to investigate how substances of abuse hijack natural reward-seeking mechanisms in the brain in order to develop the next generation of therapies for combating addiction.

Fields of Interest
Neuroscience

Talk Title
Population Neural Dynamics in the Hippocampus and Beyond

Talk Highlights
- The hippocampus has been studied separately for its mapping of space, other physical variables, and abstract/cognitive variables. It was not known how abstract/cognitive variables are integrated into neural representations of physical space.

- We found that neural activity from ~500 simultaneously imaged neurons in hippocampal CA1 was constrained to a ~5-dimensional subspace, i.e. the neural manifold, on which both physical and abstract variables were jointly mapped in an orderly manner.

- These results not only demonstrate a joint representational code of a complex decision-making task in the hippocampus, they demonstrate a generalizable technique for studying population neural dynamics in other brain areas or behaviors.

Jasmine Nirody, PhD
jnirody@rockefeller.edu
Rockefeller University

Jasmine Nirody is an Independent Fellow at the Center for Studies in Physics and Biology at The Rockefeller University and at All Souls College, University of Oxford. Her postdoctoral work was partially funded by a Fellowship in Complex Systems from the James S. McDonnell Foundation. Previously, she received her BA in Mathematics and Biology from New York University; she received her PhD in Biophysics from the University of California, Berkeley, where she was advised by George Oster. She is an integrative biologist, and her research sits at the interface of organismal behavior, biophysics, and evolution. She is interested in the physical interactions between organisms and their environments, and how these interactions in turn shape organismal form and behavior.

Fields of Interest
Biophysics, Computational Biology, Microbiology, Physiology, Quantitative Biology

Talk Title
Adaptive biomechanics in complex, changing environments

Talk Highlights
- As perhaps the smallest legged animal and one of the only known soft-bodied walkers, tardigrades possess a uniquely versatile set of locomotor tools. Tardigrades have evolved to move through a vast array of environments, and use locomotive strategies capable of dealing with variable terrain.

- We find that inter-limb coordination patterns in freely-behaving tardigrades (species: Hypsibius exemplaris) replicates several key features of walking in insects despite disparities in size, skeleton, and habitat. Our results show that phase offset between contralateral leg pairs is flexible, while ipsilateral coordination is preserved across environmental conditions. In particular, we find that tardigrades adapt their locomotion to a "galloping" coordination pattern when walking on softer substrates. This, similarly, mirrors a strategy seen in several species of insects and crustaceans.

- We propose that observed functional similarities in walking between tardigrades and arthropods is either due to a generalized locomotor control circuit common to panarthropods or to independent convergence onto an optimal strategy for robust multilegged control in small animals with simple circuitry. Our results highlight the value of tardigrades as a comparative system toward understanding the mechanisms --neural and/or mechanical -- underlying coordination in panarthropod locomotion.

Michael Piacentino, PhD
mpiacent@caltech.edu
California Institute of Technology

Michael Piacentino received his PhD from the laboratory of Dr. Cynthia Bradham at Boston University. He then began his postdoctoral research with Dr. Marianne Bronner at the California Institute of Technology. Dr. Piacentino is fascinated by how cells utilize the mechanical and biophysical properties of their plasma membrane to coordinate and respond to cell signaling events. He addresses these questions in vivo using the avian neural crest model system. In the future Dr. Piacentino is excited to use these interdisciplinary research questions as a playground to foster a creative research group that showcases the diverse experiences and expertise of its trainees.

Fields of Interest
Developmental Biology, Metabolism, Cellular Biology, Quantitative Biology, Biophysics and Biochemistry

Talk Title
Plasma membrane lipid metabolism controls invasive cellular behavior during development

Talk Highlights
- The plasma membrane is the first site of interaction with the extracellular environment; as such, membrane composition and organization play profound roles in regulating cellular signaling and behavior.

- By probing membrane organization in vertebrate neural crest cells in vivo, we have found that sphingolipid content controls epithelial-to-mesenchymal transition by promoting endocytosis and directional migration by increasing membrane fluidity.

- These results reveal how subtle changes in lipid metabolism have broad-reaching effects on membrane organization and cell signaling and provide novel therapeutic targets to combat aberrant invasive cellular behaviors in congenital disorders and metastasis.

Cristina Rodriguez, PhD
crisrod@berkeley.edu
University of California, Berkeley

Cristina began her journey in physics as an undergraduate student in Venezuela and continued during her PhD at The University of New Mexico, where her research focused on nonlinear optical microscopy. Driven by her passion for understanding the brain, Cristina joined as a postdoctoral scholar the group of Professor Na Ji, at the HHMI Janelia Research Campus and currently at the University of California, Berkeley, where she has worked building the next-generation of microscopes to understand how the brain works, pushing the boundaries on imaging depth, resolution, and speed. For her future research, Cristina will keep pushing the development of optical imaging tools and apply them to study abnormalities of brain vasculature associated with neurodegenerative disorders and to investigate the functional coding of touch in the spinal cord under healthy and pathological pain conditions.

Fields of Interest
Biophysics, Neuroscience, Physiology

Talk Title
Next-generation optical imaging methods for probing the brain and spinal cord

Talk Highlights
- Understanding the complexity of biological systems requires the visualization of structures and processes deep within living organisms, with high resolution and speed.

- We developed an adaptive optics module for multiphoton microscopes that corrects for tissue-induced aberrations. Using this module, we achieved substantial improvements in image quality, along with subcellular resolution, on a variety of biological structures in vivo, including deep layers of the mouse brain and the mouse spinal cord.

- Technological advances such as the ones presented here open the door for studying biological phenomena inside living tissues at great depths and with subcellular resolution, in fields ranging from neurobiology to cancer biology.

Piere Rodriguez-Aliaga, PhD

piererod@stanford.edu
Stanford University

Piere started his journey in Biophysics as an undergraduate in Peru imaging DNA and proteins with atomic force microscopy, and continued during his PhD with Carlos Bustamante at UC Berkeley, where he used single-molecule methods to dissect how protease machines transduce the energy from ATP hydrolysis into mechanical work for substrate unfolding and translocation. As a postdoc with Judith Frydman at Stanford, he uses structural, biophysical, and in vivo methods to dissect the operation of molecular chaperones, and has developed a single-molecule method that has revealed new insights on how disease-causing mutations affect the structure of the protein linked to the onset of Huntington's disease. Together, these projects are the basis for his future interdisciplinary research aimed at understanding how protein misfolding is linked to neurodegenerative diseases, and the role of molecular chaperones in this process. Piere is a fellow of the Hereditary Disease Foundation.

Fields of Interest

Biophysics, Neuroscience, Quantitative Biology

Talk Title

Dissecting the structural basis of Huntingtin pathogenesis: one molecule at the time

Talk Highlights

- The onset of Huntington's disease is linked with the length of the poly-glutamine (polyQ) tract within the Huntingtin protein (Htt): a polyQ tract longer than 35 glutamines renders this protein toxic to neurons. The mechanism behind this length-dependent toxicity remains unknown, mainly because most current experimental methods cannot obtain high-resolution structures of Huntingtin due its highly disordered and aggregation-prone nature. To circumvent these technical barriers, I developed a method to study with high-resolution how disease-causing mutations affect Htt's structure—one molecule at a time.

- I found structural differences (not reported before) between the pathogenic and the non-pathogenic Htt species, and that Htt phosphorylation induces a conformational change that (despite having an expanded polyQ tract) makes it less toxic.

