When citing an abstract from the 2024 annual meeting, please use the format below.

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Minisymposium

MIN01: Advancing Brain Imaging Frontiers: Recent Breakthroughs in Functional Ultrasound Imaging Methods for Preclinical and Clinical Research - Zsolt Lenkei

Theme I – Techniques

Location: MCP Room S105

Time: Saturday, October 5, 2024, 2:00 PM - 4:30 PM

Description: This minisymposium will explore an emerging frontier in brain imaging, functional ultrasound (fUS) imaging. Discover groundbreaking applications in preclinical neuroscience, neuropharmacology, neurosurgery, and beyond as experts delve into the real-time, high-resolution insights this cutting-edge technology provides. Uncover the potential for minimally invasive dynamic imaging, revolutionizing the understanding of complex physiological processes and diagnosis and treatment of CNS disorders.

Time: Saturday, October 5, 2024, 2:00 PM - 4:30 PM

MIN01.01. Chair

Z. Lenkei;
INSERM, Paris, France

Time: Saturday, October 5, 2024, 2:00 PM - 4:30 PM

MIN01.02. Co Chair

M. Tanter;
Inserm, Paris, France

Time: Saturday, October 5, 2024, 2:05 PM - 2:28 PM

MIN01.03. Functional Ultrasound Localization Microscopy: towards whole brain functional imaging at microscopic scale

M. Tanter;
INSERM, Paris, France

Time: Saturday, October 5, 2024, 2:28 PM - 2:51 PM

MIN01.04. fUS Imaging in the Awake Mouse Brain: Cortico-Subcortical Dysconnectivity following Opioid Administration is Well-Correlated with Analgesia

Z. Lenkei;
INSERM, Paris, France

Time: Saturday, October 5, 2024, 2:51 PM - 3:14 PM

MIN01.05. Functional Ultrasound Imaging in Drug Discovery

S. Stankowicz;
Biogen, Cambridge, MA

Time: Saturday, October 5, 2024, 3:14 PM - 3:37 PM

MIN01.06. Opto-fUSi as a window into the mechanisms of arousal-related modulation of brainwide activity

A. Landemard;
University College London, London, United Kingdom

Time: Saturday, October 5, 2024, 3:37 PM - 4:00 PM

MIN01.07. Functional ultrasound imaging for brain-machine interfaces

R. A. Andersen;
California Institute of Technology, Pasadena, CA

Time: Saturday, October 5, 2024, 4:00 PM - 4:23 PM

MIN01.08. Unlocking the Mystery of the Human Spinal Cord Using Functional Ultrasound Imaging

V. N. Christopoulos;
UC Riverside, Riverside, CA

Minisymposium

MIN02: Development of Higher-Level Vision - Kristina J. Nielsen

Theme D – Sensory Systems

Location: MCP Room S406B

Time: Saturday, October 5, 2024, 2:00 PM - 4:30 PM

Description: Higher-level vision encompasses the complex functions that make vision one of our most powerful senses. Despite extensive research on these functions in adults, understanding of their development, especially at the neural level, is limited. This symposium will bring together researchers investigating the development of higher visual functions across various models to provide an update on our current understanding, highlight recent advances, and discuss future challenges.

Time: Saturday, October 5, 2024, 2:00 PM - 4:30 PM

MIN02.01. Chair

K. J. Nielsen;
Johns Hopkins University, Baltimore, MD

Time: Saturday, October 5, 2024, 2:00 PM - 4:30 PM

MIN02.02. Co Chair

M. J. Arcaro;
University of Pennsylvania, Philadelphia, PA

Time: Saturday, October 5, 2024, 2:05 PM - 2:28 PM

MIN02.03. Behavioral and neural development of global form perception

L. Kiorpes;
New York University, New York, NY

Time: Saturday, October 5, 2024, 2:28 PM - 2:51 PM

MIN02.04. Topographic maps scaffold visual development

M. J. Arcaro;
University of Pennsylvania, Philadelphia, PA

Time: Saturday, October 5, 2024, 2:51 PM - 3:14 PM

MIN02.05. Visual category representations in the infant brain revealed using multivariate EEG methods

R. M. Cichy;
Freie University Berlin, Berlin, Germany

Time: Saturday, October 5, 2024, 3:14 PM - 3:37 PM

MIN02.06. Development and plasticity of BOLD response to motion in awake human Infants

M. Morrone;
University of Pisa, Pisa, Italy

Time: Saturday, October 5, 2024, 3:37 PM - 4:00 PM

MIN02.07. Development of the visual motion pathway

K. J. Nielsen;
Johns Hopkins University, Baltimore, MD

Time: Saturday, October 5, 2024, 4:00 PM - 4:23 PM

MIN02.08. Dynamic plasticity of pulvinocortical circuits in early life ensures the appropriate establishment of cortical form and function

J. A. Bourne;
NIMH, Bethesda, MD

Minisymposium

MIN03: Insights Into Sensorimotor Neural Circuit Dynamics via Electrical and Optogenetic Manipulation - Maria C. Dadarlat

Theme E – Motor Systems

Location: MCP Room S102

Time: Saturday, October 5, 2024, 2:00 PM - 4:30 PM

Description: Recent advances in modulating neural activity through electrical and optogenetic stimulation offer new insights into the dynamic interplay between neural circuitry and behavior. This minisymposium will present cutting-edge research on sensory perception, motor control, and learning processes, emphasizing the impact of neural modulation on cognitive and therapeutic outcomes. It will address advances, challenges, and in neuroscience research.

Time: Saturday, October 5, 2024, 2:00 PM - 4:30 PM

MIN03.01. Chair

M. C. Dadarlat;
Purdue University, West Lafayette, IN

Time: Saturday, October 5, 2024, 2:00 PM - 4:30 PM

MIN03.02. Co Chair

Y. J. Sun;
University College London, London, United Kingdom

Time: Saturday, October 5, 2024, 2:05 PM - 2:28 PM

MIN03.03. Activity-dependent recruitment of inhibition and excitation in the awake mammalian cortex during electrical stimulation

M. C. Dadarlat;
Purdue University, West Lafayette, IN

Time: Saturday, October 5, 2024, 2:28 PM - 2:51 PM

MIN03.04. Direct neural perturbations differentially engage latent task variables in neural circuits

D. J. O'Shea;
Stanford University, Palo Alto, CA

Time: Saturday, October 5, 2024, 2:51 PM - 3:14 PM

MIN03.05. Jolts of Insight: Unraveling the Intricacies of Neural Responses to Intracortical Microstimulation and photocapacitive microstimulation

T. D. Kozai;
University of Pittsburgh, Pittsburgh, PA

Time: Saturday, October 5, 2024, 3:14 PM - 3:37 PM

MIN03.06. Ultraflexible Electrodes for Low-Threshold, High-Resolution Microstimulation: Chronic Stability and Neuronal Excitability Changes

R. Kim;
Rice Neuroengineering Initiative, Houston, TX

Time: Saturday, October 5, 2024, 3:37 PM - 4:00 PM

MIN03.07. Engineering cortical plasticity in primate cortex

A. Yazdan-Shahmorad;
University of Washington, Seattle, WA

Time: Saturday, October 5, 2024, 4:00 PM - 4:23 PM

MIN03.08. Recurrent networks in the cerebral cortex:From circuits to neural computations via two-photon optogenetics

M. H. Histed;
NIH / NIMH, Bethesda, MD

Minisymposium

MIN04: The Effects of Food Consumption on the Circuitry of Reward and Decision-Making - Maxime Chevee

Theme G – Motivation and Emotion

Location: MCP Room S100A

Time: Saturday, October 5, 2024, 2:00 PM - 4:30 PM

Description: Fluctuations in food consumption engage a wide array of advantageous plasticity mechanisms, including changes in the brain circuits of reward processing and decision-making. These changes can become maladaptive and contribute to disease states such as obesity. This minisymposium will present recent findings from research using both human and rodent models addressing how food metabolism and diet impact the diverse circuits, neurotransmitters, and receptors that control motivated behaviors.

Time: Saturday, October 5, 2024, 2:00 PM - 4:30 PM

MIN04.01. Chair

M. Chevee;
Vanderbilt University, Nashville, TN

Time: Saturday, October 5, 2024, 2:00 PM - 4:30 PM

MIN04.02. Co Chair

M. Bocarsly;
Rutgers NJMS, Newark, NJ

Time: Saturday, October 5, 2024, 2:05 PM - 2:28 PM

MIN04.03. Time Dependent Changes in the Orbitofrontal Cortex with Exposure to an Obesogenic Diet.

S. L. Borgland;
University of Calgary, Calgary, AB, Canada

Time: Saturday, October 5, 2024, 2:28 PM - 2:51 PM

MIN04.04. Basal Ganglia Adaptations in Obesity and Weight Loss

A. V. Kravitz;
Washington University In St Louis, Saint Louis, MO

Time: Saturday, October 5, 2024, 2:51 PM - 3:14 PM

MIN04.05. The Influence of Excess Adiposity on Reward Learning for Carbohydrate in Humans

M. E. Baugh;
Virginia Tech, Roanoke, VA

Time: Saturday, October 5, 2024, 3:14 PM - 3:37 PM

MIN04.06. Cognitive Processes Interact with Hormonal Signaling in the Brain in the Battle to Control Appetite

S. Kullmann;
University of Tuebingen, Tuebingen, Germany

Time: Saturday, October 5, 2024, 3:37 PM - 4:00 PM

MIN04.07. Insulin, dopamine, and metabolism

M. Bocarsly;
Rutgers NJMS, Newark, NJ

Time: Saturday, October 5, 2024, 4:00 PM - 4:23 PM

MIN04.08. Food restriction increases region-specific dopamine release to promote learning in mice

M. Chevee;
Vanderbilt University, Nashville, TN

Minisymposium

MIN05: The Noradrenergic System: New Insights From Circuit Regulation to Behavior Modulation - Thiago Arzua

Theme F – Integrative Physiology and Behavior

Location: MCP Room S406A

Time: Saturday, October 5, 2024, 2:00 PM - 4:30 PM

Description: This minisymposium will focus on recent insights into behaviors guided and regulated by noradrenaline (NA). NA signaling, originating from the locus coeruleus (LC) and unexpected novel regions, has garnered attention due to its surprising complexity in organization and function. We will highlight these findings, from the role of the LC in plasticity and anxiety in animal models to the region's role in human development and exciting new mechanisms that work independently of the LC altogether.

Time: Saturday, October 5, 2024, 2:00 PM - 4:30 PM

MIN05.01. Chair

T. Arzua;
Columbia University, NEW YORK, NY

Time: Saturday, October 5, 2024, 2:00 PM - 4:30 PM

MIN05.02. Co Chair

G. R. Poe;
UCLA Chapter, Los Angeles, CA

Time: Saturday, October 5, 2024, 2:05 PM - 2:28 PM

MIN05.03. The locus coeruleus broadcasts prediction errors to control cortical plasticity

R. Jordan;
University of Edinburgh, Edinburgh, United Kingdom

Time: Saturday, October 5, 2024, 2:28 PM - 2:51 PM

MIN05.04. Locus coeruleus-prefrontal role in the inability to extinguish fear

S. N. Ayala Rosario;
University of California, Los Angeles, Los Angeles, CA

Time: Saturday, October 5, 2024, 2:51 PM - 3:14 PM

MIN05.05. Local Neuropeptide Y modulates the Locus Coeruleus to mediate anxiety

D. Riga;
Center for Neurogenomics and Cognitive Research, Amsterdam Neuroscience, Vrije Universiteit, Amsterdam, Netherlands

Time: Saturday, October 5, 2024, 3:14 PM - 3:37 PM

MIN05.06. Understanding the role of C1 neurons in stress and anxiety

C. Fernández-Peña;
St. Jude Children's Research Hospital, Memphis, TN

Time: Saturday, October 5, 2024, 3:37 PM - 4:00 PM

MIN05.07. Locus coeruleus-independent regulation of pupil dynamics by the dorsal raphe serotonergic system

M. Maheu;
University Medical Center Hamburg-Eppendorf, Hamburg, Germany

Time: Saturday, October 5, 2024, 4:00 PM - 4:23 PM

MIN05.08. In vivo neuroimaging measurement of locus coeruleus microstructure in adolescents in relation to developmental psychopathology

A. Markser;
University of Cologne, Cologne, Germany

Minisymposium

MIN06: From Synapses to Ensembles: Studying the Synaptic Engram - F. Javier Rubio

Theme B – Neural Excitability, Synapses, and Glia

Location: MCP Room N427

Time: Sunday, October 6, 2024, 9:30 AM - 12:00 PM

Description: Memories are encoded by specific patterns of sparsely distributed neurons called ensembles that are selected by integrating specific patterns of activated excitatory synaptic input, called synaptic ensembles, carrying information from other brain regions. This minisymposium will highlight different approaches for studying molecular and cellular alterations in activated synapses, including synaptic ensembles, that can contribute to encoding specific memories.

Time: Sunday, October 6, 2024, 9:30 AM - 12:00 PM

MIN06.01. Chair

F. Rubio;
NIDA IRP, Baltimore, MD

Time: Sunday, October 6, 2024, 9:30 AM - 12:00 PM

MIN06.02. Co Chair

L. A. Ramsey;
NIDA IRP, Baltimore, MD

Time: Sunday, October 6, 2024, 9:35 AM - 9:58 AM

MIN06.03. Head-impact induced disruption of synaptic ensembles drives cognitive impairment in mice

M. P. Burns;
Georgetown University, Washington, DC

Time: Sunday, October 6, 2024, 9:58 AM - 10:21 AM

MIN06.04. Engram Synaptic Dynamics: Unraveling the Mechanisms in Memory Formation and Retrieval

D. Han;
Institute for Basic Science, Daejeon, Korea, Republic of

MIN06.05. Functional and structural synaptic plasticity within cocaine-seeking ensembles

A.-C. Bobadilla;
Colorado State University, Fort Collins, CO

Time: Sunday, October 6, 2024, 10:44 AM - 11:07 AM

MIN06.06. Exploring synaptic diversity through single synapse transcriptomics

J. D. Perez;
Max Planck Institute for Brain Research, Frankfurt am Main, Germany

Time: Sunday, October 6, 2024, 11:07 AM - 11:30 AM

MIN06.07. New approaches to find protein markers of activated synapses

F. Rubio;
NIDA IRP, Baltimore, MD

Time: Sunday, October 6, 2024, 11:30 AM - 11:53 AM

MIN06.08. Tbd

S. Spijker;
Center for Neurogenomics and Cognitive Research, Vrije Universiteit, Epe, NETHERLANDS.

Minisymposium

MIN07: From Womb to Words: Pre-linguistic Neurodevelopment of Language - Huw Swanborough

Theme A – Development

Location: MCP Room S406B

Time: Sunday, October 6, 2024, 9:30 AM - 12:00 PM

Description: The development of the neural circuitry underpinning language begins long before linguistic speech production, starting prenatally and changing rapidly during infancy. Development in this period underpins infant-to-parent communication and is predictive of healthy or pathological language outcomes. This minisymposium focuses on early neurolinguistic maturation, with insight into recent breakthroughs and active research, underlining the relevance of language abilities for a child's overall development.

