

SUNDAY, MARCH 6, 2022

6:30 AM- 7:00 AM

Breakfast, [Lahaina Foyer](#)

7:00 AM- 9:00 AM

[Lahaina 1 and 2](#)

Neuronal Circuit Mechanisms Underlying Complementary Facets of Social Behaviours

Chair: Manuel Mameli, The University of Lausanne

Neural Representation of Group Sociality and Communication in Bats

Michael Yartsev, University of California, Berkeley

Neural Circuit Mechanisms of Social Reward

Scott Russo, Icahn School of Medicine At Mount Sinai

An Habenular Circuit for Parental Behaviours

Manuel Mameli, The University of Lausanne

[Lahaina 3 and 4](#)

Somatic Mosaicism in the Human Brain: Implications for Development and Neuropsychiatric Disorders

Chair: Alexander Urban, Stanford University

Somatic Mobile Element Insertions in Human Brain

Alexander Urban, Stanford University

Rates and Mechanisms of Somatic SNVs and SVs in Neurodevelopment

Kristin Baldwin, College of Physicians and Surgeons, Columbia University

Somatic Mosaicism in Normal and Disease Brain: Unexpected Findings

Alexej Abyzov, Mayo Clinic

Somatic Mosaicism in Human Neuropsychiatric Disorders

Andrew Chess, Icahn School of Medicine At Mount Sinai

9:00 AM- 9:15 AM

Break

9:15 AM- 11:15 AM

[Lahaina 1 and 2](#)

The Case for Deep Phenotyping in Psychiatric Genetics: Insights from Rare CNVs in Neurodevelopment

Chair: Carrie Bearden, UCLA

Co-Chair: David Glahn, Harvard Medical School/Boston Children's Hospital

Rate of Deleterious Copy Number Variants Similar in Early Onset Psychosis and Autism Spectrum Disorders: Implications for Clinical Practice

David Glahn, Harvard Medical School/Boston Children's Hospital

Prioritizing Genes Driving Neuroanatomic Features in 22q11.2 Deletion Syndrome Using Imaging Transcriptomics

Gil Hoftman, Semel Institute for Neuroscience and Human Behavior at UCLA

Deep Phenotyping of the Schizophrenia-Associated 3q29 Deletion Exposes the Cerebellum as a Central Point of Vulnerability

Jennifer Mulle, Robert Wood Johnson Medical School

Phenotyping Across CNVs, Genes, and Exons in Autism

Stephan Sanders, UCSF

Lahaina 3 and 4

Poster Talks

Chair: Tracey Petryshen, Concert Pharmaceuticals

Alterations in the Expression of CircRNAs Derived from Schizophrenia GWAS Loci in iPSC-Derived Neuronal Cultures of Patients With Early Onset Schizophrenia

William Wylie, University of New Mexico Health Science Center

Defining the Global Protein Interaction Landscape of High Confidence Autism Spectrum Disorder Risk Genes

Zun Zar Chi Naing, University of California, San Francisco

Relating Interindividual Differences in Cerebral Organoids to Longitudinal Infant Brain Growth

Madison Glass, University of North Carolina at Chapel Hill

Inducible Calling Cards: Developing Mouse Reagents for Temporally Controlled Recording of Molecular States and Neural Activity

Simona Sarafinovska, Washington University in St. Louis

Investigating Microglial Remodeling of Synapses in Major Depressive Disorder-Associated Suicide Death

Elisa Gonçalves de Andrade, University of Victoria

Mitochondrial DNA Variants Associated With Bulimia Nervosa

Ana Silva, Centre for Addiction and Mental Health

Modeling PTSD Differential Gene Expression in iPSC Derived Neural Cultures Treated With Glucocorticoids

Cameron Pernia, Harvard Medical School, McLean Hospital

Detection of Autism Spectrum Disorder-Related Pathogenic Variants by a Novel Structure-Based Approach

Sadhna Rao, University of Southern California

Searching for Schizophrenia Biology: Overlap Analysis of Cell Type-Specific Phenotypes in CNV Mouse Models