- These observations provide new evidence supporting a polyQ-length and phosphorylation dependent conformational switch that dictates Htt conformation and its toxicity. This unique single-molecule approach can be applied to the structural characterization of the monomeric and oligomeric toxic conformations of other similar disease-linked proteins such as associated to tau, a-synuclein, ataxins,

Marlies Rossmann, MD-PhD

rossmann@fas.harvard.edu
Harvard University

As a medical student at Free University of Berlin, Germany, Marlies completed her MD thesis at the Max Delbrück Center for Molecular Medicine and Max Planck Institute for Molecular Genetics. After her medical residency in Neurology and Internal Medicine, Marlies moved to Cold Spring Harbor Laboratory as a student at the State University of New York at Stony Brook to do her PhD thesis on epigenetic mechanisms in budding yeast. She then joined Harvard's Department of Stem Cell and Regenerative Biology as a postdoctoral fellow, where she focused on the transcriptional requirements in early hematopoiesis and their link to metabolism, using zebrafish and human cells as model systems. Marlies' future research goal is to investigate the crosstalk between the metabolic state, chromatin and transcription during lineage differentiation in vivo, using hematopoiesis as a paradigm.

Fields of Interest

Cellular Biology, Developmental Biology, Genetics, Genomics, Metabolism, Molecular Biology

Talk Title

Dissecting metabolic gene regulatory networks in hematopoiesis

Talk Highlights

- Transcription and metabolism both influence cell function, but how specific metabolic pathways are transcriptionally instructed during lineage differentiation has not been defined.

- Inhibition of the pyrimidine synthesis enzyme DHODH rescues erythroid differentiation in a zebrafish anemic mutant defective for the lineage transcription factor tif1γ, and this rescue depends on a functional link between DHODH and the electron transport chain via coenzyme Q activity.

- This work demonstrates that mitochondrial metabolism is a key output of a lineage transcription factor that drives cell fate decisions in the early blood lineage and suggests that metabolism could play an instructive role in lineage differentiation more broadly.

Shelbi Russell, PhD
shelbilrussell@gmail.com
University of California Santa Cruz

The natural world is full of symbiotic associations between diverse organisms that enable innovative solutions to ecological and environmental pressures. My research uses model and non-model systems to understand how these associations are maintained from generation-to-generation. Using computational approaches I developed in my PhD and in vitro and in vivo experimental systems I developed in my postdoc, my future lab will reveal the functional genetic underpinnings and evolutionary implications of symbiont transmission. Long-term, I aim to apply these findings to biological control applications that use symbionts to control host populations (e.g., Wolbachia bacteria in mosquitoes). My multidisciplinary research program in a rapidly developing field in academia and industry will provide excellent career opportunities to my future trainees.

Fields of Interest
Cellular Biology, Computational Biology, Developmental Biology, Microbiology

Talk Title
Cellular mechanisms underlying bacterial symbiont inheritance

Talk Highlights

- Many animals and plants harbor bacterial symbionts and transmit them to their offspring through unknown mechanisms.
- In the fruit fly-Wolbachia symbiosis we show that Wolbachia bacteria compete with the host for access to the molecular motors that assemble the germline itself.
- By being a poor competitor for its host's motor proteins, Wolbachia may have evolved a mechanism to side-step negatively interfering with normal host development.

Adrianna San Roman, PhD
sanroman@wi.mit.edu
Whitehead Institute and MIT

Dr. Adrianna San Roman received her Ph.D. in developmental and regenerative biology from Harvard University, where she studied the epigenetic regulation of stem cells in intestinal regeneration. As a postdoc in the laboratory of David Page at the Whitehead Institute, she is investigating how the number and combination of X and Y chromosomes regulates gene expression in human cells. Her long-term goal is to understand the mechanisms by which the sex chromosomes directly impact human biology, apart from other variables associated with sex, such as hormones or environmental factors. In this endeavor, Dr. San Roman looks forward to leading a diverse team valuing integrity, inclusion, and outreach.

Fields of Interest
Cellular Biology, Developmental Biology, Genetics, Genomics, Molecular Biology

Talk Title
Cell-autonomous effects of sex chromosome constitution on gene expression

Talk Highlights

- Sex chromosome constitution is the most common genetic variation in humans, however, the impacts of this variation on human biology outside of the reproductive tract are poorly understood. I used a human cell culture model incorporating natural variation in sex chromosome constitution (from one to four X chromosomes and zero to four Y chromosomes), to ask: How does X or Y chromosome copy number impact gene expression?

- I developed a quantitative metric to assess gene expression from the “inactive” X chromosome and identified genes that are likely to play a role in mediating the effects of X or Y copy number.

- This work provides mechanistic understanding of how sex chromosome copy number can cell-autonomously impact phenotype, setting the stage to better understand the many differences between individuals with the most common sex chromosome constitutions (46,XX vs 46,XY) and with fewer or additional sex chromosomes (such as 45,X and 47,XXY, among others).

Trevor Sorrells, PhD

trevorsorrells@gmail.com
The Rockefeller University

Dr. Trevor Sorrells is a postdoc studying mosquito behavior in the lab of Leslie Vosshall at Rockefeller University. Using genetic techniques to activate neurons using light, he found that mosquitoes search for humans for more than 10 minutes after a brief sensation of human breath. This provides a behavioral explanation for why mosquitoes are so persistent at biting humans. His graduate work at UCSF in the lab of Sandy Johnson focused on how biological networks evolve over hundreds of millions of years. His lab will identify the neural circuits controlling blood feeding in mosquitoes and determine the genetic and cell-type basis for how blood feeding arose in evolution.

Fields of Interest

Neuroscience

Talk Title

A persistent behavior state enables sustained predation of humans by mosquitoes

Talk Highlights

- Mosquitoes use sensory signals such as smell, body heat, and taste to find humans and take a blood meal
- We found that mosquitoes possess a persistent internal behavior state for integrating human signals over time
- This provides a behavioral mechanism for why mosquitoes are effective biters

Jaimie Marie Stewart, PhD
jms@caltech.edu
California Institute of Technology

Dr. Jaimie Marie Stewart is a postdoctoral fellow at the California Institute of Technology in Dr. Paul W.K. Rothemund's group focusing on the design, synthesis, and characterization of DNA and RNA structures for the detection of biomolecules. She is a NSF-AGEP Scholar, KNI Prize Postdoctoral Fellow, Ford Foundation Postdoctoral Fellow, and a LSRF Fellow sponsored by Merck Research Laboratories. She received her Ph.D. in Bioengineering from the University of California, Riverside, where she studied the self-assembly principles of RNA molecules and her B.S. in Bioengineering with a concentration in cell and tissue engineering and a minor in Italian from the University of Illinois at Chicago. Through her research, teaching, and mentoring, Dr. Stewart has been recognized as one of 100 Inspiring Black Scientists in America by Cell Mentor. Her future goals are to lead an independent research group that will develop programmable RNA materials capable of detecting molecules and directing cell fate.

Fields of Interest
Biophysics, Biochemistry, Molecular Biology

Talk Title
Towards Programmable RNA Materials

Talk Highlights
- RNA is a structurally and functionally rich molecule, capable of genetic storage and biocatalytic activity, with great promise as a biomaterial to build structures with nanoscale precision.

- We demonstrate the design and synthesis of multi-stranded RNA assemblies that range from highly defined crystalline arrangements to amorphous structures that are capable of silencing genes and sequestering molecules.