Time: Sunday, October 6, 2024, 9:30 AM - 12:00 PM

MIN07.01. Chair

H. Swanborough;
University of Zurich, Zürich, Switzerland

Time: Sunday, October 6, 2024, 9:30 AM - 12:00 PM

MIN07.02. Co Chair

A. M. Husser;
University of Zurich, Zürich, Switzerland

Time: Sunday, October 6, 2024, 9:35 AM - 9:58 AM

MIN07.03. Neuronal basis of language production in the fetal brain

A. M. Husser;
University of Zurich, Zürich, Switzerland

Time: Sunday, October 6, 2024, 9:58 AM - 10:21 AM

MIN07.04. The role of prenatal experience in shaping the brain

J. Gervain;
University of Padua, Padua, Italy

Time: Sunday, October 6, 2024, 10:21 AM - 10:44 AM

MIN07.05. Neural Encoding of Speech Through Frequency-Following Responses: From Birth to One Year.

A. Mondéjar-Segovia;
Department of Clinical Psychology and Psychobiology, Brainlab-Cognitive Neuroscience Research Group - University of Barcelona, Barcelona, SPAIN.

Time: Sunday, October 6, 2024, 10:44 AM - 11:07 AM

MIN07.06. Atypical environments, atypical brains: impact of prematurity on auditory development at birth

M. Filippa;
University of Geneva, Geneva, Switzerland

Time: Sunday, October 6, 2024, 11:07 AM - 11:30 AM

MIN07.07. Infant functional lateralization in STG during speech perception predicted long-term language skills in kindergarten: a passive-listening fMRI study.

J. Wang;
Harvard University, Cambridge, MA

Time: Sunday, October 6, 2024, 11:30 AM - 11:53 AM

MIN07.08. Tracking of speech, sound, and song by the infant brain, and implications for language acquisition

Á. Ní Choisdealbha;
University of Washington, Seattle, WA

Minisymposium

MIN08: Neural Encoding of Bodies for Primate Social Perception - Rufin Vogels

Theme D – Sensory Systems

Location: MCP Room S102

Time: Sunday, October 6, 2024, 9:30 AM - 12:00 PM

Description: Body shapes and movements convey essential information about the behavior and emotions of primates. The brain has developed specialized mechanisms for the visual processing of bodies and body movements, but essential underlying computational and neural processes remain largely unclear. The symposium presents steps toward developing an understanding of these processes in human and nonhuman primates, exploiting various methods (single-cell physiology, imaging, and computational modeling).

Time: Sunday, October 6, 2024, 9:30 AM - 12:00 PM

MIN08.01. Chair

R. Vogels;
KU Leuven, Leuven, Belgium

Time: Sunday, October 6, 2024, 9:30 AM - 12:00 PM

MIN08.02. Co Chair

B. De Gelder;
Maastricht University, Maastricht, Netherlands

Time: Sunday, October 6, 2024, 9:35 AM - 9:58 AM

MIN08.03. Neural processing of static and dynamic bodies in macaque temporal cortex.

A. Bognár;
KU Leuven, Leuven, Belgium

Time: Sunday, October 6, 2024, 9:58 AM - 10:21 AM

MIN08.04. The face- and body-selective networks in the macaque brain are differentially sensitive to emotional expressions.

J. Taubert;
The University of Queensland, St Lucia, Australia

Time: Sunday, October 6, 2024, 10:21 AM - 10:44 AM

MIN08.05. Computation-Based Feature Representation of body movements and interactions in the human brain.

M. Poyo Solanas;
University of Maastricht, Maastricht, Netherlands

Time: Sunday, October 6, 2024, 10:44 AM - 11:07 AM

MIN08.06. Category-selective representation of body relationships in the human visual cortex.

E. Abassi;
McGill University, Montreal, QC, Canada

Time: Sunday, October 6, 2024, 11:07 AM - 11:30 AM

MIN08.07. Hierarchical organization of social action features along the lateral visual pathway

L. Isik;
Johns Hopkins University, Baltimore, MD

Time: Sunday, October 6, 2024, 11:30 AM - 11:53 AM

MIN08.08. Influence of social interaction on the perception ofemotions from body expression.

M. A. Giese;
University Clinic Tuebingen, Tuebingen, Germany

Minisymposium

MIN09: Glial Control of Critical Windows for Experience-Dependent Neuronal Plasticity - Wendy Xin

Theme B – Neural Excitability, Synapses, and Glia

Location: MCP Room S105

Time: Sunday, October 6, 2024, 2:00 PM - 4:30 PM

Description: The brain is an infinitely adaptable organ molded by experience throughout life. Although much of the focus has been on intrinsic neuronal mechanisms of plasticity, there is growing evidence that multiple glial populations control both the timing and extent of neuronal plasticity, particularly over the course of development. This minisymposium will highlight recent discoveries on glial regulation of experience-dependent neuronal plasticity during critical windows of neurodevelopment.

Time: Sunday, October 6, 2024, 2:00 PM - 4:30 PM

MIN09.01. Chair

W. Xin;
UCSF, San Francisco, CA

Time: Sunday, October 6, 2024, 2:00 PM - 4:30 PM

MIN09.02. Co Chair

T. E. Faust;
University of Massachusetts Chan Medical School, Worcester, MA

Time: Sunday, October 6, 2024, 2:05 PM - 2:28 PM

MIN09.03. Cellular and molecular outcomes of astrocyte-driven changes to critical period timing

M. Postolache;
Washington University School of Medicine, St. Louis, MO

Time: Sunday, October 6, 2024, 2:28 PM - 2:51 PM

MIN09.04. Neuronal Interleukin-34 controls microglial functional development

B. Devlin;
Duke University, Durham, NC

Time: Sunday, October 6, 2024, 2:51 PM - 3:14 PM

MIN09.05. Astrocytes modulate a critical window of microglia-mediated synapse remodeling

T. E. Faust;
University of Massachusetts Chan Medical School, Worcester, MA

Time: Sunday, October 6, 2024, 3:14 PM - 3:37 PM

MIN09.06. Synapse development and plasticity in the visual circuit is regulated by astrocytic store-released calcium

I. Farhy-Tselnicker;
Texas A&M University, College Station, TX

Time: Sunday, October 6, 2024, 3:37 PM - 4:00 PM

MIN09.07. Dynamic interactions between microglia and oligodendrocyte precursor cells (OPCs) remodel neural circuits in response to sensory experience

A. Ferro;
Cold Spring Harbor Lab, Cold Spring Harbor, NY

Time: Sunday, October 6, 2024, 4:00 PM - 4:23 PM

MIN09.08. Adolescent oligodendrogenesis and myelination restrict experience-dependent neuronal plasticity in adult visual cortex

W. Xin;
UCSF, San Francisco, CA

Minisymposium

MIN10: Sensory Neuroprostheses: Clinical Benefits, Tradeoffs, and Translation - Emily L. Graczyk

Theme D – Sensory Systems

Location: MCP Room S102

Time: Sunday, October 6, 2024, 2:00 PM - 4:30 PM

Description: Neuroprostheses to restore somatosensory function to people with disabilities, including spinal cord injury and amputation, are beginning to move out of the laboratory and into the clinic. Strategies for sensory restoration, including stimulation of the skin, nerves, and brain, may each benefit different populations. This minisymposium will bring together experts in sensory neuroprostheses to discuss the relative benefits, tradeoffs, and future of translation for cutting-edge stimulation technologies.

Time: Sunday, October 6, 2024, 2:00 PM - 4:30 PM

MIN10.01. Chair

E. L. Graczyk;
Case Western Reserve University, Cleveland, OH

Time: Sunday, October 6, 2024, 2:05 PM - 2:28 PM

MIN10.02. Combining neuroprosthetics and AI for sensory neurorehabillitation

S. Raspopovic;
ETH Zurich, Zurich, Switzerland

Time: Sunday, October 6, 2024, 2:28 PM - 2:51 PM

MIN10.03. Stimulation of Regenerative Peripheral Nerve Interfaces (RPNIs) to elicit referred sensation for bidirectional prostheses

D. H. Gates;
University of Michigan, Ann Arbor, MI

Time: Sunday, October 6, 2024, 2:51 PM - 3:14 PM

MIN10.04. Intra-cortical microstimulation for evoking somatosensations in human patients: challenges and opportunities

D. A. Bjanes;
California Institute of Technology, PASADENA, CA

Time: Sunday, October 6, 2024, 3:14 PM - 3:37 PM

MIN10.05. Designing stimulus trains to improve the perceptual and psychophysical performance of intracortical microstimulation

R. A. Gaunt;
University of Pittsburgh, Pittsburgh, PA

Time: Sunday, October 6, 2024, 3:37 PM - 4:00 PM

MIN10.06. Spatio-temporal patterning of neurostimulation for restoring touch in bionic devices

G. Valle;
Center for Bionics and Pain | Chalmers University, Gothenburg, Sweden

Time: Sunday, October 6, 2024, 4:00 PM - 4:23 PM

MIN10.07. Perception and integration of sensation evoked by intracortical and peripheral nerve stimulation in a participant with incomplete tetraplegia

B. Hutchison;
Case Western Reserve University, Cleveland, OH

Minisymposium

MIN11: Sex Differences in Typically Overlooked Modulators of Memory: Towards Sex-Specific Therapies for Memory Dysfunction - Karyn M. Frick

Theme H – Cognition

Location: MCP Room S406B

Time: Sunday, October 6, 2024, 2:00 PM - 4:30 PM

Description: This minisymposium brings together innovative new research illustrating key sex differences in typically overlooked modulators of memory, including time of day, protein degradation, early life stress, and neuroimmune function. Speakers will provide novel insights that challenge male-centric assumptions about the cellular, molecular, and circuit mechanisms underlying learning and memory and highlight the importance of identifying the ways in which neuromodulatory factors regulate memory in both sexes.

Time: Sunday, October 6, 2024, 2:00 PM - 4:30 PM

MIN11.01. Chair

K. M. Frick;
Univ. of Wisconsin-Milwaukee, Milwaukee, WI

Time: Sunday, October 6, 2024, 2:05 PM - 2:28 PM

MIN11.02. Diurnal regulation of memory in males and females by the clock gene Per1

J. L. Kwapis;
Penn State University, University Park, PA

Time: Sunday, October 6, 2024, 2:28 PM - 2:51 PM

MIN11.03. The sex-specific role of diverse ubiquitin modifications in memory formation

T. J. Jarome;
Virginia Tech, Blacksburg, VA

Time: Sunday, October 6, 2024, 2:51 PM - 3:14 PM

MIN11.04. Sex-specific neuroimmune networks in the modulation of memory

N. C. Tronson;
University of Mchigan, Ann Arbor, MI

Time: Sunday, October 6, 2024, 3:14 PM - 3:37 PM

MIN11.05. Maladaptive social behaviors following early-life parental loss: stress axis and neuroimmune correlates

E. R. Glasper;
Ohio State University, Columbus, OH

Time: Sunday, October 6, 2024, 3:37 PM - 4:00 PM

MIN11.06. Estrogenic regulation of dorsal hippocampal engrams in female and male mice

A. W. Fleischer;
University of Wisconsin - Milwaukee, Milwaukee, WI

Time: Sunday, October 6, 2024, 4:00 PM - 4:23 PM

MIN11.07. Novel neural networks for ovarian hormone regulation of state-dependent memory

E. K. Lucas;
University of Alabama at Birmingham, Birmingham, AL

Minisymposium

MIN12: Cerebellar Predictive Encoding in Health and Disease - Alice Doubliez

Theme F – Integrative Physiology and Behavior

Location: MCP Room S406A

Time: Monday, October 7, 2024, 9:30 AM - 12:00 PM

Description: This minisymposium focuses on exciting cross-species studies revealing that the predictive capacity of the cerebellum extends beyond motor control. Talks will cover recent neuroanatomical, circuit, computational, MRI, and clinical findings of how associative and supervised learning in the cerebellum participates in goal-directed behaviors driven by aversive and non-aversive cues in the healthy brain and in disease.

Time: Monday, October 7, 2024, 9:30 AM - 12:00 PM

MIN12.01. Chair

A. Doubliez;
Essen University Hospital, University of Duisburg-Essen, Essen, Germany

Time: Monday, October 7, 2024, 9:30 AM - 12:00 PM

MIN12.02. Co Chair

P. Gil-Paterna;
Uppsala University, Uppsala, Sweden

Time: Monday, October 7, 2024, 9:35 AM - 9:58 AM

MIN12.03. Cerebellar circuits, timing, and cognition

K. L. Parker;
University of Iowa, Iowa City, IA

Time: Monday, October 7, 2024, 9:58 AM - 10:21 AM

MIN12.04. Organization and dynamics of climbing fiber inputs to Purkinje cells during goal-directed behavior

D. Kostadinov;
King's College London, London, United Kingdom

Time: Monday, October 7, 2024, 10:21 AM - 10:44 AM

MIN12.05. Selective recruitment: Evidence for task-dependent gating of inputs to the cerebellum

L. Shahshahani;
Brown University, Cognitive Linguistic Psychology Sociology, CLPS, Providence, RI

Time: Monday, October 7, 2024, 10:44 AM - 11:07 AM

MIN12.06. Neural Circuitry and molecular pathways underlying cerebellar modulation of classical fear conditioning

Y.-S. Lee;
Seoul National University College of Medicine, Seoul, Korea, Republic of

Time: Monday, October 7, 2024, 11:07 AM - 11:30 AM

MIN12.07. Ins and outs of the cerebellum-midbrain dopamine pathways

M. Oñate;
Albert Einstein College of Medicine, Bronx, NY

Time: Monday, October 7, 2024, 11:30 AM - 11:53 AM

MIN12.08. Human cerebellum and VTA contribute to reward prediction error processing driving fear extinction

E. Nio;
Essen University Hospital, University of Duisburg-Essen, Essen, Germany

Minisymposium

MIN13: Large-Scale Mechanistic Models of Brain Circuits With Biophysically- and Morphologically-Detailed Neurons - Salvador Dura-Bernal

Theme I – Techniques

Location: MCP Room S406B

Time: Monday, October 7, 2024, 9:30 AM - 12:00 PM

Description: Understanding the brain requires studying its multiscale interactions, from molecules to cells to circuits and networks. Although researchers are generating vast experimental datasets across scales and modalities, integrating and interpreting this data remains a daunting challenge. This minisymposium will highlight recent significant advances in large-scale mechanistic modeling of brain circuits and how it offers an unparalleled approach to integrate data and provide insights into brain function and disease.