Hayley French, Karolinska Institutet
Striatal Thalamic Resting-State Network Dysconnectivity in Youth With 22q11.2 Deletion Syndrome

Charles Schleifer, David Geffen School of Medicine at UCLA
The Effects of Genetic Polymorphisms in Dopamine Signaling on Prefrontal Functional Connectivity and Working Memory Performance
Rye Young Kim, Ewha W. University

11:15 AM- 11:30 AM **Break**

11:30 AM- 12:30 PM

The Tianqiao and Chrissy Chen Plenary with Dr. David Lewis

Lahaina 1 and 2

A Molecular- Neural Circuitry Substrate for Cognitive Dysfunction in Schizophrenia
David Lewis, University of Pittsburgh

12:30 PM - 5:00 PM **Mid-day Break**

5:00 PM - 7:00 PM

Lahaina 1 and 2

Emerging Intersectional Technologies for Probing Molecular Mechanisms of Neurotransmitter Co-Transmission in Brain and Behavior

Chair: Zachary Freyberg, University of Pittsburgh

Intersectional Genetic Approaches to Dissecting Roles of Dopamine/Glutamate Co-Transmission in Cell Resilience

Zachary Freyberg, University of Pittsburgh

Intersectional Genetic Tools Reveal Cell-Type Specific Transcriptional Networks of Co-Transmitting Glutamatergic and Dopaminergic Neurons

Ryan Logan, Boston University School of Medicine

INTRSECT: Precise Virus-Based Molecular Tool Expression in Multiply-Defined Neuron Subpopulations

Lief Fenno, Stanford University

Diverse Functions of VTA Neurons Defined by Multiple Genetic Characteristics

David Root, The University of Colorado Boulder

Lahaina 3 and 4

Modeling Neurodevelopmental Disorders Using Human Pluripotent Stem Cells

Chair: Sundari Chetty, Stanford University

Alterations in Neuronal physiology, Development and Function Associated with a Common Duplication of Chromosome 15 Involving CHRNA7

Kristen Kroll, Washington University School of Medicine

Human Neuronal Activity-Dependent Gene Programs Enriched for Autism Heritability

Gabriella Boulting, Neurobiology, UMass Chan Medical School

Modeling Brain Overgrowth in Autism Using Human Pluripotent Stem Cells

Sundari Chetty, Stanford University

MONDAY, MARCH 7, 2022

7:00 AM- 9:00 AM

Poster Session with Breakfast, [Maui Suites 1-3](#)

9:00 AM- 9:15 AM

Break

9:15 AM- 11:15 AM

Lahaina 1 and 2

The Role of Astrocytes in Neurodevelopmental and Psychiatric Disorders

Chair: Zila Martinez-Lozada, The Children's Hospital of Philadelphia

BDNF Signaling onto Astrocyte TrkB.T1 Drives Astrocyte Structural Plasticity and Supports Glutamatergic Synaptogenesis

Michelle Olsen, Virginia Tech, School of Neuroscience

Neurons and Endothelial Cells Regulate Astrocyte Transcriptome

Zila Martinez-Lozada, The Children's Hospital of Philadelphia

Role of Astrocytes in Environment-Environment interaction: Focus on Dopaminergic Neurotransmission in the Striatum

Kateryna Murlanova, SUNY-UB

Astrocyte-Autonomous WNT/beta-Catenin Signaling Regulates Synapse Maturation and Social Behavior

Anna Victoria Molofsky, University of California San Francisco

Lahaina 3 and 4

Linking Mental Health and Physical Health Using Genetics, Functional Genomics, and Large Scale Electronic Health Record Data

Chair: Kritika Singh, Vanderbilt University Medical Center

Investigating the Shared Functional Biology of Coronary Artery Disease and Depression

Kritika Singh, Vanderbilt University Medical Center

Investigating the Psychiatric Comorbidities of Endometriosis from Genetic and Phenotypic Perspectives

Dora Koller, Yale University School of Medicine

Exploring the Clinical Associations and Genetic Etiology of Adult Weight Trajectories Using Electronic Health Records

