



# WINTER CONFERENCE ON BRAIN RESEARCH

## 2025 Winter Brain Program Agenda

*\*All scheduled programming is subject to change.*

Friday, January 24, 2025	
6:00 PM – 6:30 PM	<b>Welcome Reception for Newcomers, Travel Fellows, and Mentors</b>
6:30 PM – 7:30 PM	<b>Welcome Reception (All are welcome!)</b>
Saturday, January 25, 2025	
7:00 AM – 8:00 AM	<b>Plenary Breakfast</b>
8:00 AM – 9:30 AM	<b>Conference Welcome and Plenary Address</b>
9:45 AM – 11:15 AM	<b>Pioneer Session #1: Claude Wasterlain, M.D.</b>
11:15 AM – 11:45 AM	<b>Panel Chair Training Session</b>
2:00 PM – 3:30 PM	<b>Professional Development Session #1: <i>Navigating the Steeps: Experience, Tips and Tools for Effective Scientific Advocacy</i></b>
3:30 PM – 4:30 PM	<b>View Exhibits and Poster Session #1</b>
4:30 PM – 6:30 PM	<b>Panel Sessions</b> <ul style="list-style-type: none"> <li>• <i>Network Coordination and Function Orchestrated by Hippocampal Interneurons</i></li> <li>• <i>Integrative Visual Processing</i></li> <li>• <i>Carving New Trails: Early Life Adversity and its Impact on Mesocorticolimbic Circuit Plasticity and Behavioral Adaptations</i></li> <li>• <i>Internal Brain Models for Emotion and Cognition Underlying Adaptive Behavior</i></li> <li>• <i>Deciphering What Astrocytes do in the Brain</i></li> <li>• <i>Double Diamonds: New Insights Into Glutamate-dopamine Co-transmitting Neurons</i></li> <li>• <i>Improving Lives With Kappa Opioid Receptors - In Memoriam of Elena Chartoff</i></li> <li>• <i>The Importance of age as a Confound in Traumatic Neural Injuries</i></li> </ul>
6:30 PM – 7:00 PM	<b>Evening Refreshment Break</b>
7:00 PM – 8:30 PM	<b>Panel Sessions</b> <ul style="list-style-type: none"> <li>• <i>Icy Social Dynamics and Cozy Connections: Illuminating Neural Circuits for Diverse Social Behavior States</i></li> <li>• <i>Impact of Developmental Cannabis Exposure on Neural Circuits and Behavior</i></li> <li>• <i>Career Development and Research Grants for Early Career Researchers in Neuroscience and Behavioral Research</i></li> <li>• <i>Off-piste Investigations of Dopamine Function</i></li> <li>• <i>Demystifying Coding in Neuroscience: A Beginner's Guide to Creating Data Workflows in Python and R</i></li> <li>• <i>I can see Clearly now: Microscopy Advances and Applications</i></li> <li>• <i>Pain and Spinal Cord Injury: Underlying Mechanisms and Impact on Functional Recovery</i></li> <li>• <i>Genetic Regulators of Opioid Behaviors and Opioid use Disorders</i></li> </ul>

<b>Sunday, January 26, 2025</b>	
6:30 AM – 8:30 AM	<b>Breakfast at Leisure</b>
6:30 AM – 8:30 AM	<b>Board of Directors Meeting #1 (Invitation Only)</b>
7:30 AM – 9:30 AM	<b>Panel Sessions</b> <ul style="list-style-type: none"> <li>• <i>Innovations in Cerebellar Research: From Molecular Mechanisms to Behavioral Outcomes</i></li> <li>• <i>Thalamic Neurodegeneration: Mechanisms and Clinical Implications</i></li> <li>• <i>New Tools for Addiction Research: Emphasis on sex Differences</i></li> <li>• <i>Shining a Light on Neuroscience: New Frontiers With Fluorescent Protein-based Sensors</i></li> <li>• <i>Multimodal Mechanisms Contributing to Traumatic Brain Injury Pathology and Potential Molecular Sites for Therapeutic Intervention</i></li> <li>• <i>From Synapse to Shaft: The Slalom of Intracellular Calcium Regulation</i></li> <li>• <i>Synaptic Control of Mesolimbic Dopamine Neurons Regulating Learning</i></li> <li>• <i>Neurobiological Mechanisms Underlying Fentanyl Withdrawal and Negative Affect Associated With Fentanyl</i></li> </ul>
9:45 AM – 10:45 AM	<b>Diversity &amp; Inclusion Power Hour</b>
11:00 AM – 12:00 PM	<b>Inclusive Networking Coffee Hour</b>
3:00 PM – 3:30 PM	<b>Data Blitz</b>
3:30 PM – 4:30 PM	<b>View Exhibits and Poster Session #2</b>
4:30 PM – 6:30 PM	<b>Panel Sessions</b> <ul style="list-style-type: none"> <li>• <i>Cellular and Computational Mechanisms for Central Auditory Processing</i></li> <li>• <i>Unveiling Neurocircuitry Disruptions in Schizophrenia and Major Depressive Disorder: Insights Into Cortical Alterations, Gene Expression, and Sex-Specific Variations</i></li> <li>• <i>Extended Amygdala Stress Neurocircuitry in Mice &amp; Humans</i></li> <li>• <i>Heterogeneity of the Dorsal Raphe Nucleus: Regulation and Behavioral Implication</i></li> <li>• <i>Frontal Cortex Ensembles and Circuitry Underlying Adaptive and Maladaptive Reward Seeking</i></li> <li>• <i>Adverse Experiences and Overcoming Their Consequences – Navigating the Bumps of Life</i></li> <li>• <i>The Influence of Neuromodulators on Striatum and Learning Dynamics</i></li> <li>• <i>FOS-tering Insight: Exploring Neural Mechanisms With Whole Brain cFos and Light Sheet Microscopy</i></li> </ul>
7:00 PM – 8:30 PM	<b>Brain Talk Town Meeting</b>
<b>Monday, January 27, 2025</b>	
6:30 AM – 8:30 AM	<b>Breakfast at Leisure</b>
6:30 AM – 8:00 AM	<b>Travel Fellow &amp; Mentor Breakfast</b>
7:30 AM – 9:30 AM	<b>Panel Sessions</b> <ul style="list-style-type: none"> <li>• <i>Physiology and Anatomy of the Brain Circuits of Mood: From Translational Neuroscience to new Therapies for Patients</i></li> <li>• <i>Carving new Trails in Dopamine Signaling: Investigating Dopamine Subpopulations and Their Role in Reward, Aversion, and Motivation Behaviors</i></li> <li>• <i>Analysis, Mechanisms, and Functions of Targeting AMPA-type Glutamate Receptors to Postsynaptic Nanodomains</i></li> </ul>