Time: Monday, October 7, 2024, 9:30 AM - 12:00 PM

MIN13.01. Chair

S. Dura-Bernal;
SUNY Downstate Health Sciences University, Brooklyn, NY

Time: Monday, October 7, 2024, 9:30 AM - 12:00 PM

MIN13.02. Co Chair

A. Arkhipov;
Allen Institute, Bellevue, WA

Time: Monday, October 7, 2024, 9:35 AM - 9:58 AM

MIN13.03. Multi-Scale Modeling of Mouse Primary Visual Cortex

B. Herrera;
Allen Institute, Seattle, WA

Time: Monday, October 7, 2024, 9:58 AM - 10:21 AM

MIN13.04. A Model of Neocortical Micro- and Mesocircuitry and its Applications

M. W. Reimann;
Swiss Federal Institute of Technology, Geneve, Switzerland

Time: Monday, October 7, 2024, 10:21 AM - 10:44 AM

MIN13.05. Full scale model of mouse, rat and human hippocampus

C. Lupascu;
National Research Council, Institute of Biophysics, Palermo, Italy

Time: Monday, October 7, 2024, 10:44 AM - 11:07 AM

MIN13.06. Testing new pharmacology for depression in-silico using detailed models of human cortical microcircuits

E. Hay;
Centre for Addiction and Mental Health (CAMH), Toronto, ON, Canada

Time: Monday, October 7, 2024, 11:07 AM - 11:30 AM

MIN13.07. Effects of Electrical Stimulation Across Species

B. Marsh;
University of California, San Diego, La Jolla, CA

Time: Monday, October 7, 2024, 11:30 AM - 11:53 AM

MIN13.08. Large-scale biophysical models of thalamocortical circuits to study brain function and disease

S. Dura-Bernal;
SUNY Downstate Health Sciences University, Brooklyn, NY

Minisymposium

MIN14: Of Mice and Humans: Neuronal Diversity in the Hippocampus Across Species - Jayeeta Basu

Theme B – Neural Excitability, Synapses, and Glia

Location: MCP Room S102

Time: Monday, October 7, 2024, 9:30 AM - 12:00 PM

Description: Can scientists extrapolate information about neuronal cell types and circuit functions derived from animal models to humans? This symposium brings together scientists who are developing techniques and investigative models to study cell types and their functional properties across species. This minisymposium will feature talks about pioneering work spanning the first electrophysiological, circuit mapping, transcriptomic, and computational modeling data from cell types within the human hippocampus, the center for episodic memory.

Time: Monday, October 7, 2024, 9:30 AM - 12:00 PM

MIN14.01. Chair

J. Basu;
NYU Neuroscience Institute, New York, NY

Time: Monday, October 7, 2024, 9:30 AM - 12:00 PM

MIN14.02. Co-Chair

K. A. Pelkey;
NIH, Bethesda, MD

Time: Monday, October 7, 2024, 9:35 AM - 9:58 AM

MIN14.03. Synaptic signaling in the human CA3 autoassociative network

P. M. Jonas;
Inst. of Sci and Technol (IST) Austria, Klosterneuburg, Austria

Time: Monday, October 7, 2024, 9:58 AM - 10:21 AM

MIN14.04. Comparison of Intrinsic and Synaptic properties of CA1, CA3, and Dentate Gyrus in the Human Hippocampal Circuit

T. Butola;
NYU Grossman School of Medicine, New York, NY

Time: Monday, October 7, 2024, 10:21 AM - 10:44 AM

MIN14.05. Functional interrogation of hippocampal neurons and circuit motifs across evolution from rodent to human.

K. A. Pelkey;
NIH, Bethesda, MD

Time: Monday, October 7, 2024, 10:44 AM - 11:07 AM

MIN14.06. Molecular diversity of human hippocampal cell types

G.-l. Ming;
University of Pennsylvania, Philadelphia, PA

Time: Monday, October 7, 2024, 11:07 AM - 11:30 AM

MIN14.07. Computational properties of three types of human hippocampal CA1 pyramidal neurons

I. Segev;
Inst. of Life Sciences, Hebrew University, Jerusalem, Israel

Time: Monday, October 7, 2024, 11:30 AM - 11:53 AM

MIN14.08. Decoding Human Brain Organization and Cytoarchitecture Through Transcriptomics

R. D. Hodge;
Allen Inst. For Brain Science, Seattle, WA

Minisymposium

MIN15: Beyond Birth Control: The Neuroscience of Hormonal Contraceptives - Benedetta Leuner

Theme F – Integrative Physiology and Behavior

Location: MCP Room S102

Time: Monday, October 7, 2024, 2:00 PM - 4:30 PM

Description: Hormonal contraceptives (HCs) are one of the most widely used classes of drugs, used by 300 million women worldwide. However, only recently have researchers begun to study the neurobiological and behavioral impacts of hormonal contraceptives have been studied. This symposium will focus on preclinical rodent studies and cutting-edge neuroscience to identify cellular and molecular mechanisms by which HCs influence neural processes, including cognition, motivation, metabolism, mood, stroke, and behavior.

Time: Monday, October 7, 2024, 2:00 PM - 4:30 PM

MIN15.01. Chair

B. Leuner;
Ohio State University, Columbus, OH

Time: Monday, October 7, 2024, 2:00 PM - 4:30 PM

MIN15.02. Co Chair

J. M. Lacasse;
Brock University, St Catharines, ON, Canada

Time: Monday, October 7, 2024, 2:05 PM - 2:28 PM

MIN15.03. Hormonal contraceptives in adolescence impact markers of cortical maturation in female rats.

B. Leuner;
The Ohio State University, Columbus, OH

Time: Monday, October 7, 2024, 2:28 PM - 2:51 PM

MIN15.04. Understanding the effects of hormonal contraceptives on energy balance in female rats.

J. M. Lacasse;
Brock University, St. Catharines, ON, Canada

Time: Monday, October 7, 2024, 2:51 PM - 3:14 PM

MIN15.05. Understanding the mechanisms underlying the effects of hormonal contraceptives on cognitive function

N. Ismail;
University of Ottawa, Ottawa, ON, Canada

Time: Monday, October 7, 2024, 3:14 PM - 3:37 PM

MIN15.06. Oral contraceptive exposure in combination with nicotine exacerbates mild traumatic brain injury outcomes.

A. P. Raval;
University of Miami, Miami, FL

Time: Monday, October 7, 2024, 3:37 PM - 4:00 PM

MIN15.07. Investigating the influence of oral contraceptives on neural circuits: Insights from longitudinal diffusion weighted MRI

C. Heller;
Friedrich Schiller University Jena, Jena University Hospital, Jena, Germany

Time: Monday, October 7, 2024, 4:00 PM - 4:23 PM

MIN15.08. Oral contraceptives effect on HPA-axis and risk for depression-like behavior

K. Schuh;
University of Michigan Psychology Graduate Program, Ann Arbor, MI

Minisymposium

MIN16: Central and Peripheral Neurobiological Mechanisms of Neuropathic Pain in Multiple Sclerosis - Bradley K. Taylor

Theme D – Sensory Systems

Location: MCP Room S406A

Time: Monday, October 7, 2024, 2:00 PM - 4:30 PM

Description: Multiple sclerosis-associated neuropathic pain (MSNP) is quite prevalent and remains problematic even during the use of disease-modifying agents. This minisymposium will reveal new neurobiological mechanisms of MSNP, highlighting central mechanisms driven by spinal microglia and peripheral mechanisms in the dorsal root ganglion. Neurophysiological, molecular, and behavioral data in mice will promote new targets for treatment, including transient receptor potential ankyrin 1 (TRPA1) and TNF-a.

Time: Monday, October 7, 2024, 2:00 PM - 4:30 PM

MIN16.01. Chair

B. K. Taylor;
University of Pittsburgh, PITTSBURGH, PA

Time: Monday, October 7, 2024, 2:05 PM - 2:28 PM

MIN16.02. Pain and Multiple Sclerosis: Power and Pitfalls of the Four Core Genotype Animal Model in MS Research

A. M. Taylor;
University of Alberta, Edmonton, AB, Canada

Time: Monday, October 7, 2024, 2:28 PM - 2:51 PM

MIN16.03. Microglia Signaling in Multiple Sclerosis Associated Neuropathic Pain

S. R. Lamerand;
University of Pittsburgh, Pittsburgh, PA

Time: Monday, October 7, 2024, 2:51 PM - 3:14 PM

MIN16.04. Contribution of inflammation and structural plasticity of sensory neurons to pain in multiple sclerosis

B. J. Kerr;
University of Alberta, Edmonton, AB, Canada

Time: Monday, October 7, 2024, 3:14 PM - 3:37 PM

MIN16.05. Primary afferent mechanisms of central neuropathic pain in multiple sclerosis

B. K. Taylor;
University of Pittsburgh, Pittsburgh, PA

Time: Monday, October 7, 2024, 3:37 PM - 4:00 PM

MIN16.06. SARM1 and Neuropathic Pain in a Mouse Model of Progressive Multiple Sclerosis.

D. Buonvicino;
University of Florence, Florence, Italy, Italy

Time: Monday, October 7, 2024, 4:00 PM - 4:23 PM

MIN16.07. Does peripheral kappa opioid receptor activation drive cold hypersensitivity in a mouse model of multiple sclerosis?

R. Al-Hasani;
Department of Anesthesiology, Washington University School of Medicine, Saint Louis, MO.

Minisymposium

MIN17: Control of Adaptive Behavior by Neuronal Circuits in the Central Nucleus of the Amygdala - Jonathan P. Fadok

Theme G – Motivation and Emotion

Location: MCP Room S100BC

Time: Monday, October 7, 2024, 2:00 PM - 4:30 PM

Description: The nervous system processes a vast array of complex stimuli to generate behavior necessary for survival. The central nucleus of the amygdala is a striatal brain region that integrates external and internal inputs to control a diverse array of adaptive behaviors. This minisymposium will cover recent progress in understanding how the central amygdala controls positive and negative valence behavior through local and distributed circuits.

Time: Monday, October 7, 2024, 2:00 PM - 4:30 PM

MIN17.01. Chair

J. P. Fadok;
Tulane University, New Orleans, LA

Time: Monday, October 7, 2024, 2:00 PM - 4:30 PM

MIN17.02. Co Chair

M. A. Herman;
University of North Carolina Chapel Hill, Chapel Hill, NC

Time: Monday, October 7, 2024, 2:05 PM - 2:28 PM

MIN17.03. A novel cortico-amygdala pathway regulating defensive responses

J. P. Fadok;
Tulane University, New Orleans, LA

Time: Monday, October 7, 2024, 2:28 PM - 2:51 PM

MIN17.04. Amygdala cells and circuits for sensory and affective components of pain

Y. Carrasquillo;
National Institutes of Health, Bethesda, MD

Time: Monday, October 7, 2024, 2:51 PM - 3:14 PM

MIN17.05. Effects of Psilocin on Central Amygdala Circuit Activity and Threat Responding Behavior

M. A. Herman;
University of North Carolina Chapel Hill, Chapel Hill, NC

Time: Monday, October 7, 2024, 3:14 PM - 3:37 PM

MIN17.06. Central amygdala-lateral hypothalamus circuitry mediates stress-enhanced avoidance behaviors and alcohol drinking

M. M. Weera;
Tufts University, Medford, MA

Time: Monday, October 7, 2024, 3:37 PM - 4:00 PM

MIN17.07. Neurotensin systems in the CeA: alcohol and affective behaviors

Z. McElligott;
University of North Carolina at Chapel Hill, Chapel Hill, NC

Time: Monday, October 7, 2024, 4:00 PM - 4:23 PM

MIN17.08. Glucagon-like peptide 1-dependent modulation of the central amygdala: an amygdalar-hindbrain intersection

J. A. Hardaway III;
University of Alabama at Birmingham, Birmingham, AL

Minisymposium

MIN18: Microglia and Peripheral Immunity in Alzheimer's Disease and Related Disorders - Oleg Butovsky

Theme C – Neurodegenerative Disorders and Injury

Location: MCP Room S100A

Time: Monday, October 7, 2024, 2:00 PM - 4:30 PM

Description: One of the major outstanding questions in the Alzheimer's disease (AD) field of research is the underlying mechanism by which genome-wide association studies (GWAS) associated risk factors contribute to genetic perturbation and malfunction of peripheral immune cells and their crosstalk with neural cells in disease progression. This minisymposium will delineate the molecular and cellular mechanisms of microglia and their interactions with peripheral immunity in AD and related disorders.

Time: Monday, October 7, 2024, 2:00 PM - 4:30 PM

MIN18.01. Chair

O. Butovsky;
Brigham and Women's Hospital, Harvard Medical School, Boston, MA

Time: Monday, October 7, 2024, 2:00 PM - 4:30 PM

MIN18.02. Co Chair

M. T. Heneka;
Université du Luxembourg, Belvaux, Luxembourg

Time: Monday, October 7, 2024, 2:05 PM - 2:28 PM

MIN18.03. Microglia and astroglia driven neuroinflammation in the amyloid plaque cell niche in xenografted mice.

B. G. De Strooper;
VIB Center For Brain & Disease Research, Leuven, Belgium

Time: Monday, October 7, 2024, 2:28 PM - 2:51 PM

MIN18.04. MICROBIOTA-MICROGLIA INTERACTIONS MODULATE BETA-AMYLOID LEVELS

L. M. Cox;
Harvard Medical School, Boston, MA

Time: Monday, October 7, 2024, 2:51 PM - 3:14 PM

MIN18.05. GENOMIC APPROACHES TO STUDY ALZHEIMER'S DISEASE IMMUNITY

D. Gate;
Northwestern University, Chicago, IL

Time: Monday, October 7, 2024, 3:14 PM - 3:37 PM

MIN18.06. T CELL MEDIATED IMMUNE SURVEILLANCE IN ALZHEIMER'S: INSIGHTS FROM VIRAL INFECTION MODELS

J. Herz;
Washington University in St. Louis, Saint Louis, MO

Time: Monday, October 7, 2024, 3:37 PM - 4:00 PM

MIN18.07. SEX-DEPENDENT APOE4 NEUTROPHIL-MICROGLIA INTERACTIONS DRIVE COGNITIVE IMPAIRMENT IN ALZHEIMER'S DISEASE

O. Butovsky;
Brigham and Women's Hospital, Harvard Medical School, Boston, MA

Time: Monday, October 7, 2024, 4:00 PM - 4:23 PM

MIN18.08. Microglia protect neurons from protein-accumulation induced dysfunction through tunneling nanotubes.