- This work presents insight into RNA self-assembly and advancing research strategies for novel biomaterials for therapeutic treatments and diagnostics.

Longzhi Tan, PhD
tttt@stanford.edu
Stanford University

Originally from Wuhan, China, Tan received his SB in Physics (minor: Biology) from MIT in 2012, studying evolution with Jeff Gore and Pardis Sabeti. He earned his PhD in Systems Biology from Harvard in 2018, developing high-precision methods for single-cell genomics with Sunney Xie. He uncovered the 3D structure of the human genome in a single cell, and revealed unique chromosome organization in the mouse eye and nose. As a postdoc in Karl Deisseroth's lab at Stanford (co-mentor: Howard Chang), Tan studies single-cell 3D genome and spatial transcriptome of normal and diseased brains. Outside of the lab, he enjoys designing holiday cards, t-shirts, and music videos, and is a scientific illustrator. Tan aims to decode the 3D genome architectural basis of neurodevelopment and aging by advancing the technological frontier of single-cell in vivo multi-omics, using the cerebellum as a model system.

Fields of Interest
Biophysics, Biochemistry, Cellular Biology, Computational Biology, Developmental Biology, Genetics, Genomics, Molecular Biology, Neuroscience, Quantitative Biology

Talk Title
Mapping the Dynamics of the Linear and 3D Genome of Single Cells in the Developing Brain

Talk Highlights
- Neurodevelopment relies on 3 intimately related dimensions of our genome—linear DNA sequence, gene transcription, and 3D genome architecture; however, existing technologies struggle to capture their enormous complexity and cell-to-cell heterogeneity in vivo.

- To bridge this gap, I developed 2 high-precision methods: Dip-C resolved the first 3D structure of the human genome, tackling a longstanding problem dating back to the 1880s and revealing unexpected 3D genome transformation in the mouse brain after birth; META-CS determined the true mutation spectrum of single human brain cells, free from chemical artifacts.

- Together, my findings uncovered an unknown dimension of neurodevelopment, and opened up opportunities for new treatments for developmental and degenerative disorders.

Jeannette Tenthorey, PhD

jtenthor@fredhutch.org
Fred Hutchinson Cancer Research Centre

Dr. Tenthorey studies the innate immune system, the host's first line of defense against invading pathogens, at both the biochemical and evolutionary level. During her Ph.D. with Russell Vance at UC, Berkeley, she investigated the molecular mechanism and structure of an innate immune defensive system – the NAIP/NLRC4 inflammasome – that senses and inhibits bacterial pathogens. Fascinated by the fact that hosts must defend against pathogens that can (and do) evolve to evade these defenses, Dr. Tenthorey joined Harmit Malik's lab at the Fred Hutch to understand how the host counter-evolves against escaping pathogens. She studies these "evolutionary arms races" between viruses like HIV and the host proteins that inhibit them, with a specific interest in the strategies that allow hosts to "keep up" with pathogens. She plans to investigate whether hosts use permissive evolutionary landscapes as one such strategy, and to use these landscapes as tools to understand the molecular mechanism of host defenses.

Fields of Interest

Biochemistry, Immunobiology, Virology

Talk Title

How the host fights back: evolutionary landscapes of host-virus arms races

Talk Highlights

- Host immune defenses and viruses are locked in evolutionary arms races, repeated cycles of mutation and counter-mutation. How can hosts compete with the rapid pace of viral evolution?

- I found that one host antiviral protein (TRIM5, which inhibits HIV and other retroviruses) evolves within a mutationally resilient and highly adaptable evolutionary landscape, in which many possible mutations improve potency against one virus without disrupting recognition of another.

- Permissive landscapes improve the odds of adaptation, helping hosts keep pace in evolutionary arms races.

Kiel Telesford, PhD
KielTPhD@gmail.com
Weill Cornell Medicine

Dr. Kiel Telesford is a translational scientist dedicated to resolving ethnicity-associated disease disparity in autoimmune degenerative conditions. Dr. Telesford proposed and conducted a direct immunologic study to better understand disparate disease severity in people of color with multiple sclerosis. His pioneering work in this area was recognized by a Weill Cornell Dean's Diversity and Healthcare Disparity Research Award; appointment to the Ernest Everett Just Program as an Associate Fellow; and being listed as one of '1000 Inspiring Black scientists in America' by Cell Press. Dr.Telesford anticipates establishing his own research group at a major medical university to continue his research.

Fields of Interest
Cellular Biology, Immunobiology, Metabolism, Molecular Biology, Neuroscience

Talk Title
Differential Ethnicity, & Ancestry-associated B cell dynamics in Black/African American and Latino/a Individuals with MS

Talk Highlights
- Disparate disease severity among Black African MS patients is well established compared to Caucasian counterparts and is not completely explained by socioeconomic inequality. Clinical and paraclinical metrics suggest differential humoral responses among African American patients with MS.

- In our MS cohort, Black African, and Latin American ethnicity are associated with heightened antibody-secreting cells, and evidence of increased T-dependent B cell activity relative to White ethnicity.

- Differential T cell-dependent B cell responses may underlie specific heightened immunopathic lymphocyte activity in MS patients. Better understanding the cellular and molecular mechanisms promoting the quantitative dynamics and neurotoxic potential of these responses may provide nuanced prognostic and therapeutic targets for MS, and perhaps other conditions with similar immunopathogenesis.

Claudia Vasquez, PhD
claudia.vasquez@stanford.edu
Stanford University

Dr. Claudia Vásquez is interested in identifying the molecular and physical rules cells utilize to build complex three-dimensional tissue structures. Claudia received her PhD from MIT in Adam Martin's group, where she studied the regulation of the contractile machinery required for tissue folding. During her postdoc in Alex Dunn's group at Stanford University, she has worked to understand how cells construct a hollow opening, or lumen, in a formerly solid mass of cells. Together, these projects form the basis for her future independent research aimed at understanding how living tissues are constructed from molecular- to organ-scales.

Fields of Interest
Biophysics, Cellular Biology, Developmental Biology, Quantitative Biology

Talk Title
Of Folds & Lumens: How cells build complex 3D structures

Talk Highlights
- Lumens are hollow openings between cells and are an archetypal structure throughout our organs.

- Using live-cell imaging, image analysis, and physical modeling, I identified that lumen shape and stability are intrinsically coupled to the formation of distinct apical cell surfaces, such that the shape of individual cells dictates the shape of the resulting opening.

- This finding highlighted what is likely an evolutionarily deep connection between cell polarization and the physics of tissue morphogenesis.

Marina Venero Galanternik, PhD

marina.venerogalanternik@nih.gov
NICHD, NIH

Marina Venero Galanternik is a postdoctoral fellow studying the zebrafish meninges and its resident cells in the Weinstein Laboratory at the National Institutes of Health in Bethesda, MD. She did her graduate training with Dr. Tatjana Piotrowski at the University of Utah and the Stowers Institute, investigating the roles of heparan sulfate proteoglycans in the development of the zebrafish lateral line and she further honed her interest in developmental biology by participating in the Embryology course at the Marine Biological Laboratories in Woods Hole. Her awards and honors include a K99/R00 award and an NICHD "Mentor of the Year Award" for her dedication to mentoring. Marina's goals include pursuing an academic position where she can expand her work on the meninges, having an active role making academia more inclusive and welcoming to all.