Jiayi Xu, Ichan School of Medicine at Mount Sinai

Genome-Wide Association Study of Problematic Opioid Prescription Use in 132,113 23andMe European Research Participants

Sandra Sanchez-Roige, University of California, San Diego

11:15 AM- 4:00 PM

Mid-day Break

4:00 PM - 6:00 PM

Lahaina 1 and 2

New Technologies and Novel Insights for Dissecting Dopaminergic and Serotonergic Circuits

Chair: Stephan Lammel, UC Berkeley

Dopamine Firing and Release in a Heterogenous Mesoaccumbal Dopamine System

Stephan Lammel, UC Berkeley

All Optical Investigation of Synaptic Connectivity in the Intact Brain

Hillel Adesnik, UC Berkeley

Imaging Serotonin and Psychedelic With Genetically Encoded Indicators

Lin Tian, University of California, Davis

Behavioral and Dopaminergic Signatures of Resilience

Lindsay Willmore, Princeton University

Lahaina 3 and 4

Cell-type and Context-Specific Effects of Genetic Risk Variants for Neuropsychiatric Disorders

Chair: Jason Stein, University of North Carolina at Chapel Hill

Cell-Type and Context-Specific Genetic Influences on Chromatin Accessibility, Expression, and Proliferation in Human Neural Progenitor Cells and Neuronal Progeny

Jason Stein, University of North Carolina at Chapel Hill

Brain Cell-Type Regulatory Landscapes and Associations with Disease

Alexi Nott, Imperial College London

Revisiting the Hypothesis for Prioritizing Schizophrenia Risk Variants

Hyejung Won, University of North Carolina at Chapel Hill

In vivo Perturb-Seq: Scalable Investigation of Gene Function in the Developing Brain

Xin Jin, Dorris The Scripps Research Institute

6:00 PM - 6:15 PM

Break

6:15 PM - 8:15 PM

Lahaina 1 and 2

iPSC-Based Platform Development for Major Psychiatric Disorder Modeling and Discovery

Chair: Kimberly Christian, University of Pennsylvania

Characterization of Astrocyte-Derived Exosomes in Bipolar Disorder and Their Impact on Recipient Neurons

Daniel Schill, University of Michigan Medical School

Using iPSCs to Investigate the Impact of Schizophrenia-Associated Risk Genes on Neuronal Activity and Synaptic Function

Kimberly Christian, University of Pennsylvania

Modeling Plasticity of Human iPSC-Derived Neurons on Multi-Electrode Arrays

Anne Bang, Sanford Burnham Prebys Medical Discovery Institute

Lahaina 3 and 4

Establishing Brain-Behavior Relationships with Neuromodulation

Chair: Nolan Williams, Stanford University

Circuit-Targeted Neuromodulation Across Symptoms and Disorders

Shan Siddiqi, Harvard Medical School, Brigham and Women's Hospital

How Will I Know if Its Working? Monitor-Markers for Therapeutic rTMS?

Jonathan Downar, University of Toronto

Probing and Rescuing Dysfunctional Brain Circuits in Depression

Conor Liston, Weill Cornell Medicine

Applying Spaced Theta Burst Stimulation to Modulate the Neural Circuitry Underlying Neuropsychiatric Illness

Nolan Williams, Stanford University

TUESDAY, MARCH 8, 2022

6:30 AM- 7:00 AM

Breakfast, [Lahaina Foyer](#)

7:00 AM- 9:00 AM

[Lahaina 1 and 2](#)

Decoding Prefrontal Cortical Physiology: Circuits and Novel Molecular Targets in Health and Disease

Chair: Nikolaos Mellios, University of New Mexico Health Sciences Center

Prefrontal Reprogramming of Sensory Cortex in Health and Disorders

Abhishek Banerjee, Newcastle University

Neuro Modulation of Executive Function in the PFC: A Pharmacological Approach

Eleni Tzavara, CNRS

Glutamatergic Modulation of the Cortex: The Role of NMDAR in Learning and Flexibility