M. T. Heneka;
Université du Luxembourg, Belvaux, Luxembourg

Minisymposium

MIN19: Molecular and Cellular Mechanisms of Motor Circuit Development - Paschalis Kratsios

Theme A – Development

Location: MCP Room S103

Time: Monday, October 7, 2024, 2:00 PM - 4:30 PM

Description: Motor circuits represent the main output of the central nervous system. This minisymposium will highlight recent breakthroughs in cellular and molecular mechanisms that enable motor circuits to develop and function. The speakers are experts in invertebrate and vertebrate motor circuits. The minisymposium will also highlight conserved and divergent mechanisms necessary for motor circuit development.

Time: Monday, October 7, 2024, 2:00 PM - 4:30 PM

MIN19.01. Chair

P. Kratsios;
University of Chicago, Chicago, IL

Time: Monday, October 7, 2024, 2:00 PM - 4:30 PM

MIN19.02. Co Chair

P. Philippidou;
Case Western Reserve University, Cleveland, OH

Time: Monday, October 7, 2024, 2:05 PM - 2:28 PM

MIN19.03. Development, assembly and maintenance of respiratory circuits.

P. Philippidou;
Case Western Reserve University, Cleveland, OH

Time: Monday, October 7, 2024, 2:28 PM - 2:51 PM

MIN19.04. Characterization of ascending propriospinal neurons in motor control.

N. Zampieri;
MDC, Berlin, Germany

Time: Monday, October 7, 2024, 2:51 PM - 3:14 PM

MIN19.05. Multifunctional synaptic wiring receptors instruct axon guidance in the Drosophila neuromuscular system.

R. A. Carrillo;
University of Chicago, Chicago, IL

Time: Monday, October 7, 2024, 3:14 PM - 3:37 PM

MIN19.06. Genetic mechanisms of synapse development and patterning in C. elegans.

K. Mizumoto;
University of British Columbia, Vancouver, BC, Canada

Time: Monday, October 7, 2024, 3:37 PM - 4:00 PM

MIN19.07. Evolution and development of tetrapod motor circuits.

L. B. Sweeney;
Institute of Science and Technology Austria (ISTA), Klosterneuburg, Austria

Time: Monday, October 7, 2024, 4:00 PM - 4:23 PM

MIN19.08. Maintenance of motor neuron identity and function by conserved transcription factors.

P. Kratsios;
University of Chicago, Chicago, IL

Minisymposium

MIN20: Speech Neuroprostheses - Sergey D. Stavisky

Theme E – Motor Systems

Location: MCP Room S406B

Time: Monday, October 7, 2024, 2:00 PM - 4:30 PM

Description: Speech neuroprostheses aim to allow patients with vocal tract paralysis to communicate without the need for any muscle movement. Various methods to record neural activity and decode multiple neural representations of speech and language can help to achieve this goal. This minisymposium will highlight recent advances in intracranial speech neuroprostheses that have led to fast and reliable speech output and facilitate discussion of what else is needed to advance from research to treatment.

Time: Monday, October 7, 2024, 2:00 PM - 4:30 PM

MIN20.01. Chair

S. D. Stavisky;
University of California, Davis, Davis, CA

Time: Monday, October 7, 2024, 2:00 PM - 4:30 PM

MIN20.02. Co Chair

C. Herff;
Maastricht University, Maastricht, Netherlands

Time: Monday, October 7, 2024, 2:05 PM - 2:28 PM

MIN20.03. Long-term stability and performance of chronic ECoG speech BCIs

J. R. Liu;
University of California, San Francisco, San Francsico, CA

Time: Monday, October 7, 2024, 2:28 PM - 2:51 PM

MIN20.04. Decoding and synthesizing tonal language speech using electrocorticography

Y. Li;
ShanghaiTech University, Shanghai, China

Time: Monday, October 7, 2024, 2:51 PM - 3:14 PM

MIN20.05. An intracortical speech neuroprosthesis used for long-term daily communication by a person with ALS

S. D. Stavisky;
University of California, Davis, Davis, CA

Time: Monday, October 7, 2024, 3:14 PM - 3:37 PM

MIN20.06. Representations of perceived and inner speech in motor cortex

E. M. Kunz;
Stanford University, Stanford,, CA

Time: Monday, October 7, 2024, 3:37 PM - 4:00 PM

MIN20.07. Speech Neuroprosthesis using depth electrodes

C. Herff;
Maastricht University, Maastricht, Netherlands

Time: Monday, October 7, 2024, 4:00 PM - 4:23 PM

MIN20.08. Right-hemispheric language processing in aphasia at single-neuron resolution

L. M. Held;
Technical University of Munich, Munich, Germany

Minisymposium

MIN21: Brainstem Development and Functioning: An Understudied Clue in the Understanding and Management of Autism and Related Disorders (ASD) - Eric B. London

Theme A – Development

Location: MCP Room S406B

Time: Tuesday, October 8, 2024, 9:30 AM - 12:00 PM

Description: The brainstem's role in ASD remains understudied despite its obvious involvement in the circuitry which correlates with symptoms. Research is very challenging due to its location, anatomy, and the diversity of functions involved. Utilizing neuropathology, MRI, electrophysiology, genetics, and movement analysis, will present evidence of significant brainstem pathology involvement explaining clinical symptoms. This data can lead to the very early prediction of ASD or targets for treatment.

Time: Tuesday, October 8, 2024, 9:30 AM - 12:00 PM

MIN21.01. Chair

E. B. London;
Inst Bas Res, Staten Island, NY

Time: Tuesday, October 8, 2024, 9:35 AM - 9:58 AM

MIN21.02. Brainstem Pathologies and the Clinical Implications for Early Identification, Prevention and Treatment of ASD

E. B. London;
Inst Bas Res, Staten Island, NY

Time: Tuesday, October 8, 2024, 9:58 AM - 10:21 AM

MIN21.03. Disruption of the Auditory Brainstem in ASD

R. J. Kulesza, Jr.;
LECOM, Erie, PA

Time: Tuesday, October 8, 2024, 10:21 AM - 10:44 AM

MIN21.04. Role of brainstem nuclei and white matter tracts in sensorimotor,social communication, and repetitive behaviors in autistic individuals.

B. Travers;
University of Wisconsin-Madison, Madison, WI

Time: Tuesday, October 8, 2024, 10:44 AM - 11:07 AM

MIN21.05. Ontogenetically layered scheduled milestones: Scaffoldingtemporal coincidences for social neurodevelopment

E. B. Torres;
Rutgers University Department of Psychology, Piscataway, NJ

Time: Tuesday, October 8, 2024, 11:07 AM - 11:30 AM

MIN21.06. Brainstem disruption to the embodied mind in autism: Insights from volumetric and morphometric analyses.

J. Delafield-Butt;
University of Strathclyde, Glasgow, United Kingdom

Time: Tuesday, October 8, 2024, 11:30 AM - 11:53 AM

MIN21.07. Dynamic Human and Mouse Transcriptome: The Role of Brainstem Associated Genes in Neurodevelopment with Implications in Drug Discovery and Development

T. Bermperidis;
Rutgers University, Highland Park, NJ

Minisymposium

MIN22: From Environment to Neural Dynamics: On the Interaction Between Rhythmic Sensation and Neural Oscillations - Benedikt Zoefel

Theme H – Cognition

Location: MCP Room S102

Time: Tuesday, October 8, 2024, 9:30 AM - 12:00 PM

Description: The human brain encounters rhythmic stimuli and displays rhythmic oscillations across regions. Surprisingly, given its ubiquity, how the internalization of sensory information from the environment to neural rhythms works remains controversial. One common model assumes that endogenous oscillations shape perception by synchronizing to external rhythms. This minisymposium will use evidence from human and animal neurophysiology and transcranial stimulation to debate the validity of this model and alternatives.

Time: Tuesday, October 8, 2024, 9:30 AM - 12:00 PM

MIN22.01. Chair

B. Zoefel;
CNRS, Toulouse, France

Time: Tuesday, October 8, 2024, 9:30 AM - 12:00 PM

MIN22.02. Co Chair

S. V. Digavalli;
East Tennessee State University, Johnson City, TN

Time: Tuesday, October 8, 2024, 9:35 AM - 9:58 AM

MIN22.03. Click trains at 40 Hz induce soft phase resetting of the on-going oscillations in the rodent prefrontal cortex

S. V. Digavalli;
East Tennessee State University, Johnson City, TN

Time: Tuesday, October 8, 2024, 9:58 AM - 10:21 AM

MIN22.04. No evidence for entrainment: endogenous gamma oscillations and rhythmic flicker responses co-exist in visual cortex

K. Duecker, 2nd;
Brown University, Providence, RI

Time: Tuesday, October 8, 2024, 10:21 AM - 10:44 AM

MIN22.05. Sustained neural rhythms reveal endogenous oscillations entrained to acoustic and electric stimulation

B. Zoefel;
CNRS, Toulouse, France

Time: Tuesday, October 8, 2024, 10:44 AM - 11:07 AM

MIN22.06. Cortical phase alignment to the speech envelope, but not to isochronous streams, reflects non-oscillatory evoked responses

A. Breska;
The Max Planck Institute for Biological Cybernetics, Tubingen, Germany

Time: Tuesday, October 8, 2024, 11:07 AM - 11:30 AM

MIN22.07. Neural dynamics of temporal sequence processing as flexible oscillators

K. B. Doelling;
Institut Pasteur, Paris Cedex 15, France

Time: Tuesday, October 8, 2024, 11:30 AM - 11:53 AM

MIN22.08. High frequency entrainment to environmental vibrations

E. B. Coffey;
Concordia University, Montreal, QC, Canada

Minisymposium

MIN23: Unveiling the Neural Dynamics Underlying Movement and Respiration in the Spinal Cord and Medulla - Chethan Pandarinath

Theme E – Motor Systems

Location: MCP Room S406A

Time: Tuesday, October 8, 2024, 9:30 AM - 12:00 PM

Description: The recent confluence of large-scale *in vivo* recordings, deep learning, and causal manipulations has enabled a qualitatively different window into population dynamics in the spinal cord and medulla than previously possible. This minisymposium will present exciting developments that herald a new population-level understanding of subcortical pattern generation, highlighting the spinal and medullary network mechanisms underlying the production of breathing, movement, and protective reflexes.

Time: Tuesday, October 8, 2024, 9:30 AM - 12:00 PM

MIN23.01. Chair

C. Pandarinath;
Emory University and GA Tech, Atlanta, GA

Time: Tuesday, October 8, 2024, 9:30 AM - 12:00 PM

MIN23.02. Co Chair

R. W. Berg;
University of Copenhagen, KBH N, Denmark

Time: Tuesday, October 8, 2024, 9:35 AM - 9:58 AM

MIN23.03. Spinal interneuron population dynamics underlying flexible pattern generation

N. Au Yong;
Emory University, Atlanta, GA

Time: Tuesday, October 8, 2024, 9:58 AM - 10:21 AM

MIN23.04. The Art of the Stop: The spinal neural populations that both generate and pause movement form a continuous attractor network

R. W. Berg;
University of Copenhagen, KBH N, Denmark

Time: Tuesday, October 8, 2024, 10:21 AM - 10:44 AM

MIN23.05. Just One Step: How spinal neurons encode the withdrawal reflex

A. J. Levine;
National Institutes of Health, Bethesda, MD

Time: Tuesday, October 8, 2024, 10:44 AM - 11:07 AM

MIN23.06. Rotational dynamics underly brainstem populations that govern breathing

N. E. Bush;
Seattle Children's Research Institute, Seattle, WA

Time: Tuesday, October 8, 2024, 11:07 AM - 11:30 AM

MIN23.07. Ultraflexible Electrodes for Intraspinal Recording of Neural Activity during Motor Behavior

L. Luan;
Rice University, Houston, TX

Time: Tuesday, October 8, 2024, 11:30 AM - 11:53 AM

MIN23.08. Neural population and circuit behaviors in the spinal cord during forelimb reaching.

K. Seki;
Natl.inst.Neurosci., Tokyo, Japan

Minisymposium

MIN24: Metabolic Axon-Glia Interactions in the Peripheral Nervous System - Bogdan Beirowski

Theme C – Neurodegenerative Disorders and Injury

Location: MCP Room S103

Time: Tuesday, October 8, 2024, 2:00 PM - 4:30 PM

Description: Due to their exceptional energy demands, unique cyto-geometry, and exposure to various harmful stimuli, axons in the peripheral nervous system are especially vulnerable. These axons rely on extrinsic support from their surrounding Schwann cells (SCs). This minisymposium will focus on the latest advancements in the emerging concept of metabolic communication between axons and SCs as a determinant of nerve integrity under physiological and neurodegenerative conditions.

Time: Tuesday, October 8, 2024, 2:00 PM - 4:30 PM

MIN24.01. Chair

B. Beirowski;
The Ohio State University, Wexner Medical Center, Columbus, OH

Time: Tuesday, October 8, 2024, 2:05 PM - 2:28 PM

MIN24.02. A novel metabolic concept of Schwann cell-mediated axon repair

B. Beirowski;
The Ohio State University, Wexner Medical Center, Columbus, OH

Time: Tuesday, October 8, 2024, 2:28 PM - 2:51 PM

MIN24.03. How do axons mediate Schwann cell plasticity?

L. Daboussi;
University of California, Los Angeles, Los Angeles, CA

Time: Tuesday, October 8, 2024, 2:51 PM - 3:14 PM

MIN24.04. Axoglial interactions: A paradigm shift in diabetic neuropathy

S. Eid;
University of Michigan, Ann Arbor, MI

Time: Tuesday, October 8, 2024, 3:14 PM - 3:37 PM

MIN24.05. Elucidating the role of iron regulatory protein 2 in the peripheral system

B. S. Mietto;
NIH / NICHD, Washington, MD

Time: Tuesday, October 8, 2024, 3:37 PM - 4:00 PM

MIN24.06. Schwann cell LDH deletion reveals a motor-specific requirement for lactate metabolism to maintain peripheral axons

J. Bloom;
Washington University in St. Louis, St. Louis, MO

Time: Tuesday, October 8, 2024, 4:00 PM - 4:23 PM

MIN24.07. Satellite glial cells communication with sensory neurons in health and disease

V. Cavalli;
Washington University in St Louis, Saint Louis, MO

Minisymposium

MIN25: Neurobiological Substrates Supporting the Construction and Modulation of Empathy: A Translational Perspective - William C. Mobley

Theme H – Cognition

Location: MCP Room S406B

Time: Tuesday, October 8, 2024, 2:00 PM - 4:30 PM

Description: Empathy is the basis of altruism, driven by a constellation of interactions between genetic, neurotransmitter, and higher-order brain circuits. This minisymposium will unravel novel evidence, presented across species, implicating a distributed system of transcriptional, molecular, and neuronal processes supporting the cultivation and modulation of empathy. This minisymposium will highlight how self-regulation and psychedelics can enhance behavioral and neural mechanisms supporting empathy.