Fields of Interest

Cellular Biology, Developmental Biology, Molecular Biology, Neuroscience

Talk Title

Anatomical and Molecular Characterization of the zebrafish meninges

Talk Highlights

- The meninges are protective membranes that envelope our brain and spinal cord.
- Zebrafish have complex, multilayered meninges that strongly resemble those of mammals.
- The zebrafish is a superb model for comparative studies of meningeal development, function, and pathology.

ISFS FELLOW DIVERSITY, EQUITY AND INCLUSION (DEI) EFFORTS

Dr. Oscar Aguilar

At UCSF, IDr. Aguilar has been involved in organizing ImmunoDiverse, a collective of trainees in the immunology community who aim to tackle racism in STEM (and everywhere else we can reach). Dr. Aguilar has been involved in spearheading the outreach programs, which by partnering with programs at UCSF and in the Bay Area, are focusing on giving young scientists from PEER backgrounds the opportunity to get scientific training at early career stages (from high school to post-bacc) through internships.

Dr. Ranen Aviner

Through open dialog, empathy and compassion, Dr. Aviner strives to create an accepting and welcoming environment for a multitude of voices and perspectives. Dr. Aviner knows first-hand the difference a single person can make by acknowledging individual challenges, and believes that embracing and celebrating uniqueness is key to scientific and societal progress.

Dr. Joel Babdor

As a community member at UCSF, Dr. Babdor is involved in sharing his vision and his expertise in navigation of large collaborative translational research projects as an appointed member of the UCSF CoLabs Steering Committee and the Benioff Center for Microbiome Medicine Executive Committee. As a community advocate, Dr. Babdor has co-founded Black In Immuno, a national non-profit organization with international reach to support and amplify Black immunologists around the world. Dr. Babdor has also co-founded ImmunoDiverse, a local DEI initiative set to support the development of a more welcoming environment for URMs within the Immunology and Microbiology community at UCSF and beyond. For these initiatives, Dr. Babdor is proud to have been recognized with the 2021 UCSF Chancellor Award for Public Service.

Dr. Lillian Brady

Dr. Brady believes that giving back to underrepresented trainees at earlier stages in their academic development will greatly contribute to increasing diversity, equity, and inclusion (DEI) efforts in academia. To carry out this mission, she has deliberately taken time away from focusing on scholarship at each academic stage to participate in outreach events, facilitate service and networking opportunities, participate in panel discussions, and co-author commentaries on improving DEI in academia. Recently, Dr. Brady contributed to a commentary published in Cell entitled, “Patching the Leaks: Revitalizing and Reimagining the STEM pipeline,” which provides actionable ways for the scientific community to curtail racial disparities in STEM and lists programs at each academic stage for underrepresented trainee development and mentorship.

Dr. Victor Cortez

Dr. Cortez is a founding member of ImmunoDiverse at UCSF, which aims to create an anti-racist and welcoming environment for all people. He is the Chair of Undergraduate Outreach, which aims to establish relationships and advertise UCSF lab opportunities to university

programs that serve URM populations. Dr. Coretz also serves as the Co-Chair of Community Engagement, helping organize the first ImmunoDiverse Colloquium, which celebrates the scientific achievements of our URM colleagues.

Dr. Valerie Darcey

Dr. Darcey's efforts in the arena of diversity, equity and inclusion are broadly involved at two levels – at the level of individuals and at the level of the institution. To effect immediate, tangible change, she actively recruits and mentors individuals from groups historically underrepresented in science. As a woman of color advancing through science, Dr. Darcey is able to share not only her network and lessons learned, but also be an accessible role model in a familiar image. To effect wide-reaching change, she engages in service and outreach initiatives from steering committees advising on institutional DEI issues to helping spearhead Trainees Recognizing Excellence and Diversity in Science (TREaDS), a new NIDDK seminar series promoting scientists with a demonstrated commitment to increasing DEI in their respective fields.

Dr. Diego Fernandez

Throughout his career as a Latin American scientist, Dr. Fernandez has seen the need for role models in academia that mirror contemporary society's diversity. As a future leader of a research group, he commits to working together with agencies and community groups that connect labs with candidates from underrepresented minorities historically excluded based on their background. Embracing diversity, equity, and inclusion is the first step in generating a safe space where all individuals can explore their potential and thrive.

Dr. Laura James-Allan

Within her postgraduate studies, Dr. James-Allan has had the opportunity to mentor students, including underrepresented minorities. In her future faculty role, Dr. James-Allan aims to be an enthusiastic and inspirational role model and to have a diverse and inclusive research group in which she can teach and mentor a range of students and postdocs. As a faculty member, she wants to work on developing programs that give students and postdoctoral fellows, with a particular emphasis on underrepresented minorities, the knowledge and skills to advance their academic careers successfully.

Dr. Chrystian Junqueira Alves

As an immigrant Latino scientist in the United States, Dr. Junquira Alves knows the real value of Diversity not only for changing the lives of young students who want to make a real impact in science but also for enhancing the institution's research capabilities. For this reason, he will continue to seek scientists from Latin America to collaborate in his projects and involve students from diverse backgrounds in these projects. As an independent neuroscientist, Dr. Junqueira Alves wants to be recognized as an inspirational leader and mentor in promoting Diversity.

Dr. Huong Kratochvil

Achievement of inclusive excellence requires that we clearly address issues of racism, sexism, and ableism in science and our communities. Dr. Kratochvil has actively recruited traditionally underrepresented students to graduate programs, and worked at the university level to develop strategic plans to enhance recruitment and retention of diverse students, faculty, and staff. Furthermore, she has advocated and built awareness for the needs of women in the sciences. As she transitions into a faculty position, Dr. Kratochvil remains committed to efforts in diversity and inclusion through engagement with the local community, active recruitment of marginalized scientists, and continued advocacy at the administrative level.

Dr. Stephania Libreros

As a postdoctoral fellow, Dr. Libreros helped facilitate the Continuing Umbrella of Research Experiences program for URM students at the Dana Farber Cancer Institute, which encourages URM students to pursue future careers in STEM and cancer research. As the Chair of the Advocacy Committee for the Harvard Medical School Postdoctoral Association, she advocated for issues that directly impact the lives of her colleagues, such as health insurance, mental health, and parental leave. Dr. Libreros was also privileged to serve as a chair and founder of the Members in Transition and Training Focus Group for the Society for Leukocyte Biology, in which capacity she advocated for student and postdoctoral career DEI within the Society.

Dr. Evan Lien

Dr. Lien is committed to providing opportunities for students of all backgrounds, including underrepresented minority (URM) groups, to promote diversity, equity, and inclusion in his lab, classroom, and institution. Throughout his career, Dr. Lien has mentored many students in his lab (including students from URM groups), participated in mentoring programs such as the MIT Mentor Advocate Partnership Mentor Program, and engaged a diverse student population through his teaching in courses at Harvard and MIT. As a research group leader, Dr. Lien will be committed to building an anti-racist lab by helping all lab members grow in their understanding of actions we can take to build an inclusive lab environment, intentionally recruiting students and staff from URM groups, promoting DEI through mentorship, and working to teach inclusively at his institution.

Dr. Edward Nieh

Dr. Nieh is currently organizing/participating in an interactive recruitment event for neuroscience students at the University of Puerto Rico through the Neuro-ID program. As faculty, he would love to expand his recruitment efforts to more minority serving institutions by establishing a formal program to send faculty/postdocs/students to engage students in these underrepresented communities.

