

High-Risk, High-Reward Research Symposium

June 6-7, 2024

Agenda

Thursday, June 6

- Session 1** 9:00 – 9:20 AM **Reconstructing Developmental Signaling History of Single Cells via Deep Learning**
Pulin Li, Whitehead Institute for Biomedical Research/MIT
- 9:20 - 9:40 AM **The Molecular Basis of Caste Development and Evolution in Ants**
Buck Tribble, Harvard University
- 9:40 - 10:00 AM **The Neural Basis of Sugar Cravings**
Diego Bohorquez, Duke University
- 10:00 - 10:15 AM **Break**
- 10:15 - 10:30 AM **Remarks from NIH DPCPSI Director**
Tara Schwetz, NIH
- 10:30 - 10:45 AM **Remarks from NIH Director**
Monica Bertagnolli, NIH
- Session 2** 10:45 - 11:05 AM **Discovery of a New Class of Antivirals: Single-Dose, 'Drive' Therapies with a High Barrier to Resistance**
Leor Weinberger, University of California San Francisco
- 11:05 - 11:25 AM **Designer Nanodiscs to Probe and Reprogram Membrane Biology**
Huan Bao, Scripps Research
- 11:25 - 11:45 AM **Intracellular pH Regulates Stiffness-Associated Cancer Behaviors**
Katharine White, University of Notre Dame
- 11:45 - 12:05 PM **Metabolic Adaptation to Nutrient Limitation in Vertebrates**
Nicolas Rohner, Stowers Institute
- 12:05 - 1:05 PM **Lunch** (*on your own*)
- Session 3** 1:05 - 1:25 PM **Restoring Upper-Limb Function to Hemiparetic Stroke Patients with an Powered Orthosis Controlled by High-Density Electromyography and Machine Learning**
Jacob George, University of Utah



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1:25 - 1:45 PM	Elucidating the Role of MS4A Receptors in Alzheimer's Disease Paul Greer, University of Massachusetts Medical School
1:45 - 2:05 PM	Bacterial Delivery Systems: from Pathogenesis to Therapeutics Cammie Lesser, Massachusetts General Hospital/Harvard Medical School
2:05 - 2:25 PM	Neonatal Paenibacilliosis and Predictive Personalized Public Health Steven Schiff, Yale University
2:25 - 2:45 PM	Mimicking Opioid Analgesia in Cortical Pain Circuits Gregory Corder, University of Pennsylvania
2:45 - 3:05 PM	In Utero Gene Editing for a Metabolic Liver Disease in Mice and Nonhuman Primates William Peranteau, Children's Hospital of Philadelphia
3:05 - 3:20 PM	Break
3:20 - 5:00 PM	Poster Session & Office Hours
5:00 - 6:00 PM	Happy Hour

Friday, June 7

Session 4 8:30 - 8:50 AM	Single-Molecule Imaging Reveals the Kinetics of Non-Homologous End-Joining in Living Cells Jens Schmidt, Michigan State University
8:50 - 9:10 AM	Building a B Cell Adoptive Cell Therapy for Autoimmunity from the Ground Up Bonnie Dittel, Versiti Blood Research Institute
9:10 - 9:30 AM	Virus-Like Intercellular Signaling in the Nervous System Jason Shepherd, University of Utah
9:30 - 9:50 AM	Decoding and Visualizing Venom Diversity and Neuronal Control of Envenomation in Cephalopods Mandë Holford, Hunter College/The CUNY Graduate Center/The American Museum of Natural History/Weill Cornell Medicine
9:50 - 10:10 AM	Immunoengineering Next-Generation Cancer Therapies with Focused Ultrasound Natasha Sheybani, University of Virginia
10:10 - 10:30 AM	Break



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	10:30 - 12:10 PM	Poster Session & Office Hours
	12:10 - 1:10 PM	Lunch (<i>on your own</i>)
Session 5	1:10 - 1:30 PM	Characterization of Real-Time Brain Networks of Reading Comprehension in Adults Using Convergent fMRI-EEG Katherine Aboud, Vanderbilt University
	1:30 - 1:50 PM	Noninvasive Virtual Biopsy Using Micro-Registered Optical Coherence Tomography (OCT) in Human Subjects Yonatan Winetraub, Stanford University
	1:50 - 2:10 PM	Self-Assembling Materials to Protect Microbes from Processing Stresses Ariel Furst, Massachusetts Institute of Technology
	2:10 - 2:30 PM	Learning the Rules of Immune Tolerance Through the Lenses of the Achilles Heel of Cancer Immunotherapy Alexander Villani, Massachusetts General Hospital
	2:30 - 2:50 PM	Proteome-Scale Measurements of Localization Dynamics Using Pooled Multiplexed Endogenous Gene Tagging and Optical Barcode Sequencing Ophir Shalem, Children's Hospital of Philadelphia
	2:50 - 3:10 PM	Break
Session 6	3:10 - 3:30 PM	High-Throughput CRISPR Screening Links CAD Loci to Endothelial Cell Programs and Causal Pathways Rajat Gupta, Brigham and Women's Hospital/Harvard University
	3:30 - 3:50 PM	Lattice Light Sheet Microscopy – Innovations, Applications and Future Directions Wesley Legant, University of North Carolina - Chapel Hill
	3:50 - 4:10 PM	Spatial Functional Genomics Identifies Regulators of Tumor Immunotherapy Brian Brown, Icahn School of Medicine at Mount Sinai
	4:10 - 4:30 PM	Developing Antiracism Interventions in Integrated Primary Care Sylvie Naar, Florida State University
	4:30 - 4:50 PM	Pervasive Noncoding Translation and its Implications in Cancer, Immunity, Aging, and Evolution Xuebing Wu, Columbia University
	4:50 - 5:00 PM	Closing Remarks Trish Labosky, NIH



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