Time: Tuesday, October 8, 2024, 2:00 PM - 4:30 PM

MIN25.01. Chair

W. C. Mobley;
UCSD, La Jolla, CA

Time: Tuesday, October 8, 2024, 2:05 PM - 2:28 PM

MIN25.02. A cross-species approach to emotional contagion and prosociality

C. Keysers;
Netherlands Institute for Neuroscience, Amsterdam, Netherlands

Time: Tuesday, October 8, 2024, 2:28 PM - 2:51 PM

MIN25.03. Neural Circuits of Comforting and Helping Behavior

W. Hong;
University of California, Los Angeles, Los Angeles, CA

Time: Tuesday, October 8, 2024, 2:51 PM - 3:14 PM

MIN25.04. Genetic and neural circuit mechanisms of empathic fear

S. Keum;
Institute for Basic Science, Daejeon, Korea, Republic of

Time: Tuesday, October 8, 2024, 3:14 PM - 3:37 PM

MIN25.05. Neural mechanisms supporting the cultivation of empathy.

F. Zeidan;
University of California San Diego, La Jolla, CA

Time: Tuesday, October 8, 2024, 3:37 PM - 4:00 PM

MIN25.06. What can special populations (extraordinary altruists, people with psychopathy) teach us about the neural basis of empathy and compassion?

A. A. Marsh;
Georgetown University, Washington, DC

Time: Tuesday, October 8, 2024, 4:00 PM - 4:23 PM

MIN25.07. Exploring the neurobiology of empathy and compassion and their social impact

W. C. Mobley;
UCSD, La Jolla, CA

Minisymposium

MIN26: Seizure and Epilepsy: New Opportunities for Detection and Treatment - Ruth A. Roberts

Theme B – Neural Excitability, Synapses, and Glia

Location: MCP Room S105

Time: Tuesday, October 8, 2024, 2:00 PM - 4:30 PM

Description: Seizures occur in treatment-resistant epilepsy and are also a frequent adverse event (AE) in nonclinical and clinical drug development. Studying ion channels and the dynamics of networked brain activity presents the opportunity to develop novel therapeutic options for epilepsy and novel approaches to eliminate seizure liability as an AE. This minisymposium will highlight recent discoveries in the role of ion channels, networks, and multiscale brain activity in detecting, avoiding, and treating seizures.

Time: Tuesday, October 8, 2024, 2:00 PM - 4:30 PM

MIN26.01. Chair

R. A. Roberts;
Apconix, Macclesfield, United Kingdom

Time: Tuesday, October 8, 2024, 2:00 PM - 4:30 PM

MIN26.02. Co Chair

J. B. Pierson;
Health and Environmental Sciences Institute (HESI), Washington, DC

Time: Tuesday, October 8, 2024, 2:05 PM - 2:28 PM

MIN26.03. Investigating drug-resistant and well-controlled idiopathic generalized epilepsy

R. Mohanraj;
Salford Royal Hospital, SALFORD, United Kingdom

Time: Tuesday, October 8, 2024, 2:28 PM - 2:51 PM

MIN26.04. Thalamic neuromodulation and accurate targeting for epilepsy: A clinical perspective

A. Ilyas;
Department of Neurosurgery, The University of Alabama at Birmingham, Birmingham, AL.

Time: Tuesday, October 8, 2024, 2:51 PM - 3:14 PM

MIN26.05. Anterior and centromedian thalamus: Anatomy, dysfunction and therapeutic opportunities in epilepsy.

G. M. Ibrahim;
The Hospital for Sick Children, Toronto, ON, Canada

Time: Tuesday, October 8, 2024, 3:14 PM - 3:37 PM

MIN26.06. Enhancing seizure assessment via integration of drug target knowledge

M. Behl;
Neurocrine Biosciences Inc., San Diego, CA

Time: Tuesday, October 8, 2024, 3:37 PM - 4:00 PM

MIN26.07. Predicting seizure using cell-based microelectrode arrays (MEA): A HESI consortium study

J. B. Pierson;
Health and Environmental Sciences Institute (HESI), Washington, DC

Time: Tuesday, October 8, 2024, 4:00 PM - 4:23 PM

MIN26.08. New approach methodologies (NAMs) for detecting, preventing and treating seizure: ion channels and MEA

R. A. Roberts;
Apconix, Macclesfield, United Kingdom

Minisymposium

MIN27: Altered Protein Palmitoylation as Disease Mechanism in Neurodegenerative Disorders - Karin Hochrainer

Theme C – Neurodegenerative Disorders and Injury

Location: MCP Room S406B

Time: Wednesday, October 9, 2024, 9:30 AM - 12:00 PM

Description: S-palmitoylation is a lipid-based reversible posttranslational protein modification that regulates protein trafficking, membrane association, and interactions. This minisymposium will discuss recent work across different neurodegenerative diseases, using diverse models and approaches to understand the consequences of aberrant protein palmitoylation for neurodegeneration. This minisymposium will also highlight potential therapeutic implications.

Time: Wednesday, October 9, 2024, 9:30 AM - 12:00 PM

MIN27.01. Chair

K. Hochrainer;
Weill Cornell Medicine, New York, NY

Time: Wednesday, October 9, 2024, 9:30 AM - 12:00 PM

MIN27.02. Co Chair

J. Wlodarczyk;
Nencki Institute, Warsaw, Poland

Time: Wednesday, October 9, 2024, 9:35 AM - 9:58 AM

MIN27.03. Linking lipids to protein mislocalization & proteostasis deficiencies in Huntington's Disease and ALS

D. D. Martin;
University of Waterloo, Waterloo, ON, Canada

Time: Wednesday, October 9, 2024, 9:58 AM - 10:21 AM

MIN27.04. Palmitoylated APP in Mitochondria-Associated ER-Membranes (MAM-palAPP) is a potential therapeutic target for Alzheimer’s disease

R. Bhattacharyya;
Department of Neurology, Massachusetts General Hospital, Harvard Med. School, Charlestown, MA.

Time: Wednesday, October 9, 2024, 10:21 AM - 10:44 AM

MIN27.05. Tau-regulated palmitoylation and its impact on interactions at the postsynaptic density

K. Hochrainer;
Weill Cornell Medicine, New York, NY

Time: Wednesday, October 9, 2024, 10:44 AM - 11:07 AM

MIN27.06. Increasing PSD-95 palmitoylation rescues synaptic and memory deficits in female AD model mice

K. B. Dore;
UCSD Dept. of Neurosciences, La Jolla, CA

Time: Wednesday, October 9, 2024, 11:07 AM - 11:30 AM

MIN27.07. Regulation of alpha-synuclein biology by palmitoylation

G. P. Ho;
Brigham and Women's Hospital, Harvard Medical School, Boston, MA

Time: Wednesday, October 9, 2024, 11:30 AM - 11:53 AM

MIN27.08. Altered palmitoylation in Parkinson´s disease

R. Mejias;
University of Sevilla, Sevilla, Spain

Minisymposium

MIN28: Development and Application of Fluorescence Lifetime Based Biosensors for *In Vivo* Imaging of Neuronal Function - Tal Laviv

Theme I – Techniques

Location: MCP Room S100A

Time: Wednesday, October 9, 2024, 9:30 AM - 12:00 PM

Description: This minisymposium will provide an overview of current developments and applications of genetically encoded indicators optimized for fluorescence lifetime imaging microscopy (FLIM). The speakers will showcase a wide range of applications, including indicators for calcium, voltage, metabolites, neuromodulators, and protein signaling, for in vivo imaging within intact neuronal circuits. FLIM-based technological developments will accelerate the precision of imaging tools to faithfully interrogate brain function.

Time: Wednesday, October 9, 2024, 9:30 AM - 12:00 PM

MIN28.01. Chair

T. Laviv;
Tel Aviv University, Tel Aviv, Israel

Time: Wednesday, October 9, 2024, 9:30 AM - 12:00 PM

MIN28.02. Co Chair

E. R. Schreiter;
Janelia Research Campus, HHMI, Ashburn, VA

Time: Wednesday, October 9, 2024, 9:35 AM - 9:58 AM

MIN28.03. Fluorescence lifetime imaging microscopy (FLIM) of neuronal activities in the green to near-infrared with chemigenetic fluorescent indicators

H. R. Farrants;
Janelia Research Campus, HHMI, Ashburn, VA

Time: Wednesday, October 9, 2024, 9:58 AM - 10:21 AM

MIN28.04. Wide-field fluorescence lifetime imaging of neuron activity in vivo

A. Bowman;
Salk Institute, San Diego, CA

Time: Wednesday, October 9, 2024, 10:21 AM - 10:44 AM

MIN28.05. Molecular ballet: unveiling the dynamics of biochemical signals in the brain

Y. Chen;
Washington University School of Medicine, Saint Louis, MO

Time: Wednesday, October 9, 2024, 10:44 AM - 11:07 AM

MIN28.06. Lifetime imaging of neuromodulatory signaling in vivo

L. Bayless-Edwards;
Oregon Health And Sciences University, Portland, OR

Time: Wednesday, October 9, 2024, 11:07 AM - 11:30 AM

MIN28.07. In vivo 2pFLIM of subcellular autophagy dynamics in the intact brain

T. Laviv;
Tel Aviv University, Tel Aviv, Israel

Time: Wednesday, October 9, 2024, 11:30 AM - 11:53 AM

MIN28.08. Quantitative fluorescence lifetime imaging of metabolism

P. Casciola Rosen;
Harvard University, Boston, MA

Minisymposium

MIN29: Neural Mechanisms of Satiety and Satiation - Alexander R. Nectow

Theme F – Integrative Physiology and Behavior

Location: MCP Room S100BC

Time: Wednesday, October 9, 2024, 9:30 AM - 12:00 PM

Description: Satiation and satiety respectively govern the short- and long-term forces influencing eating and body weight. Given the major healthcare burden represented by obesity and its sequelae, understanding the regulation of feeding remains a critical clinical issue. This minisymposium features a panel of scientists focusing on distinct aspects of feeding. They will present a framework for comprehending brain-body interactions that control short- and long-term decisions to eat.

Time: Wednesday, October 9, 2024, 9:30 AM - 12:00 PM

MIN29.01. Chair

A. R. Nectow;
Columbia University, New York, NY

Time: Wednesday, October 9, 2024, 9:30 AM - 12:00 PM

MIN29.02. Co Chair

S. X. Zhang;
Beth Israel Deaconess Medical Center, Boston, MA

Time: Wednesday, October 9, 2024, 9:35 AM - 9:58 AM

MIN29.03. Brainstem Neuropeptidergic Neurons Link the Gut-Brain Axis to Satiation

A. R. Nectow;
Columbia University, New York, NY

Time: Wednesday, October 9, 2024, 9:58 AM - 10:21 AM

MIN29.04. Feed-forward, circadian control of hunger

A. Douglass;
Beth Israel Deaconess Medical Center, Harvard Medical School, Brookline, MA

Time: Wednesday, October 9, 2024, 10:21 AM - 10:44 AM

MIN29.05. Biochemical regulation of food intake via hunger and satiety peptide signals

S. X. Zhang;
Beth Israel Deaconess Medical Center, Boston, MA

Time: Wednesday, October 9, 2024, 10:44 AM - 11:07 AM

MIN29.06. Tbd

Z. Knight;
University of California, San Francisco, San Francisco, CA

Time: Wednesday, October 9, 2024, 11:07 AM - 11:30 AM

MIN29.07. Pre- and post-ingestive appetite regulation

Y. Zhang;
California institute of technology, Pasadena, CA

Time: Wednesday, October 9, 2024, 11:30 AM - 11:53 AM

MIN29.08. Rapid hormonal modulation of hypothalamic feeding circuits

L. R. Beutler;
Northwestern University, Chicago, IL

Minisymposium

MIN30: Neuronal Translation: From mRNA Localization to Long-Term Memory Consolidation - Mauricio M. Oliveira

Theme H – Cognition

Location: MCP Room S102

Time: Wednesday, October 9, 2024, 9:30 AM - 12:00 PM

Description: Neurons have an extensive morphological shape, with each synaptic sub-compartment showing molecular individualities that contribute to the aftermath of neural communication. This minisymposium will cover the molecular underpinnings that drive distal mRNA localization in neurons and how these contribute to neuronal plasticity following activity and, ultimately, to long-term memory consolidation.

Time: Wednesday, October 9, 2024, 9:30 AM - 12:00 PM

MIN30.01. Chair

M. M. Oliveira;
New York University Center For Neural Science, New York City, NY

Time: Wednesday, October 9, 2024, 9:30 AM - 12:00 PM

MIN30.02. Co Chair

E. Hacisuleyman;
Scripps, Jupiter, FL

Time: Wednesday, October 9, 2024, 9:35 AM - 9:58 AM

MIN30.03. Visualizing mRNAs live reveal new molecular insights into the mechanisms of long term memory.

S. Das;
Emory School of Medicine, Atlanta, GA

Time: Wednesday, October 9, 2024, 9:58 AM - 10:21 AM

MIN30.04. Resolving the localization and dynamics of mRNA and protein synthesis within neurons

P. G. Donlin-Asp;
School of Medicine, Edinburgh, United Kingdom

Time: Wednesday, October 9, 2024, 10:21 AM - 10:44 AM

MIN30.05. RNA localisation and local translation in neurons and neurodegeneration

M. Chekulaeva;
Berlin Institute for Medical Systems Biology, Berlin, Germany

Time: Wednesday, October 9, 2024, 10:44 AM - 11:07 AM

MIN30.06. Neuronal activity rapidly reprograms dendritic translation via eIF4G2:uORF binding

E. Hacisuleyman;
Scripps Institute of Biomedical Research, Jupiter, FL

Time: Wednesday, October 9, 2024, 11:07 AM - 11:30 AM

MIN30.07. Rapid reprogramming of neuronal translatome induced by learning.

M. M. Oliveira;
New York University, New York City, NY

Time: Wednesday, October 9, 2024, 11:30 AM - 11:53 AM

MIN30.08. Chemogenetic dissection of protein synthesis regulation in emotional memories

P. Shrestha;
Stony Brook, Stony Brook, NY

Minisymposium

MIN31: Synapse Formation and Refinement: To Prune or not to Prune? - Gregg Wildenberg

Theme A – Development

Location: MCP Room S105

Time: Wednesday, October 9, 2024, 9:30 AM - 12:00 PM

Description: This minisymposium will explore synaptic dynamics across the lifespan, with a particular focus on synaptic formation and refinement, or “pruning.” Presentations cover the structural, functional, and molecular underpinnings of synapse formation and refinement within and across different species. The panel of speakers will span these axes of synapse remodeling and provide a broad and multidimensional perspective on this critical process in the organizational principles of brain circuits.