Dr. Jasmine Nirody

Dr. Nirody thinks it is vital to address not only structures that preclude entry into the scientific community, but also inequities present once those doors are opened. To this end, she is passionate about promoting open access practices, to address the gap between academics and scholars in wealthy institutions and those in smaller universities or in developing nations. At Berkeley, Dr. Nirody moderated the Institute of Data Science's Reproducibility Working Group, where they focused on incentivizing reproducibility and transparency in scientific publishing. At Oxford, she co-designed and organized a seminar series in Reproducibility and Open Access in Research. This series was meant to bring together researchers from all fields - the sciences, engineering, and humanities - interested in these issues.

Dr. Michael Piacentino

Dr. Piacentino strongly believes that our scientific endeavors can only reach peak creativity, rigor, and excellence when every person is truly welcomed, heard, and supported. To work toward these ideals, he has remained committed to mentoring trainees from diverse backgrounds and participating in community engagement that introduces the public to the possibility of a research career. Dr. Piacentino's laboratory will continue these efforts to make scientific research inclusive and accessible and will promote diverse participation by equitably advancing the careers of trainees from historically marginalized communities.

Dr. Cristina Rodriguez

As a Latinx woman in STEM, Dr. Rodriguez can relate to the challenges faced by minority students and researchers in these fields. Throughout her career, Dr. Rodriguez has engaged in initiatives for getting youth excited about science and serving as an ally to amplify and support underrepresented groups in STEM. As a mentor, she will provide a welcoming climate that supports people of all backgrounds, regardless of their race, ethnicity, sex, gender identity, socioeconomic status, sexual orientation, (dis)ability, or other personal traits. By using evidence-based strategies that foster inclusion and a sense of belonging, Dr. Rodriguez will create a space that will allow all members to thrive as scientists and human beings.

Dr. Piere Rodriguez-Aliaga

As part of his diversity efforts, Dr. Rodriguez-Aliaga has given talks for students in Peru and neighboring countries to motivate them to follow a career in STEM, by sharing his work and personal story of becoming a scientist. One particular talk he gave for middle and high-school students from his hometown in the Peruvian Andes was a very inspiring and satisfying experience. In addition, Dr. Rodriguez-Aliaga was the main organizer of the first meeting in Latin America (Lima, 2019) focused on single molecule biophysics, supported by the Biophysical Society, and that has contributed to establish concrete collaborations between Latin American biophysicists with leaders in the field in Europe and North America. More recently, he has been selected as a mentor in the "Cientifico Latino Mentoring Program", which helps underrepresented students during their PhD application process to American and European universities.

Dr. Marlies Rossmann

As a graduate student representative on the Executive Committee of two Graduate Schools, Dr. Rossmann advocated for equal health insurance for students from both schools, which eventually was granted by the schools' leaderships. During her graduate and, more extensively, postdoctoral training, she has mentored one high-school, six undergraduate and two graduate students, as well as eight research assistants. Many of her trainees come from different ethnic, including underrepresented minorities and socioeconomic backgrounds, and 12 of my 17 mentees have been women. All of her former mentees have gone on to medical or graduate school. Dr. Rossmann has furthermore promoted diversity in her role as the Chair of the Red Cell Gordon Research Seminar, in which she made it a point to select equal numbers of women and men to participate in oral presentations, as discussion leaders and as panelists.

Dr. Shelbi Russell

Throughout her postdoc and PhD careers, Dr. Russell has mentored undergraduate students from underrepresented minority backgrounds and prepared them for careers in STEM research. Recognizing that the postdoc stage is a well-known point of attrition for women and minorities in academia, she helps run her grassroots postdoc association at UCSC. As future faculty, Dr. Russell will continue these efforts by helping to secure abundant funding for undergraduate and postdoctoral researchers and she will extend her efforts to support students with accessibility requirements that traditional labs do not accommodate.

Dr. Adrianna San Roman

As someone who was greatly impacted by programs aiming to increase diversity in STEM, Dr. San Roman has sought out opportunities to contribute to a diverse next generation of scientists at all levels. She views outreach, mentoring, and public communication as important and complementary components of this effort. Dr. San Roman has worked with wonderful organizations in these areas that she would like to acknowledge, including: Science Club for Girls (https://twitter.com/SCFG), Science in the News (https://twitter.com/SITNBoston), and the Whitehead Institute's High School Teacher Program.

Dr. Trevor Sorrells

During graduate school at UCSF, Dr. Sorrells co-founded an organization to unite LGBTQ+ researchers through social events and provide them with role models. He continued this work in his postdoc, organizing panels of diverse LGBTQ+ professionals and partnering with other organizations focused on diverse populations. This has led to a measurable improvement in campus climate, more diverse seminar series, and access to resources for sexual and gender minorities. He has mentored many trainees from diverse backgrounds including those underrepresented in the sciences, helping them to achieve their scientific and career goals.

Dr. Longzhi Tan

As a first-generation immigrant, Dr. Tan firmly believes that diversity, equity, and inclusion are the cornerstone of science. In the past 12 years, he seized every opportunity to reduce barriers to science through extensive public outreach; most notably, Dr. Tan's long-term collaboration with Pardis Sabeti's lab has generated local and national attention. He is also a founding member of the Stanford Bioengineering Postdoc Justice, Equity, Diversity & Inclusion (JEDI) Team, organizing events such as the inaugural Stanford Bioengineering Inclusive Mentoring Workshop. In his own research, Dr. Tan has fought against the longstanding racial bias in human genomics research, prioritizing diverse populations.

Dr. Kiel Telesford

Dr. Telesford believes in empowering the next generation of scientific problem-solvers from underrepresented backgrounds by facilitating practical perspective-gaining, and skill-building experiences towards better self-knowledge of their motivations, abilities, and desires to meet needs in the world. To this end, he has actively directed or otherwise contributed meaningfully to initiatives that: provide underrepresented students with hands-on biomedical research experiences & insight on various avenues in STEM training and vocation. After completing the mentored phase of his K22 career transition award,Dr. Telesford anticipates joining the faculty of a research-intensive institution to better understand how differential ethnicity, and ancestry-associated immune responses promote disparate autoimmune degenerative conditions.

Dr. Jeannette Tenthorey

Over the last decade, Dr. Tenthorey has focused her DEI efforts on improving her mentoring of diverse trainees, developing strategies to improve their access to and inclusion within science. Carefully listening to each student's needs, providing vocal and enthusiastic encouragement, and tailoring her mentoring style to the individual have helped her mentees' confidence and enthusiasm grow. Six of her eleven direct trainees have come from disadvantaged backgrounds different from her own and each other's, and she is proud to say that nearly all of them are currently pursuing graduate education.

Dr. Marina Venero Galanternik

As the mentor of several trainees from the NIH summer and intramural program, Dr. Venero Galanternik takes pride in creating a safe work environment where each trainee gets to develop a personal project, and to make their time working in the lab a positive and supportive experience. More recently, as the Trainee Representative for the Society for Developmental Biology (SDB), she has found a platform to increase EDI initiatives for early and mid-career level scientists. In this position, Dr. Venero Galanternik helped organize the 80th Annual SDB Meeting and the Ethel Browne Harvey Postdoctoral Seminar Series, where she advocated for a diverse and inclusive panel of speakers. Currently, as the SDB representative for the Federation of American Societies for Experimental Biology science policy subcommittee on 'Training and Career Opportunities', she has learned about the systems of oppression and inequalities in the scientific community. This experience has

exposed her to the everyday challenges that minoritized groups and women come across in STEM, allowing her to formally voice these issues to federal agencies, getting us a bit closer to finding realistic solutions to reach equality in the academic field.