	<ul style="list-style-type: none"> <li>• <i>Spatial Perception, Memory, and Navigation</i></li> <li>• <i>Brain Circuits Promoting Pain and Addiction</i></li> <li>• <i>Dynorphin Signaling at Kappa Opioid Receptors in Substance use</i></li> <li>• <i>Mechanisms and Regulation of Striatal Circuits</i></li> <li>• <i>Novel Treatments for PTSD: Focus on Fear Conditioning as a Translational Model</i></li> </ul>
9:45 AM – 11:15 AM	<b>Pioneer Session #2: Allan Basbaum, Ph.D.</b>
2:00 PM – 3:30 PM	<b>Professional Development Session #2: Presenting Your Science and Yourself to Different Audiences</b>
3:30 PM – 4:30 PM	<b>View Exhibits and Poster Session #3</b>
4:30 PM – 6:30 PM	<b>Panel Sessions</b> <ul style="list-style-type: none"> <li>• <i>Developing the Next Generation of Mouse Models for Late-Onset Alzheimer's Disease</i></li> <li>• <i>Factors That Synergistically Contribute to Poor Outcomes After Stress or Trauma</i></li> <li>• <i>Autopilot Gone Awry: Impacts of CNS Injury on the Autonomic Nervous System</i></li> <li>• <i>The Role of mRNA Trafficking and Translation in Cell-Type Specific Synaptic Plasticity</i></li> <li>• <i>Winter Chill: Navigating the Cold Truths of Chronic Pain and Substance use Disorders</i></li> <li>• <i>-Omics 4 Ways: Cross Species Translational Approaches in the Neurobiology of Psychiatric Disorders</i></li> <li>• <i>Neural Circuits Underlying Maladaptive Feeding Disorders</i></li> <li>• <i>Microdosing Psychedelics: Personal Stories, Neuroscience, and Cardiovascular Insights</i></li> </ul>
6:30 PM – 7:00 PM	<b>Evening Refreshment Break</b>
7:00 PM – 8:30 PM	<b>Panel Sessions</b> <ul style="list-style-type: none"> <li>• <i>Synapse Elimination in Health and Disease</i></li> <li>• <i>Vulnerabilities for the Development of Substance Misuse</i></li> <li>• <i>Cannabinoids on the Menu: Interactions of Nutrition, Cannabinoids, and Nervous System Function</i></li> <li>• <i>Spatial Molecular Profiling: Methodological Considerations and Application to Brain Research</i></li> <li>• <i>Role of PAG in Opiate and Alcohol-induced Hyperalgesia</i></li> <li>• <i>Immune Mechanisms Governing Repair and Recovery After Traumatic Spinal Cord Injury</i></li> <li>• <i>Emerging Data Implicating the Serotonin 5HT2c Receptor in Addiction-related Behaviors Across Drug Classes</i></li> <li>• <i>Tutorials for Using Reinforcement Learning and Sequential Sampling Models</i></li> </ul>
<b>Tuesday, January 28, 2025</b>	
6:30 AM – 8:30 AM	<b>Breakfast at Leisure</b>
7:30 AM – 9:30 AM	<b>Panel Sessions</b> <ul style="list-style-type: none"> <li>• <i>Developing Clinical-Systems Neuroscience Links in Psychiatric Diseases With Novel Behavioral Models</i></li> <li>• <i>Linking Animal Behavior to Ongoing Biochemical Signaling Dynamics</i></li> <li>• <i>Bunny Hill or Black Diamond? How Neural Circuits Shape Positive and Negative Reinforcement in Mice</i></li> <li>• <i>Entangled Neighbors: Functional Heterogeneity Within the Subthalamic and Paraventricular Nuclei in the Regulation of Motivated Behaviors</i></li> </ul>