Time: Wednesday, October 9, 2024, 9:30 AM - 12:00 PM

MIN31.01. Chair

G. Wildenberg;
University of Chicago, Chicago, IL

Time: Wednesday, October 9, 2024, 9:30 AM - 12:00 PM

MIN31.02. Co Chair

J. V. Gogola;
University of Chicago, Chicago, IL

Time: Wednesday, October 9, 2024, 9:35 AM - 9:58 AM

MIN31.03. Memory-training changes in synaptic function that persist months at specific hippocampal inputs.

A. A. Fenton;
New York University, New York, NY

Time: Wednesday, October 9, 2024, 9:58 AM - 10:21 AM

MIN31.04. Functional remodeling of thalamic circuits across different time scales

C. Chen;
Boston Children's Hospital, Harvard Medical School, Boston, MA

Time: Wednesday, October 9, 2024, 10:21 AM - 10:44 AM

MIN31.05. Experience-dependent synapse reorganization in the living brain

Y. Zuo;
UC Santa Cruz, Santa Cruz, CA

Time: Wednesday, October 9, 2024, 10:44 AM - 11:07 AM

MIN31.06. Reversible regulation of structure and function of thalamocortical synapses in adult mouse primary visual cortex

S. Murase;
University of Maryland, College Park, MD

Time: Wednesday, October 9, 2024, 11:07 AM - 11:30 AM

MIN31.07. Structural and functional implications of a single clock for synapse development across species

G. Wildenberg;
University of Chicago Department of Neurobiology, Chicago, IL

Time: Wednesday, October 9, 2024, 11:30 AM - 11:53 AM

MIN31.08. Two new types of pruning that correlate to vocal behavior development in the zebra finch songbird (*Taeniopygia guttata*)

J. V. Gogola;
University of Chicago, Chicago, IL

Minisymposium

MIN32: Functions of Neuromodulatory Signaling During Sleep - Ada Eban-Rothschild

Theme F – Integrative Physiology and Behavior

Location: MCP Room S100A

Time: Wednesday, October 9, 2024, 2:00 PM - 4:30 PM

Description: Neuromodulators are pivotal in many wake-supporting processes and are traditionally known for promoting wakefulness and being suppressed during sleep. However, emerging research is revealing diverse roles for neuromodulators during sleep. This minisymposium will highlight the latest breakthroughs, specifically emphasizing the functions of dopamine, acetylcholine, norepinephrine, and oxytocin in memory consolidation, brain oscillatory activity, and the overall architecture of sleep.

Time: Wednesday, October 9, 2024, 2:00 PM - 4:30 PM

MIN32.01. Chair

A. Eban-Rothschild;
University of Michigan, Ann Arbor, Ann Arbor, MI

Time: Wednesday, October 9, 2024, 2:05 PM - 2:28 PM

MIN32.02. The influence of norepinephrine-driven sleep microstructure on memory consolidation

C. Kjaerby;
University of Copenhagen, Copenhagen, Denmark

Time: Wednesday, October 9, 2024, 2:28 PM - 2:51 PM

MIN32.03. Probing spatiotemporal dynamics of monoamines signaling over the mouse neocortex

M. Mohajerani;
McGill University, Montréal, QC, Canada

Time: Wednesday, October 9, 2024, 2:51 PM - 3:14 PM

MIN32.04. Noradrenergic locus coeruleus activity functionally partitions NREM sleep to gatekeep the NREM-REM sleep cycle

G. Foustoukos;
University of Lausanne, Department of Fundamental Neurosciences, Lausanne, Switzerland

Time: Wednesday, October 9, 2024, 3:14 PM - 3:37 PM

MIN32.05. Neuromodulation of acetylcholine and oxytocin in the hippocampus

Y. Zhang;
NYU grossman school of medicine, NEW YORK, NY

Time: Wednesday, October 9, 2024, 3:37 PM - 4:00 PM

MIN32.06. Dynamics and functions of dopamine signaling during sleep.

B. A. Sulaman;
University of Michigan, Ann Arbor, MI

Time: Wednesday, October 9, 2024, 4:00 PM - 4:23 PM

MIN32.07. Multiple pathways leading to arousal from the LC-NE system.

N. Matosevich;
Tel Aviv University, Tel Aviv, Israel

Minisymposium

MIN33: Glial Lipids and Metabolism - Holly K. Gildea

Theme B – Neural Excitability, Synapses, and Glia

Location: MCP Room S105

Time: Wednesday, October 9, 2024, 2:00 PM - 4:30 PM

Description: Glia, including astrocytes, microglia, and oligodendrocytes among others, regulate much of the metabolic state of the nervous system. Intercellular communication using lipid metabolites transported, synthesized, or modified by glia has been previously implicated in degeneration, toxicity, and normal brain health. This minisymposium will highlight recent findings in glial metabolism and lipid biology and investigate potential interactions between glia and neurons under stress and at homeostasis.

Time: Wednesday, October 9, 2024, 2:00 PM - 4:30 PM

MIN33.01. Chair

H. K. Gildea;
NYU Langone Health, New York, NY

Time: Wednesday, October 9, 2024, 2:05 PM - 2:28 PM

MIN33.02. Changes in reactive astrocyte lipid metabolism in toxicity

H. K. Gildea;
NYU Grossman School of Medicine, New York, NY

Time: Wednesday, October 9, 2024, 2:28 PM - 2:51 PM

MIN33.03. Astrocytic lipid-mediated modulation of neuronal activity

N. A. Smith;
University of Rochester, Rochester, NY

Time: Wednesday, October 9, 2024, 2:51 PM - 3:14 PM

MIN33.04. Glial lipid and immune metabolic alterations by Alzheimers risk gene APOE4

F. M. Feringa;
Vrije Universiteit Amsterdam, Amsterdam, Netherlands

Time: Wednesday, October 9, 2024, 3:14 PM - 3:37 PM

MIN33.05. Lipid metabolism in the brain

K. D. Bruce;
University of Colorado Anschutz Medical Campus, Aurora, CO

Time: Wednesday, October 9, 2024, 3:37 PM - 4:00 PM

MIN33.06. Understanding lipotoxicity across neurodegenerative diseases

M. Therrien;
University of California - Davis, Davis, CA

Time: Wednesday, October 9, 2024, 4:00 PM - 4:23 PM

MIN33.07. Circadian clock genes regulate lipid droplet accumulation and stress responses in astrocytes

Y. Chen;
Washington University in St. Louis, St. Louis, MO

Minisymposium

MIN34: Molecular and Functional Organization of the Lateral Septum - Dionnet L. Bhatti Mazo

Theme G – Motivation and Emotion

Location: MCP Room S406B

Time: Wednesday, October 9, 2024, 2:00 PM - 4:30 PM

Description: The lateral septum (LS) is a limbic forebrain structure long recognized for regulating motivated behaviors such as aggression, avoidance, and reward-seeking. While distinct cell types in LS have been described, how this diversity fits to function remains elusive. This minisymposium aims to provide a comprehensive framework for understanding the role of LS in motivated behavior by exploring its breadth of diversity and merging molecular, cellular, circuit, and computational insights.

Time: Wednesday, October 9, 2024, 2:00 PM - 4:30 PM

MIN34.01. Chair

D. L. Bhatti Mazo;
Harvard Medical School, Boston, MA

Time: Wednesday, October 9, 2024, 2:05 PM - 2:28 PM

MIN34.02. Multimodal classification of neurons in the lateral septum

C. M. Reid;
Whitehead Institute, Cambridge, MA

Time: Wednesday, October 9, 2024, 2:28 PM - 2:51 PM

MIN34.03. Transcriptomic characterization of human lateral septum neurons reveals conserved and divergent marker genes across species

R. Phillips;
Lieber Institute for Brain Development, Baltimore, MD

Time: Wednesday, October 9, 2024, 2:51 PM - 3:14 PM

MIN34.04. Opioid-driven disruption of the septal complex reveals a role for neurotensin-expressing neurons in withdrawal

R. C. Simon;
University of California at San Francisco, San Francisco, CA

Time: Wednesday, October 9, 2024, 3:14 PM - 3:37 PM

MIN34.05. Feature-specific threat coding in lateral septum determines defensive action

D. L. Bhatti Mazo;
Harvard Medical School, CAMBRIDGE, MA

Time: Wednesday, October 9, 2024, 3:37 PM - 4:00 PM

MIN34.06. Functional and anatomical organization of reward responses in the lateral septum

M. Murugan;
Emory University, Atlanta, GA

Time: Wednesday, October 9, 2024, 4:00 PM - 4:23 PM

MIN34.07. Lateral septum circuits regulating social preferences

F. Leroy;
Neurosciences Institute, CSIC, Alicante, Spain

Minisymposium

MIN35: The Dialogue Between the Cerebellum and the Rest of the Brain: Learning to Make Predictions That Result in Better Movements and Better Decisions - Reza Shadmehr

Theme E – Motor Systems

Location: MCP Room S406A

Time: Wednesday, October 9, 2024, 2:00 PM - 4:30 PM

Description: Large-scale recordings from the brainstem and mossy fibers reveal that the spinal cord and the cortex send the cerebellum information in a compressed form regarding the current state of the animal, including its sensory goals and motor commands. The cerebellum uncovers the statistical patterns in these inputs and subsequently generates predictions that improve the ongoing motor commands and the decisions that rely on a reward-based value system.

Time: Wednesday, October 9, 2024, 2:00 PM - 4:30 PM

MIN35.01. Chair

R. Shadmehr;
Johns Hopkins University, BALTIMORE, MD

Time: Wednesday, October 9, 2024, 2:05 PM - 2:28 PM

MIN35.02. Cerebellar output circuits for dexterous movement

E. Azim;
Salk Institute for Biological Studies, La Jolla, CA

Time: Wednesday, October 9, 2024, 2:28 PM - 2:51 PM

MIN35.03. Computations in the cerebellum during control of a movement

R. Shadmehr;
Johns Hopkins University, BALTIMORE, MD

Time: Wednesday, October 9, 2024, 2:51 PM - 3:14 PM

MIN35.04. Circuit mechanisms of adaptive motor control

A. L. Person;
University of Colorado School of Medicine, Aurora, CO

Time: Wednesday, October 9, 2024, 3:14 PM - 3:37 PM

MIN35.05. Cerebellar spiking during sensory and motor signaling

I. M. Raman;
Northwestern University, Evanston, IL

Time: Wednesday, October 9, 2024, 3:37 PM - 4:00 PM

MIN35.06. Cerebellar Metaplasticity

J. L. Raymond;
Stanford University, Stanford, CA

Time: Wednesday, October 9, 2024, 4:00 PM - 4:23 PM

MIN35.07. Cerebellar modulation of dopaminergic circuitry

K. Khodakhah;
Albert Einstein College of Medicine, Bronx, NY

Symposium

SYM01: Extracellular Vesicle-Mediated Neuron-Glia Communications in the Central Nervous System -Tsuneya Ikezu

Theme B – Neural Excitability, Synapses, and Glia

Location: MCP Room S100BC

Time: Saturday, October 5, 2024, 2:00 PM - 4:30 PM

Description: Neurons-to-glia communication significantly impacts the development, maturation, plasticity, and disease progressions of the nervous system. As a new signaling modality, extracellular vesicles (EVs) display a diverse role for the robust functional regulation of neurons through their protein and nucleic acid cargoes. This symposium will highlight recent breakthroughs in how glial EVs regulate neural development, axonal transport, synaptic functions, and disease progression in the mammalian nervous system.

Time: Saturday, October 5, 2024, 2:00 PM - 4:30 PM

SYM01.01. Chair

T. Ikezu;
Mayo Clinic Florida, JACKSONVILLE, FL

Time: Saturday, October 5, 2024, 2:00 PM - 4:30 PM

SYM01.02. Co Chair

E.-M. Krämer-Albers;
Johannes Gutenberg University Mainz, Mainz, Germany

Time: Saturday, October 5, 2024, 2:05 PM - 2:40 PM

SYM01.03. Molecular and biological characterization of extracellular vesicles from neurons and glia

T. Ikezu;
Mayo Clinic Florida, JACKSONVILLE, FL

Time: Saturday, October 5, 2024, 2:40 PM - 3:15 PM

SYM01.04. Mechanisms of axonal maintenance by the transfer of extracellular vesicles from myelinating glia

E.-M. Krämer-Albers;
Johannes Gutenberg University Mainz, Mainz, Germany

Time: Saturday, October 5, 2024, 3:15 PM - 3:50 PM

SYM01.05. Astroglia to neuron EV signaling in CNS development and neurodegeneration

Y. Yang;
Tufts University School of Medicine, Boston, MA

Time: Saturday, October 5, 2024, 3:50 PM - 4:25 PM

SYM01.06. Microglial EVs travelling on the surface of neurons: implication in A?-related synaptic dysfunction

C. Verderio;
CNR Institute of Neuroscience, Vedano al Lambro, Italy

Symposium

SYM02: Frustrative Nonreward: Behavior, Circuits, Neurochemistry, and Disorders - Mauricio R. Papini

Theme G – Motivation and Emotion

Location: MCP Room S100BC

Time: Sunday, October 6, 2024, 9:30 AM - 12:00 PM

Description: The surprising omission or reduction of vital resources (food, fluid, social partners) can induce an aversive emotion known as frustrative nonreward (FNR), which impacts subsequent behavior. Although its role is not always appreciated, FNR is integral for irritability/aggression, motivation (substance use disorders, depression), anxiety/fear/threat, learning/conditioning, and social behavior. This symposium will highlight new insights and potential applications of FNR research.

Time: Sunday, October 6, 2024, 9:30 AM - 12:00 PM

SYM02.01. Chair

M. R. Papini;
Texas Christian University, Fort Worth, TX

Time: Sunday, October 6, 2024, 9:35 AM - 10:10 AM

SYM02.02. Dopamine signaling for persistent reward pursuit despite frustrative nonreward

M. Ogawa;
Shiga University of Medical Science, Shiga, Japan

Time: Sunday, October 6, 2024, 10:10 AM - 10:45 AM

SYM02.03. Operant assays of frustrative nonreward useful for the study of substance use disorder.

T. A. Green;
University of Texas Medical Branch, Galveston, TX

Time: Sunday, October 6, 2024, 10:45 AM - 11:20 AM

SYM02.04. Frustration induced by reward loss: Toward a functional connectome in the rat brain

C. Torres;
University of Jaen, Jaen, Spain

Time: Sunday, October 6, 2024, 11:20 AM - 11:55 AM

SYM02.05. A new frustrative nonreward paradigm for studying irritability

Z. Li;
National Institute of Mental Health, Bethesda, MD

Symposium

SYM03: Monoamine Neuromodulators: Cell Types, Physiology, Computation, and Behavior - Jeremiah Y. Cohen

Theme H – Cognition

Location: MCP Room S406A

Time: Sunday, October 6, 2024, 9:30 AM - 12:00 PM

Description: Small populations of neurons that project extensively throughout the nervous system release monoamine neuromodulators. There is a growing appreciation of their cell-type diversity, physiology, and functions in behavior. This symposium will discuss recent advances in understanding the anatomy, physiology, computational roles and behavior of mammalian norepinephrine, serotonin, and dopamine neurons.