SPEAKER BIOGRAPHIES

DAY 1 - MONDAY, NOVEMBER 1st

Welcome Address

Dr. Darin A. Latimore
Deputy Dean for Diversity and Inclusion and Chief Diversity Officer, Yale School of Medicine

Dr. Darin A. Latimore, has been Deputy Dean for Diversity and Inclusion at the Yale School of Medicine (YSM) since January 2017, and is the School of Medicine's inaugural Chief Diversity Officer. Alongside YSM senior leadership, Dr. Latimore is responsible for developing a comprehensive plan for furthering diversity, equity, and inclusion at the school, including a robust recruitment and retention program for faculty, and students from historically underrepresented in medical communities. He coordinates with such groups as the Diversity, Inclusion, Community Engagement & Equity (DICE), the Minority Organization for Retention and Expansion (MORE), the Committee on the Status of Women in Medicine (SWIM), the Committee on Diversity, Inclusion, and Social Justice (CDISJ), and the Dean's Advisory Council on LGBTQ Affairs. Dr. Latimore's passion for promoting diversity and inclusion stems from his own background. As an undergraduate at University of California, Berkeley, he felt isolated on a campus where there were few African-Americans and even fewer students from his socioeconomic background. After obtaining his medical degree at University of California, Davis School of Medicine, he completed his residency in internal medicine at University of California, Davis Medical Center.

Dr. Nancy J. Brown
Jean and David W. Wallace Dean of Yale School of Medicine; C.N.H. Long professor of Internal Medicine

Dr. Nancy Brown graduated Yale College before completing her medical degree at Harvard Medical School. Dr. Brown has led a translational research program that focuses on developing new pharmacological strategies to prevent vascular disease in patients with high blood pressure and diabetes. Her research has been recognized by the American Heart Association (Harriet Dustan Award), the E.K. Frey-E. Werle Foundation, the American Society of Hypertension and the American Federation for Clinical Research. Brown established the Vanderbilt Master of Science in Clinical Investigation in 2000. From 2006-2010, she served as the Associate Dean for Clinical and Translational Scientist

Development and established an institutional infrastructure to support physician-scientists in the transition to independence. From 2010 to 2020, Dr. Brown served as chair of the Vanderbilt Department of Medicine and physician-in-chief of Vanderbilt University Hospital. In 2018, she was named the Robert H. Williams, MD, Distinguished Chair of Medicine by the Association of Professors of Medicine.

Keynote Address

Dr. Shirley Malcom

Senior Advisor SEA Change Initiative at AAAS. K. Ranga Rama Krishnan Associate Professor, Duke University Medical Center & 2019 AAAS Leshner Fellow

Shirley Malcom is senior advisor and director of SEA Change, an institutional transformation initiative, at the American Association for the Advancement of Science (AAAS). In her more than 40-year tenure at the Association she has worked to improve the quality and increase access to education and careers in STEMM for all.

Dr. Malcom is a trustee of Caltech and regent of Morgan State University, an HBCU located in Baltimore, MD. She is a former member of the National Science Board, the policymaking body of the U.S. National Science Foundation, and served on President Clinton's Committee of Advisors on Science and Technology. Malcom, a native of Birmingham, Alabama, received her PhD in ecology from The Pennsylvania State University, masters in zoology from UCLA and bachelor's with distinction in zoology from the University of Washington. She is an elected fellow of the American Association for the Advancement of Science and a member of the American Academy of Arts and Sciences.

In 2003, Malcom received the Public Welfare Medal of the U.S. National Academy of Sciences, the highest award given by the Academy.

DAY 2 - TUESDAY, NOVEMBER 2nd

Panel Lunch - "Success Stories - Former ISFS Fellows"

Dr. Christina Termini
Incoming Assistant Professor, Fred Hutchinson Cancer Research Center

Christina Termini received her Ph.D. in Biomedical Sciences from the University of New Mexico. She is currently a postdoctoral fellow at UCLA where she studies how proteoglycans regulate hematopoietic stem cell regeneration as a NIDDK K01 awardee. Dr. Termini has received national recognition for her research from the Damon Runyon Cancer Research Foundation, the Burroughs Wellcome Fund and most recently, as a recipient of the 2021 American Society for Cell Biology Porter Prize. In the Spring of 2022, Dr. Termini will begin her independent research career as an Assistant Professor in the Clinical Research Division at the Fred Hutchinson Cancer Research Center.

Dr. Michael Wells
Assistant Professor, UCLA, Department of Human Genetics

Michael F. Wells, PhD is an Assistant Professor in the UCLA Department of Human Genetics. He earned a B.S. in Biological Sciences from the University of Notre Dame in 2008, and a PhD in Neurobiology from Duke University in 2015 under the guidance of Dr. Guoping Feng. In 2021, he completed his postdoctoral training in the laboratory of Dr. Kevin Eggan at Harvard University and the Broad Institute. Michael's research aims to discover the disease mechanisms underlying neurodevelopmental disorders of genetic and viral origin using human stem cell-derived neural models and cerebral organoids. Outside of the laboratory, Michael serves as the creator and co-director of the COVID-19 National Scientist Volunteer Database (covid19sci.org) and is the Chair of the Society for Neuroscience (SfN) Trainee Advisory Committee.

Dr. Gamze Gürsoy
Incoming Assistant Professor, Department of Biomedical Informatics Columbia University; Incoming Core Faculty, New York Genome Center

Dr. Gürsoy is currently a postdoctoral research associate with Mark Gerstein in the Computational Biology and Bioinformatic program at Yale University. She is an incoming Assistant Professor in the Department of Biomedical Informatics at Columbia University and a Core Faculty Member at the New York Genome Center. Her current research relates to developing methods to quantify and mitigate private information leakage in omics data. She is also part of the ENCODE consortium and works on integrating multi-omics measurements to better understand the relationship between epigenetic status of the genome and molecular phenotypes. She has a Ph.D in Bioinformatics from University of Illinois - Chicago, where she developed computational methods to understand the role of three-dimensional organization of genome on gene regulation.

Dr. Priyanka Verma
Assistant Professor, Department of Medicine, University of Washington in St. Louis

I am currently an Assistant Professor in the Department of Medicine, University of Washington in St. Louis. I have been named as the inaugural Pedal the Cause Cancer Researcher at the Siteman Cancer Center. I started my independent research group in Aug. 2021 and my lab specializes in understanding the cause and consequences of DNA damage in cancer etiology and therapeutic response. I pursued my postdoc as an Ann and Sol Schreiber OCRA fellow at the University of Pennsylvania. I am fully committed to mentoring and supporting trainees from underrepresented groups. My mentees in the past have included women of color, first-generation Americans, and immigrants. My goal is to ensure that the thrill and satisfaction of scientific research is not restricted to a privileged few.

DAY 3 - WEDNESDAY, NOVEMBER 3rd

Panel- "Diverse Voices"

Dr. Abha Rajbhandari
Assistant Professor, Departments of Psychiatry and Neuroscience, Icahn School of Medicine at Mount Sinai

Dr. Rajbhandari is an Assistant Professor in the departments of Psychiatry and Neuroscience at the Icahn School of Medicine at Mount Sinai. Dr. Rajbhandari obtained her Ph.D. in Neuroscience from the University of Wisconsin-Madison, where she studied the role of the amygdala sub-regions in regulation of stress and sensorimotor gating via norepinephrine and the neuropeptide- corticotropin releasing factor. Dr. Rajbhandari was a postdoctoral fellow at the University of California-Los Angeles, where her research was focused on understanding the role of the neuropeptide, pituitary adenylate cyclase activating peptide in regulation of fear and stress behaviors via amygdala microcircuitry. She also developed a mouse model of stress-enhanced fear learning during her work. Dr. Rajbhandari's team focuses on the brain, vagus nerve and body mechanisms of fear, stress, and anxiety via neuromodulatory actions of norepinephrine and neuropeptides.