Jonathan Brigman, University of New Mexico, School of Medicine

Involvement of the Cortico-Striatal Circuits in the Development of Food-Addiction

Rafael Maldonado, University Pompeu Fabra

[Lahaina 3 and 4](#)

Leveraging the Psychiatric Disease Spectrum Towards an Improved Understanding of Brain Dysfunction

Chair: Marc Fuccillo, University of Pennsylvania

Cross-CNV Single-Cell RNA Sequencing Analysis of Mouse Models to Study Overlap Between Diagnoses

Jens Hjerling Leffler, Karolinska Institutet

Aberrant Sensory Processing in the 22q11.2 Deletion Mouse Model

Renata Batista Brito, Albert Einstein College of Medicine

Impact of Nr1h1 Mutations on Neural Circuits for Reward Processing and Motor Control

Marc Fuccillo, University of Pennsylvania

Functional Interrogation of Disease Associated Copy Number Variants Using Human Pluripotent Stem Cell Based Models

ChangHui Pak, University of Massachusetts Amherst

9:00 AM- 9:15 AM

Break

9:15 AM- 11:15 AM

Lahaina 1 and 2

Genetic Models for Autism Spectrum Disorder

Chair: Bryan Luikart, Dartmouth

Pharmacological Rescue of TCF4-Dependent Myelination Defects in a Mouse Model of ASD

Brady Maher, Lieber Institute for Brain Development / JHMI

Functional Analysis of ASD Risk Genes in Zebrafish Identifies Convergent Pathways

Ellen Hoffman, Yale Child Study Center

Precision Genomics in Neuropsychiatric and Neurodevelopmental Disorders Empowered by the New Era of Long-Read Sequencing

Tychele Turner, Washington University in St. Louis

Lahaina 3 and 4

Microglia at the Synapse - Deciphering the Relevant Mechanisms in Schizophrenia

Chair: Martin Schalling, Karolinska Institutet

From Risk to Mechanism - The Role of Glia at the Synapse in Early Schizophrenia

Carl Sellgren, Karolinska Institutet

Maturation of Schizophrenia-Associated Circuits: Implementation of Single Cell and Spatial Omics

Konstantin Khodosevich, University of Copenhagen

Ultrastructural Relationships Between Microglia and Synapses

Marie-Eve Tremblay, University of Victoria

Microglia and Sensory Modality

Hiroaki Wake, Nagoya University Graduate School of Medicine

11:15 AM- 1:00 PM

Break

1:00 PM - 3:00 PM

Lahaina 1 and 2

Synapse and Circuit Mechanisms Underlying the Etiology of Neurodevelopmental Disorders

Chair: Katherine Roche, National Institutes of Health-NINDS

Neurexins and Autism: Insights From Rare Variants

Katherine Roche, National Institutes of Health-NINDS

Autism-Associated Cellular Mechanisms Shaping Cortical Circuit Assembly

Gavin Rumbaugh, The Scripps Research Institute, Florida

Ectodomain Shedding by CNTNAP2 Modulates Calcium Homeostasis and Network Synchrony

Peter Penzes, Northwestern University

NMDA Receptor Dysfunction in Mouse Models of Autism Spectrum Disorders

Eunjoon Kim, Institute for Basic Science

Lahaina 3 and 4

Novel Molecular Analysis of Human Postmortem Brain

Chair: Colleen McClung, University of Pittsburgh

Cell-Type and Spatially Resolved Molecular Signatures in Human Brain Disorders

Keri Martinowich, Lieber Institute for Brain Development

Epigenomic Determinants of Chromosomal Organization in Prefrontal Cortex of Subjects with Schizophrenia and Bipolar Disease

Schahram Akbarian, Icahn School of Medicine at Mount Sinai

Investigating The Proteome Across Space and State in Human Postmortem Brain Tissue

Matthew MacDonald, University of Pittsburgh

Circadian and Ultradian Rhythms in Human Brain and Changes in Schizophrenia

Colleen McClung, University of Pittsburgh

3:00 PM - 4:00 PM

MPA Business Meeting: Planning for the Future

Lahaina 1 and 2