Time: Sunday, October 6, 2024, 9:30 AM - 12:00 PM

SYM03.01. Chair

J. Y. Cohen;
Allen Institute for Neural Dynamics, Seattle, WA

Time: Sunday, October 6, 2024, 9:35 AM - 10:10 AM

SYM03.02. Synaptic, cellular and network dynamics in the dorsal raphe nucleus

J.-C. Beique;
University of Ottawa, Ottawa, ON, Canada

Time: Sunday, October 6, 2024, 10:10 AM - 10:45 AM

SYM03.03. Structure and function of locus coeruleus norepinephrine neurons in learning

J. Y. Cohen;
Allen Institute for Neural Dynamics, Seattle, WA

Time: Sunday, October 6, 2024, 10:45 AM - 11:20 AM

SYM03.04. Dissecting diversity of intermingled norepinephrine/epinephrine neural circuits in the hindbrain

L. A. Schwarz;
St. Jude Children's Research Hospital, Memphis, TN

Time: Sunday, October 6, 2024, 11:20 AM - 11:55 AM

SYM03.05. Tracking dopamine signals at different timescales during adaptive decision making

M. E. Walton;
University of Oxford, Oxford, United Kingdom

Symposium

SYM04: Nanomedicine in the Peripheral and Central Nervous Systems - Kelly A. Langert

Theme I – Techniques

Location: MCP Room S103

Time: Sunday, October 6, 2024, 9:30 AM - 12:00 PM

Description: Therapeutic delivery for brain and nervous system disorders represents a challenge, in part due to the presence of specialized anatomical barriers. Despite this, progress in nanomedicine and biomaterials has enabled the development of targeting and delivery strategies — bringing us closer than ever to clinical translation. This symposium will highlight recent advancements in nanomedicine focused on the delivery of genes or small molecules in a diverse array of nervous system disease and injury models.

Time: Sunday, October 6, 2024, 9:30 AM - 12:00 PM

SYM04.01. Chair

K. A. Langert;
Loyola University Chicago, Maywood, IL

Time: Sunday, October 6, 2024, 9:30 AM - 12:00 PM

SYM04.02. Co Chair

R. W. Sirianni;
UMass Chan School of Medicine, Worcester, MA

Time: Sunday, October 6, 2024, 9:35 AM - 10:10 AM

SYM04.03. Nanoparticle systems for traumatic brain injury

S. E. Stabenfeldt;
Arizona State University, Tempe, AZ

Time: Sunday, October 6, 2024, 10:10 AM - 10:45 AM

SYM04.04. Engineering solutions for delivery of nanomedicines to the brain

T. Porter;
University of Texas at Austin, Austin, TX

Time: Sunday, October 6, 2024, 10:45 AM - 11:20 AM

SYM04.05. Engineering biomaterials for targeted drug delivery and uptake into neurons

D. L. Sellers;
University of Washington, Seattle, WA

Time: Sunday, October 6, 2024, 11:20 AM - 11:55 AM

SYM04.06. Bio-inspired delivery strategies to access peripheral nerves

K. A. Langert;
Loyola University Chicago, Maywood, IL

Symposium

SYM05: The Brain’s Best-Kept Secret Is its Degenerate Structure - Eve E. Marder

Theme F – Integrative Physiology and Behavior

Location: MCP Room S100A

Time: Sunday, October 6, 2024, 9:30 AM - 12:00 PM

Description: The goal of this lecture is to show that degeneracy is central to the architecture and operation of the brain. Degeneracy is the existence of multiple solutions to the same problem, a concept that applies from quantal physics to procaryotes to humans. In the brain, neurons can use different combinations of ion channels to produce the same firing pattern. This symposium will highlight recent breakthroughs in scientists' understanding of degeneracy and its critical role in comprehending brain function.

Time: Sunday, October 6, 2024, 9:30 AM - 12:00 PM

SYM05.01. Chair

E. Marder;
Brandeis University, WALTHAM, MA

Time: Sunday, October 6, 2024, 9:35 AM - 10:10 AM

SYM05.02. Sloppy control in bacterial growth homeostasis

N. Brenner;
Technion-Israel Institute of Technology, Haifa, Israel

Time: Sunday, October 6, 2024, 10:10 AM - 10:45 AM

SYM05.03. A cascade of degeneracy in encoding neural systems

R. Narayanan;
Indian Institute of Science, Bangalore, India

Time: Sunday, October 6, 2024, 10:45 AM - 11:20 AM

SYM05.04. Neural degeneracy from a causal and computational perspective

L. Albantakis;
University of Wisconsin, Madison, Madison, WI

Time: Sunday, October 6, 2024, 11:20 AM - 11:55 AM

SYM05.05. Why degenerate solutions to circuit function are necessary for resilience in the natural world

E. Marder;
Brandeis University, Waltham, MA

Symposium

SYM06: Advancing Organoids: Synergizing Tissue Engineering and Neurotechnology Development - Duygu Kuzum

Theme A – Development

Location: MCP Room S100BC

Time: Sunday, October 6, 2024, 2:00 PM - 4:30 PM

Description: Microphysiological systems (MPS) have garnered substantial interest in understanding human-specific brain biology and increasing the translatability of preclinical work. 3D organoids hold great promise as models that can provide insights into the development of the human nervous system and the emergence and progression of nervous system disorders. This symposium will highlight advances in MPS, novel technologies to interface organoids, and potential applications of organoid engraftment in model organisms.

Time: Sunday, October 6, 2024, 2:00 PM - 4:30 PM

SYM06.01. Chair

D. Kuzum;
UC San Diego, La Jolla, CA

Time: Sunday, October 6, 2024, 2:00 PM - 4:30 PM

SYM06.02. Co Chair

G. M. Hwang;
NIH, Baltimore, MD

Time: Sunday, October 6, 2024, 2:05 PM - 2:40 PM

SYM06.03. Three Dimensional Electronic and Optical Interfaces to Neural Organoids

J. Rogers;
Northwestern University, Evanston, IL

Time: Sunday, October 6, 2024, 2:40 PM - 3:15 PM

SYM06.04. Organoid and assembloid models of human development and disease

S. P. Pasca;
Stanford University, Stanford, CA

Time: Sunday, October 6, 2024, 3:15 PM - 3:50 PM

SYM06.05. Multimodal Neurotechnologies for Interfacing Organoids in Vitro and In Vivo

D. Kuzum;
UC San Diego, La Jolla, CA

Time: Sunday, October 6, 2024, 3:50 PM - 4:25 PM

SYM06.06. Exploring Brain Wonders: MorphoNeuroChip - Pioneering a Novel Approach to Investigate Human Cortical Development Malformations

O. Reiner;
Weizmann Institute of Science, Rehovot, Israel

Symposium

SYM07: Cortical Neural Circuits for Motor Learning at Spine, Dendrite, and Network Level - Yoshiyuki Kubota

Theme E – Motor Systems

Location: MCP Room S406A

Time: Sunday, October 6, 2024, 2:00 PM - 4:30 PM

Description: Learning involves plasticity changes in neural circuits at various spatial scales, from synapses to the network level. Recent advances in experimental techniques to visualize neural structure and activity longitudinally *in vivo* are beginning to allow a holistic description of circuit changes across scales. This symposium will present the state of the art in the field of

motor cortex plasticity during motor skill learning at the scales of synapses, dendrites, cell types, and networks.

Time: Sunday, October 6, 2024, 2:00 PM - 4:30 PM

SYM07.01. Chair

Y. Kubota, senior;
Natl Inst Physiol Sci (NIPS), Okazaki, Japan

Time: Sunday, October 6, 2024, 2:00 PM - 4:30 PM

SYM07.02. Co Chair

J. Schiller;
Technion Medical School, Haifa, Israel

Time: Sunday, October 6, 2024, 2:05 PM - 2:40 PM

SYM07.03. Motor cortex circuits for learned movements

T. Komiyama;
UCSD, La Jolla, CA

Time: Sunday, October 6, 2024, 2:40 PM - 3:15 PM

SYM07.04. Tbd

M. N. Economo;
Boston University, Boston, MA

Time: Sunday, October 6, 2024, 3:15 PM - 3:50 PM

SYM07.05. Cell type dependent computations and learning in primary motor cortex

J. Schiller;
Technion Medical School, Haifa, Israel

Time: Sunday, October 6, 2024, 3:50 PM - 4:25 PM

SYM07.06. Cortical spine dynamics during a single seed grasp motor learning

Y. Kubota, senior;
Natl Inst Physiol Sci (NIPS), Okazaki, Japan

Symposium

SYM08: Developing Genome Editing Therapies for Disorders of the Central Nervous System: From Single Diseases to a Platform Approach - Rebecca Ahrens-Nicklas

Theme I – Techniques

Location: MCP Room S100A

Time: Sunday, October 6, 2024, 2:00 PM - 4:30 PM

Description: Genome editing is rapidly developing as a potential therapeutic option for genetic disorders of the central nervous system. This symposium will present examples employing genome editing approaches to address neurologic disorders across the lifespan. It will also provide a vision of a regulatory framework and manufacturing strategies required to realize genome editing's full potential as a platform therapy.

Time: Sunday, October 6, 2024, 2:00 PM - 4:30 PM

SYM08.01. Chair

R. Ahrens-Nicklas;
Children's Hospital of Philadelphia and University of Pennsylvania, Philadelphia, PA.

Time: Sunday, October 6, 2024, 2:00 PM - 4:30 PM

SYM08.02. Co Chair

T. LaVaute;
National institutes of Health, Bethesda, MD

Time: Sunday, October 6, 2024, 2:05 PM - 2:40 PM

SYM08.03. Base editing and prime editing: correcting mutations that cause genetic disease in cells, animals, and patients

D. R. Liu;
Harvard University, Cambridge, MA

Time: Sunday, October 6, 2024, 2:40 PM - 3:15 PM

SYM08.04. Therapeutic editing to lower PrP in prion disease

S. M. Vallabh;
Broad Institute, Cambridge, MA

Time: Sunday, October 6, 2024, 3:15 PM - 3:50 PM

SYM08.05. Platformizing CRISPR Cures for neurologic disease: nonclinical, CMC, and regulatory innovation

F. D. Urnov;
University of California, Berkeley, Berkeley, CA

Time: Sunday, October 6, 2024, 3:50 PM - 4:25 PM

SYM08.06. Therapeutic editing for metabolic diseases: from the leading cause of death to *N*-of-1 disorders

K. Musunuru;
University of Pennsylvania, Philadelphia, PA.

Symposium

SYM09: Developing Brain: Cell Types, Models, and Disease Implications - Tomasz Nowakowski

Theme A – Development

Location: MCP Room S100A

Time: Monday, October 7, 2024, 9:30 AM - 12:00 PM

Description: Developmental trajectories establish functional cell types in the adult. Identifying cellular and molecular mechanisms by which this happens is necessary to understand normal function and disease vulnerability. This symposium will highlight how single-cell technologies are uniquely leveraged to identify cell types in the developing brain and how these cells can be studied with novel *in vitro* models that uniquely provide access to the developing human brain.

Time: Monday, October 7, 2024, 9:30 AM - 12:00 PM

SYM09.01. Chair

T. Nowakowski;
University of California San Francisco, San Francisco, CA

Time: Monday, October 7, 2024, 9:30 AM - 12:00 PM

SYM09.02. Co Chair

A. Bhaduri;
University of California Los Angeles, Los Angeles, CA

Time: Monday, October 7, 2024, 9:35 AM - 10:10 AM

SYM09.03. The transcriptomic landscape of postnatal cell type development in the mouse visual cortex and thalamus

H. Zeng;
Allen Institute for Brain Science, Seattle, WA

Time: Monday, October 7, 2024, 10:10 AM - 10:45 AM

SYM09.04. Characterizing Cell Types and Fates in the Developing Human Brain

A. Bhaduri;
University of California Los Angeles, Los Angeles, CA

Time: Monday, October 7, 2024, 10:45 AM - 11:20 AM

SYM09.05. Genetic, cellular, and intercellular strategies of neural stem cells.

T. Nowakowski;
University of California San Francisco, San Francisco, CA

Time: Monday, October 7, 2024, 11:20 AM - 11:55 AM

SYM09.06. Brain chimeroids as avatars to study interindividual variation in response to disease triggers

P. Arlotta;
Harvard University, Cambridge, MA

Symposium

SYM10: Emotional Well-Being: Health Impacts and Neural Insights - Kuan H. Wang

Theme G – Motivation and Emotion

Location: MCP Room S105

Time: Monday, October 7, 2024, 9:30 AM - 12:00 PM

Description: Appreciation for the importance of emotional well-being (EWB) for mental and physical health is increasingly growing. While people typically study EWB in humans at the subjective level, emerging research sheds light on related neural circuits and neural processes, including emotional and cognitive aspects. This symposium will showcase basic, translational, and clinical approaches to understanding the neural underpinnings of EWB, as well as how relevant neural circuits may be modulated to promote EWB.

Time: Monday, October 7, 2024, 9:30 AM - 12:00 PM

SYM10.01. Chair

K. H. Wang;
University of Rochester, Rochester, NY

Time: Monday, October 7, 2024, 9:30 AM - 12:00 PM

SYM10.02. Co Chair

E. B. Quinlan;
National Center for Complementary and Integrative Health, Bethesda, MD

Time: Monday, October 7, 2024, 9:35 AM - 10:10 AM

SYM10.03. Neurobiological Components and Neuromodulatory Mechanisms for Emotional Well-Being

K. H. Wang;
University of Rochester, Rochester, NY

Time: Monday, October 7, 2024, 10:10 AM - 10:45 AM

SYM10.04. The Evolutionary and Neurobiological Foundations of Socioemotional Wellbeing

E. Bliss-Moreau;
UC Davis, Davis, CA

Time: Monday, October 7, 2024, 10:45 AM - 11:20 AM

SYM10.05. Neurodevelopmental Changes That Impact Emotional Well-Being During Adolescence

A. Galvan;
UCLA, Los Angeles, CA

Time: Monday, October 7, 2024, 11:20 AM - 11:55 AM

SYM10.06. Mindfulness Meditation and Emotional Well-Being - A Neuroscientific Framework and Applications

Y.-Y. Tang;
Arizona State University, Phoenix, AZ

Symposium

SYM11: What Does the Microbiome Tell Us About Prevention and Treatment of Alzheimer's Disease (AD)/Alzheimer's Disease Related Dementias (ADRD)? - David Jett

Theme C – Neurodegenerative Disorders and Injury

Location: MCP Room S100BC

Time: Monday, October 7, 2024, 9:30 AM - 12:00 PM

Description: Scientists are studying the microbiome as a risk factor for many neurological diseases, including AD and ADRD. While there is evidence that the microbiome may play a role in these diseases, there is little information on the relationship between the microbiome and how it affects prevention and treatment. This symposium will include talks on the relationship between the microbiome and the metabolome, and amyloidosis and tau-mediated neurodegeneration.