Dr. Antentor O. Hinton, Jr
Assistant Professor, Molecular Physiology and Biophysics

Dr. Antentor Hinton, Jr. is a tenure-track Assistant Professor in the Department of Molecular Physiology and Biophysics in the Vanderbilt School of Medicine Basic Sciences at Vanderbilt University and a member of the Vanderbilt Diabetes Research and Training Center. Dr. Hinton's research projects, including those funded by United Negro College Fund/Bristol Myers Squibb EE Just Faculty Fund, the Burroughs Wellcome Fund's (BWF) Career Awards at the Scientific Interface (CASI), and NIH-SRP subaward, aim to elucidate insulin-mediated molecular mechanisms that regulate cristae dynamics and to identify molecular mechanisms that underlie molecule transfer between and morphological changes in the mitochondria and endoplasmic reticulum (ER) that can be altered in pathophysiological states, such as diabetes or cardiovascular disease. In addition, Dr. Hinton has mentored 50 graduate and undergraduate students, who have achieved or are currently in the process of acquiring a Post-Baccalaureate Certificate, Master's degree, Doctor of Philosophy degree, or Doctor of Medicine degree. Dr. Hinton has been a passionate mentor to undergraduate students and has supported the careers of many undergraduates in Dr. Abel's laboratory. He is an attentive and thoughtful mentor and has successfully obtained

competitive support for his mentees from multiple university and external sources. He has been recognized with four university-wide awards and an organizational mentorship award, the Iowa Center for Research by Undergraduates Distinguished Mentoring Award, Center for Diversity & Enrichment's Distinguished Educator Award, Diversity Catalyst Award, inaugural University of Iowa Health Care DEI Leadership Award, and an LSAMP Excellence in Mentoring Award.

Dr. Johnna Frierson
Assistant Dean of Graduate and Postdoctoral Diversity and Inclusion, Duke University School of Medicine

Dr. Johnna Frierson serves as Assistant Dean of Graduate and Postdoctoral Diversity and Inclusion at the Duke University School of Medicine. She directs the IDEALS office (Inclusion, Diversity, Equity, Advancement, and Leadership in the Sciences) which expands and enhances the School of Medicine's diversity and inclusion initiatives for graduate students and postdoctoral appointees working in biomedical research. She and her team partner with basic science departmental faculty and leaders to cultivate a strong and supportive community for underrepresented PhD students and postdoctoral appointees, developing and implementing pertinent professional development activities and academic and wellness programs in collaboration with the School's Office of Diversity and Inclusion.

Dr. Malú Gámez Tansey
Norman and Susan Fixel Professor of Neuroscience and Neurology, Co-Director Center for Translational Research in Neurodegenerative Disease and the Parkinson's Foundation Research Center, University of Florida

Malú Gámez Tansey, PhD, earned her BS/MS from Stanford University and her PhD from University of Texas Southwestern and did postdoctoral work at Washington University on GDNF/Ret signaling. She spent two years at Xencor, where she co-invented dominant-negative soluble TNF inhibitors currently in clinical trials for Alzheimer's disease and COVID-19. Today, she is the Norman and Susan Fixel Chair in Neuroscience and Neurology and Co-Director of the Center for Translational Research in Neurodegenerative Disease at the University of Florida College of Medicine in Gainesville. Her lab focuses on the role of inflammation and immune system responses in brain health and mechanisms underlying development of neurodegenerative diseases. The long-term goal of her laboratory is to enable earlier diagnoses and

better therapies to prevent and/or delay these diseases. Dr. Tansey is a fierce advocate for women and other under-represented groups in STEM and has earned several mentoring awards from students and faculty for these efforts.

Closing Remarks

Dr. Aileen Fernandez
Postdoctoral Fellow, Yale School of Medicine

Aileen completed her PhD in the Tumor Biology training program at Georgetown University (GU) in 2019. While there, she worked in the laboratory of Dr. Rebecca B. Riggins and focused on triple negative breast cancer, an aggressive breast cancer subtype that disproportionally affects African-American women and lacks targeted therapies. Her work encompassed studying orphan nuclear receptor estrogen-related receptor beta (ERRb) expression and culminated in characterization of ERRb in vitro, in silico, and in tissues. While at GU, Aileen co-founded the Women in Science and Education (WISE) group with her colleagues, serving as the group's strategist, secretary, and diversity liaison.

Aileen is passionate about leveling accessibility in science and promoting diversity, equity, and inclusion. She also strongly believes in improving science communication to better disseminate information from the scientists' bench to society. Since joining Yale, she has co-founded the Yale School of Medicine Black Postdoctoral Association, and co-founded the Yale Postdoctoral Association's (YPA) Racial Justice Subcommittee, co-coordinates the YPA Professional Development committee, and has joined the Department of Pathology's DICE committee. She actively works on initiatives with other postdocs to highlights the needs of URM postdocs and how we can address them to increase retention in academia. She was on the steering committee and co-chaired the Program Committee for the inaugural Intersections Fellows Science Symposium held in January 2021 and continues to be a member of the Steering Committee

Dr. Larry Gladney

Phyllis A. Wallace Dean of Diversity and Faculty Development; Professor of Physics, Yale Faculty of Arts & Sciences

Larry Gladney is the FAS Phyllis A. Wallace Dean for Diversity and Faculty Development and Professor of Physics at Yale University. Dr. Gladney focuses his research at the intersection of experimental particle physics and cosmology where we attempt to understand the origins of and fundamental connections between matter, energy, space and time. Currently, he engages in explorations of the accelerated expansion of the universe with the Legacy Survey of Space and Time at the Vera C. Rubin Observatory. This observatory, located in Chile, will use multiple methods to measure the detailed expansion history of the universe over cosmological time.

Dr. Giovanna Guerrero-Medina

Executive Director of Ciencia Puerto Rico, Director, Yale Ciencia Initiative, Yale University School of Medicine, Assistant Director of Diversity, Equity and Inclusion, Yale's Wu Tsai Institute

Giovanna Guerrero-Medina received her PhD in Neurobiology from the University of California, Berkeley, followed by science policy work at the National Academies, the NIH, and the Van Andel Institute. Since 2012 she is the Executive Director of Ciencia Puerto Rico, an international network of over 15,000 scientists, students, and educators committed to promoting and democratizing science. Under her leadership, CienciaPR has become one of the largest communities of Hispanic scientists in the world and has obtained federal and foundation funding for transformative initiatives in the areas of science communication, education, and professional development. The organization has been recognized by the Union of Concerned Scientists, the AAAS-Caribbean, and the White House. She is also the director of the Yale Ciencia Initiative at Yale University School of Medicine and Assistant Director of Diversity, Equity and Inclusion of Yale's Wu Tsai Institute. These positions allow her to lead programs to promote more inclusive academic environments. Her work is funded by grants from the NIH/NIGMS, the Burroughs Wellcome Fund, and the Science Sandbox of the Simons Foundation, among others.