	<ul style="list-style-type: none"> <li>• <i>Novel Insights on The Mechanisms Underlying Opioid-induced Overdoses</i></li> <li>• <i>A Signaling Slalom: Can Pathway Profiles Predict Pharmacology?</i></li> <li>• <i>New Tools to Study Glutamate Receptor Trafficking in Synaptic Transmission, Plasticity, Higher Brain Function and Neurodegenerative Disease</i></li> <li>• <i>New Discoveries in Cannabinoid Research: Exploring Therapeutic Potential, sex Differences, and Translational Implications for Pain and Affective Disorders</i></li> </ul>
10:00 AM – 11:30 AM	<b>Smitty Stevens Ski Slalom (Extra Fee)</b>
11:30 AM – 1:30 PM	<b>Mountain Lunch</b>
3:30 PM – 4:30 PM	<b>View Exhibits and Poster Session #4</b>
4:30 PM – 6:30 PM	<b>Panel Sessions</b> <ul style="list-style-type: none"> <li>• <i>Sensory Disruption in Fragile X Syndrome and Related Autism Spectrum Disorders</i></li> <li>• <i>Neuroimmune, Transcriptomic and nCRNA Mechanisms of Alcohol Pathology</i></li> <li>• <i>Diversity of Peptide Signaling in the Midbrain</i></li> <li>• <i>Translation and Back-Translation: Understanding Decision-making in the Context of Neurobehavioral Disorders</i></li> <li>• <i>New Insights on Claustrum Role in Decision-making, Pain Addiction, Pain, and Psychedelic Drug Effects</i></li> <li>• <i>Estrogen-Dependent Effects on Synaptic Function in Reward Circuits</i></li> <li>• <i>Salient Slalom: Dissociating Valence and Salience Encoding Across Neuronal Populations</i></li> <li>• <i>Mapping Effects of Unpredictable Early Life Experiences in Childhood: From Brain Circuits to Clinical Outcomes</i></li> </ul>
6:30 PM – 7:30 PM	<b>Winter Brain Business Meeting</b>
7:30 PM – 9:30 PM	<b>Special Poster Session and Reception</b>
<b>Wednesday, January 29, 2025</b>	
6:30 AM – 8:30 AM	<b>Breakfast at Leisure</b>
6:30 AM – 8:30 AM	<b>Board of Directors Meeting #2 (Invitation Only)</b>
7:30 AM – 9:30 AM	<b>Panel Sessions</b> <ul style="list-style-type: none"> <li>• <i>Neurotransmitter-Gated Ion-Channel Complexes in Health and Disease</i></li> <li>• <i>Cross-Species Perspectives on the Impact of Prenatal Substance Use on Offspring Development</i></li> <li>• <i>New wax, Sharp Edges and the Right Load: Novel AAVs, Focused Gene Delivery, and Efficient Therapeutics Schussing to Outrace Neurological Disorders</i></li> <li>• <i>Ventral Hippocampal Control of cue Representations, Motivation, and Decision-making</i></li> <li>• <i>Role of Endocannabinoids in Modulating Circuits and Physiology</i></li> <li>• <i>Way More Than a Simple Incretin: GLP-1 Functions in the Central Nervous System and Implications Across Neuropsychiatric Conditions</i></li> <li>• <i>Cells and Circuits of Somatosensation and Pain: From the Periphery to the Brain</i></li> <li>• <i>Neural Circuits Underlying Normal and Disrupted Reward and Cognitive-Affective Processing in Adolescents and Adult Animals</i></li> </ul>
4:30 PM – 6:30 PM	<b>Panel Sessions</b> <ul style="list-style-type: none"> <li>• <i>Novel Concepts in Brain-Body Homeostatic Control</i></li> <li>• <i>Tighten Your Bindings! How Cell-Cell Interactions and Signaling Regulate Synaptic Function</i></li> </ul>

	<ul style="list-style-type: none"> <li>• <i>Roles for the Septum in Motivation and Cognitive Process</i></li> <li>• <i>Chloride Homeostasis, the new Frontier in Therapeutics for Chronic Pain and Beyond!</i></li> <li>• <i>Neural And Computational Bases of Uncertainty in Judgement &amp; Decision Making</i></li> <li>• <i>Just one More hit: Mechanisms Underlying Drug Craving and Relapse</i></li> <li>• <i>Glial Cell Biology in Injury and Repair of the Nervous System</i></li> <li>• <i>In-n-Out the Lateral Hypothalamus Slopes: Circuits Controlling Alcohol and Opioid use Disorders</i></li> </ul>
6:30 PM – 7:30 PM	<b>Cocktail Hour</b>
7:30 PM – 11:00 PM	<b>Awards Banquet and Dance</b>