DIRECTORY OF ISFS FELLOWS, 2021

First	Last	Postdoctoral Institution	Field(s) of Interest	Email
Oscar	Aguilar Alfaro	University of California - San Francisco	Immunobiology, Cancer biology	oscar.aguilar@ucsf.edu
Ranen	Aviner	Stanford University	Molecular Biology, Neuroscience	ranen@stanford.edu
Joel	Babdor	University of California - San Francisco	Immunobiology, Microbiology	joel.babdor@ucsf.edu
Lillian	Brady	Vanderbilt University	Neuroscience, Cognitive sciences/psychology	lillian.j.brady@vanderbilt.edu
Arnaldo	Carreira	Stanford University	Neuroscience, Developmental biology	arnaldo@stanford.edu
Victor	Cortez	University of California - San Francisco	Immunobiology, Microbiology	Victor.Cortez@ucsf.edu
Valerie	Darcey	NIDDK	Neuroscience	darceyvl@nih.gov
Diego	Fernandez	National Institute of Mental Health	Neuroscience, Cell biology	diegofil3@gmail.com
Laura	James-Allan	UCLA	Developmental biology, Cell biology	laurajamesallen@hotmail.co.uk
Chrystian	Junqueira Alves	Icahn School of Medicine	Developmental biology, Neuroscience	chrystian.junqueira-alves@mssm.edu
Huong	Kratochvil	University of California - San Francisco	Biophysics, Biochemistry	h.tran.chem@gmail.com
Stephania	Libreros	Harvard Medical School	Immunobiology, Molecular Biology	slibreros@bwh.harvard.edu
Evan	Lien	Massachusetts Institute of Technology	Cancer biology, Biochemistry	elien@mit.edu
Maria	Maldonado	University of California - Davis	Biochemistry, Biophysics	mmaldo@ucdavis.edu
Rachel	Niederer	Yale University	Molecular Biology, Biochemistry	rachel.niederer@yale.edu
Edward	Nieh	Princeton University	Neuroscience, Cognitive sciences/psychology	enieh@princeton.edu
Jasmine	Nirody	Rockefeller University	Biophysics, Quantitative biology	jnirody@gmail.com

Michael	Piacentino	California Institute of Technology	Developmental biology, Biophysics	mpiacent@caltech.edu
Cristina	Rodriguez	UC Berkeley	Biophysics, Biochemistry	crisrod@berkeley.edu
Piere	Rodriguez-Aliaga	Stanford University	Biophysics, Neuroscience	piererod@stanford.edu
Marlies	Rossmann	Harvard University	Developmental Biolog, Molecular Biology	rossmann@fas.harvard.edu
Shelbi	Russell	University of California Santa Cruz	Microbiology, Developmental biology	shelbilrussell@gmail.com
Adrianna	San Roman	Whitehead Institute and MIT	Genetics, Molecular Biology	sanroman@wi.mit.edu
Trevor	Sorrells	Rockefeller University	Neuroscience, Genetics	trevorsorrells@gmail.com
Jaimie	Stewart	California Institute of Technology	Molecular Biology, Biochemistry	jms@caltech.edu
Longzhi	Tan	Stanford University	Genomics, Neuroscience	tttt@stanford.edu
Kiel	Telesford	Weill Cornell Medicine	Immunobiology, Neuroscience	kit2003@med.cornell.edu
Jeannette	Tenthorey	Fred Hutchinson Cancer Research Center	Immunobiology, Biochemistry	jtenthor@fredhutch.org
Claudia	Vasquez	Stanford University	Cell biology, Quantitative biology	claudia.vasquez@stanford.edu
Marina	Venero Galanternik	NICHD, NIH	Developmental biology, Neuroscience	marina.venerogalanternik@nih.gov

DIRECTORY OF ISFS ASSOCIATES, 2021

First	Last	Postdoctoral Institution	Field(s) of Interest	Email
Elissa	Hamlat	University of California - San Francisco	Cognitive sciences/psychology	elissa.hamlat@ucsf.edu
Sebastian	Werneburg	University of Massachusetts Medical School	Neuroscience, Cell Biology	sebastian.werneburg@umassmed.edu
Lauren	Walker	University of Pennsylvania	Neuroscience, Cell Biology	laurenjanewalker@gmail.com
Ipshita	Zutshi	NYU School of Medicine	Neuroscience, Physiology	ipshitazutshi@gmail.com
Sudeep	Banjade	Cornell University	Cell Biology, Biophysics	sudeep.banjade@cornell.edu
Frank	Macabenta	California Institute of Technology	Developmental Biology, Cell Biology	f.d.macabenta@gmail.com
Soma	Dash	Stowers Institute for Medical Research	Developmental Biology, Molecular Biology	sdash@stowers.org
Yvon	Woappi	Brigham and Women's Hospital/Harvard Medical School	Cell Biology, Immunobiology	ywoappi@bwh.harvard.edu
Sandeep	Gupta	UCLA	Developmental Biology, Genomics	sandeepgupta@ucla.edu
Miao	Cui	UT Southwestern Medical Center	Molecular Biology, Genomics	miao.cui@utsouthwestern.edu
Paul	Maurizio	University of Chicago	Genomics, Immunobiology	maurizio@uchicago.edu
Cameron	Lee	Fred Hutchinson Cancer Research Center	Genetics, Cell Biology	cameronl@fredhutch.org
Kyle	Cottrell	Washington University in St. Louis	Molecular Biology, Cancer Biology	cottrellka@wustl.edu
Elizabeth	Pollina	Harvard Medical School	Genomics, Neuroscience	elizabeth_pollina@hms.harvard.edu
Coral	Zhou	University of California, Berkeley	Biochemistry, Neuroscience	coral.zhou@berkeley.edu

Lexy	von Diezmann	University of Utah	Biophysics, Cell Biology	lexy.diezmann@utah.edu
Nandini	Mani	Massachusetts General Hospital	Biochemistry, Biophysics	mani@molbio.mgh.harvard.edu
Francesco	Palomba	UC Irvine	Biophysics, Biochemistry	fpalomba@uci.edu
Novalia	Pishesha	Harvard University	Immunobiology, Microbiology	novalia.pishesha.168@gmail.com
Ada	Weinstock	New York University School of Medicine	Immunoiology, Physiology	ada.weinstock@gmail.com
Maria	Rodgers	University of Connecticut	Immunobiology, Microbiology	maria.rodgers@uconn.edu
Anukul	Shenoy	Boston University	Immunobiology, Microbiology	shenoya@bu.edu
Magdalene	Ameka	Vanderbilt University	ImmunoBiology, Cell Biology	magdalene.ameka@vanderbilt.edu
Carla	Concepcion	Massachusetts Institute of Technology	Cancer Biology, Genetics	carlapc@mit.edu
Rebecca	Sherbo	Harvard University	Biochemistry	rebeccasherbo@fas.harvard.edu
Tsai-Yi	Lu	Johns Hopkins University	Microbiology, Bioinformatics	tlu24@jhmi.edu
Claudineia	Pereira Costa	University of California, Riverside	Genomics	claudinp@ucr.edu
Navish	Wadhwa	Harvard University	Quantitative Biology, Microbiology	navish_wadhwa@fas.harvard.edu
Jesus	Romo	Tufts University School of Medicine	Microbiology, Molecular Biology	Jesus.Romo@Tufts.edu

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We appreciate your participation and support!

To contact us and/or learn about future opportunities, visit us at:

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