Time: Monday, October 7, 2024, 9:30 AM - 12:00 PM

SYM11.01. Chair

D. A. Jett;
NIH, Bethesda, MD

Time: Monday, October 7, 2024, 9:35 AM - 10:10 AM

SYM11.02. Microbiome and metabolome as indicators and instigators in Alzheimer's disease mouse models

K. Whiteson;
UC Irvine- Molecular Biology and Biochemistry, Irvine, CA

Time: Monday, October 7, 2024, 10:10 AM - 10:45 AM

SYM11.03. Alzheimer's Disease Gut Microbiome Project: At the cross-road between exposome, genome, and metabolome

R. Kaddurah-Daouk;
Department of Medicine, Institute for Brain Sciences, Duke University, Durham, NC.

Time: Monday, October 7, 2024, 10:45 AM - 11:20 AM

SYM11.04. The role of gut microbiota and hippocampal plasticity in Alzheimer's disease: lessons from fecal microbiota transplantation studies

Y. M. Nolan;
APC Microbiome Ireland, University College Cork, Cork, Ireland

Time: Monday, October 7, 2024, 11:20 AM - 11:55 AM

SYM11.05. Role of the microbiome, and APOE in tau-mediated neurodegeneration

D. M. Holtzman;
Washington University, Saint Louis, MO

Symposium

SYM12: Brain Implants That Use Electrical Stimulation to Restore Rudimentary Forms of Vision for Blind People - Denise Oswalt

Theme D – Sensory Systems

Location: MCP Room S100A

Time: Tuesday, October 8, 2024, 9:30 AM - 12:00 PM

Description: Globally, approximately 40 million people live with blindness. Loss of vision significantly affects one's autonomy and quality of life and imposes substantial economic costs on society. Restoring visual function in blind individuals is thus a crucial scientific goal with tremendous societal benefits. This symposium will cover the many recent developments in

restoring vision with electrical stimulation of the visual brain in experimental animals and its translation to blind people.

Time: Tuesday, October 8, 2024, 9:30 AM - 12:00 PM

SYM12.01. Chair

D. Oswalt;
University of Pennsylvania, Philadelphia, PA

Time: Tuesday, October 8, 2024, 9:35 AM - 10:10 AM

SYM12.02. Lessons learned and challenges remaining for developing functional Visual Cortical Prostheses

D. Oswalt;
University of Pennsylvania, Philadelphia, PA

Time: Tuesday, October 8, 2024, 10:10 AM - 10:45 AM

SYM12.03. Reading from and writing to the human visual brain: Towards a bidirectional cortical visual neuroprosthesis for the blind

E. Fernandez;
Universidad Miguel Hernández de Elche, Elche, Spain

Time: Tuesday, October 8, 2024, 10:45 AM - 11:20 AM

SYM12.04. The neural interface and functional aspects of the Intracortical Visual Prosthesis (ICVP)

P. R. Troyk;
PRT, Chicago, IL

Time: Tuesday, October 8, 2024, 11:20 AM - 11:55 AM

SYM12.05. How patterned stimulation of the visual brain gives rise to the perception of rudimentary shapes

P. R. Roelfsema;
Netherlands Inst for Neuroscience, Amsterdam, Netherlands

Symposium

SYM13: Neurogenic Bowel and Bladder: Advancing Understanding and Novel Electrical Therapies - Tracey L. Wheeler

Theme C – Neurodegenerative Disorders and Injury

Location: MCP Room S105

Time: Tuesday, October 8, 2024, 9:30 AM - 12:00 PM

Description: It is hard to maintain dignity when CNS injury or disease disrupts bowel and bladder control. Neurogenic bowel and bladder are common in multiple sclerosis, spina bifida, and spinal cord injury. They can trigger a deadly overreaction of the autonomic nervous system and have a tremendous impact on quality of life. This symposium will highlight recent breakthroughs in widespread understanding of these systems and their response to electrical and other emerging therapeutic interventions.

Time: Tuesday, October 8, 2024, 9:30 AM - 12:00 PM

SYM13.01. Chair

T. L. Wheeler;
Craig H. Neilsen Foundation, Encino, CA

Time: Tuesday, October 8, 2024, 9:30 AM - 12:00 PM

SYM13.02. Co Chair

A. N. Kusiak;
Dept. of Veterans Affairs, Santa Fe, NM

Time: Tuesday, October 8, 2024, 9:35 AM - 10:10 AM

SYM13.03. Development and Organization of the Enteric Nervous System

J. A. Kaltschmidt;
Stanford University: Wu Tsai Neurosciences Institute, Stanford, CA

Time: Tuesday, October 8, 2024, 10:10 AM - 10:45 AM

SYM13.04. Effect of open-loop and closed-loop electrical stimulation on rhythmic bowel contraction in a mouse model

H. Park;
Sungkyunkwan University, Suwon, Korea, Republic of

Time: Tuesday, October 8, 2024, 10:45 AM - 11:20 AM

SYM13.05. Temporal patterns of stimulation to regulate colonic motility

W. M. Grill;
Duke University, Durham, NC

Time: Tuesday, October 8, 2024, 11:20 AM - 11:55 AM

SYM13.06. Restoration of Lower Urinary Tract Function Using Epidural Stimulation After Spinal Cord Injury

C. Hubscher;
University of Louisville Anatomical Sciences, Louisville, KY

Symposium

SYM14: Synthetic Approaches to Modulating and Rewiring Neural Circuits - Sangkyu Lee

Theme I – Techniques

Location: MCP Room S100BC

Time: Tuesday, October 8, 2024, 9:30 AM - 12:00 PM

Description: Over the last decades, the landscape of neuroscience has been reshaped by synthetic approaches, offering unprecedented insights into cellular and molecular dynamics within the brain. This symposium will highlight the forefront of innovation, shedding light on the latest developments in synthetic approaches involving protein engineering, the design of bioelectronic devices, and focused ultrasound for precise modulation and rewiring of neural circuits, extending even to deep brain stimulation.

Time: Tuesday, October 8, 2024, 9:30 AM - 12:00 PM

SYM14.01. Chair

S. Lee;
Institute for Basic Science, Daejeon, Korea, Republic of

Time: Tuesday, October 8, 2024, 9:30 AM - 12:00 PM

SYM14.02. Co Chair

M. Z. Lin;
Stanford, Stanford, CA

Time: Tuesday, October 8, 2024, 9:35 AM - 10:10 AM

SYM14.03. Modulating Neuronal Signaling with Magnetic Nanotransducers

P. Anikeeva;
MIT, Cambridge, MA

Time: Tuesday, October 8, 2024, 10:10 AM - 10:45 AM

SYM14.04. Transcranial ultrasound stimulation

K. Butts-Pauly;
Stanford University, Stanford, CA

Time: Tuesday, October 8, 2024, 10:45 AM - 11:20 AM

SYM14.05. Engineering the Connectome with Photons as Synaptic Transmitters

M. Krieg;
Institute of Photonics Science, Castelldefels, Spain

Time: Tuesday, October 8, 2024, 11:20 AM - 11:55 AM

SYM14.06. Sculpting Neural Circuits via Engineered Neuro-Glial Interactions

S. Lee;
Institute for Basic Science, Daejeon, Korea, Republic of

Symposium

SYM15: Is There Anything the Superior Colliculus Doesn't Do? - Flóra Takács

Theme E – Motor Systems

Location: MCP Room S102

Time: Tuesday, October 8, 2024, 2:00 PM - 4:30 PM

Description: The superior colliculus is classically considered a site of sensorimotor transformation. However, recent work suggests a functionality that extends to higher cognitive roles, including decision-making and attention. Why is this brain region implicated in so many different roles, from basic sensory processing to complex behaviors? This symposium brings together speakers at the forefront of this field to tackle this question and establish to what extent scientists can define a "function" of the superior colliculus.

Time: Tuesday, October 8, 2024, 2:00 PM - 4:30 PM

SYM15.01. Chair

F. Takács;
University College London, London, United Kingdom

Time: Tuesday, October 8, 2024, 2:00 PM - 4:30 PM

SYM15.02. Co Chair

P. Coen;
University College London, London, United Kingdom

Time: Tuesday, October 8, 2024, 2:05 PM - 2:40 PM

SYM15.03. Superior Colliculus and Beyond: an evolutionary perspective on Visual Circuits for Action.

S. Ruediger;
University College London, London, United Kingdom

Time: Tuesday, October 8, 2024, 2:40 PM - 3:15 PM

SYM15.04. Circuits of the superior colliculus enabling flexible innate behaviors

K. Farrow;
NERF - VIB, Leuven, Belgium

Time: Tuesday, October 8, 2024, 3:15 PM - 3:50 PM

SYM15.05. A role for the superior colliculus in decision termination but not decision formation

M. N. Shadlen;
Columbia U, New York, NY

Time: Tuesday, October 8, 2024, 3:50 PM - 4:25 PM

SYM15.06. Interactions between superior colliculus and frontal cortex during volitional movement

N. Li;
Baylor College of Medicine, Houston, TX

Symposium

SYM16: LRRK2 and Parkinson's Disease - Jie Shen

Theme C – Neurodegenerative Disorders and Injury

Location: MCP Room S100A

Time: Tuesday, October 8, 2024, 2:00 PM - 4:30 PM

Description: Parkinson's disease (PD) is the leading movement disorder, but there is no disease-modifying therapy. LRRK2 mutations represent the most common genetic cause of PD. Scientists are testing its kinase inhibitors in clinical trials as PD treatment. This symposium will present the latest advances in LRRK2 function and structure as well as ongoing debates of opposing views on the gain- versus loss-of-function pathogenic mechanism underlying LRRK2 mutations and implications on therapeutic development.

Time: Tuesday, October 8, 2024, 2:00 PM - 4:30 PM

SYM16.01. Chair

J. Shen;
Brigham and Women's Hospital, Harvard Medical School, Boston, MA

Time: Tuesday, October 8, 2024, 2:05 PM - 2:40 PM

SYM16.02. Structural Studies of LRRK2

J. Sun;
St. Jude’s Children’s Research Hospital, memphis, TN

Time: Tuesday, October 8, 2024, 2:40 PM - 3:15 PM

SYM16.03. Genetic Analysis of LRRK2 Function and Dysfunction

J. Shen;
Brigham and Women's Hospital, HMS, Boston, MA

Time: Tuesday, October 8, 2024, 3:15 PM - 3:50 PM

SYM16.04. LRRK2 Mutations on Kinase Activity and PD Biomarkers

A. B. West;
Duke University, Durham, NC

Time: Tuesday, October 8, 2024, 3:50 PM - 4:25 PM

SYM16.05. Genomics to Proteomics Studies of Parkinson's Disease

B. A. Benitez;
Beth Israel Deaconess Medical Center, Boston, MA

Symposium

SYM17: The Neurobiology of Behavioral Responses to Temperature Change - Marco Gallio

Theme D – Sensory Systems

Location: MCP Room S100BC

Time: Tuesday, October 8, 2024, 2:00 PM - 4:30 PM

Description: Behavioral responses to temperature are at the forefront of the interaction between animals and the thermal environment. Consequently, climate change will alter the behavior of many animal species, even before directly threatening their survival. This symposium will survey mechanisms that animals have evolved to cope with changing thermal conditions — including temperature extremes and unexpected ways global warming can impact animal behavior.

Time: Tuesday, October 8, 2024, 2:00 PM - 4:30 PM

SYM17.01. Chair

M. Gallio;
Northwestern University, Evanston, IL

Time: Tuesday, October 8, 2024, 2:00 PM - 4:30 PM

SYM17.02. Co Chair

E. O. Gracheva;
Yale University, Guilford, CT

Time: Tuesday, October 8, 2024, 2:05 PM - 2:40 PM

SYM17.03. Evolution of temperature preference behavior in desert-dwelling Drosophila

M. Gallio;
Northwestern University, Evanston, IL

Time: Tuesday, October 8, 2024, 2:40 PM - 3:15 PM

SYM17.04. Neural mechanisms of hibernation in ground squirrels

E. O. Gracheva;
Yale University, Guilford, CT

Time: Tuesday, October 8, 2024, 3:15 PM - 3:50 PM

SYM17.05. Evolution of thermosensory mechanisms in Antarctic fishes

J. M. York;
University of Illinois Urbana-Champaign, Urbana, IL

Time: Tuesday, October 8, 2024, 3:50 PM - 4:25 PM

SYM17.06. Environmental and genetic determinants of migratory behavior in monarch butterflies

M. Kronforst;
University of Chicago, Chicago, IL

Symposium

SYM18: Unraveling the Mysteries of Thyroid Hormone in Neuropsychiatric Disorders - Deena M. Walker

Theme G – Motivation and Emotion

Location: MCP Room S103

Time: Tuesday, October 8, 2024, 9:30 AM - 12:00 PM

Description: Thyroid hormone dysregulation is associated with neuropsychiatric disorders. Preclinical data supports its critical role in the development, emergence, and perpetuation of neuropsychiatric disorders. This symposium will present a cohesive arc of research on how early-life experience dysregulates thyroid hormone signaling, facilitating limbic system

development, influencing the expression of behavior in adulthood, and serving as a therapeutic target for neuropsychiatric disorders in humans.

Time: Tuesday, October 8, 2024, 9:30 AM - 12:00 PM

SYM18.01. Chair

D. M. Walker;
Oregon Health & Science University, Portland, OR

Time: Tuesday, October 8, 2024, 9:30 AM - 12:00 PM

SYM18.02. Co Chair

C. Jensen Peña;
Princeton University, Princeton, NJ

Time: Tuesday, October 8, 2024, 9:35 AM - 10:10 AM

SYM18.03. Early life stress disrupts thyroid hormone signaling and dopamine neuron development

C. Jensen Peña;
Princeton University, Princeton, NJ

Time: Tuesday, October 8, 2024, 10:10 AM - 10:45 AM

SYM18.04. Adolescent thyroid hormone signaling promotes substance use disorder vulnerability in adult males but not females.

D. M. Walker;
Oregon Health & Science University, Portland, OR

Time: Tuesday, October 8, 2024, 10:45 AM - 11:20 AM

SYM18.05. Neuromodulatory function of Thyrotropin releasing hormone in regulating social behavior

J.-T. Kwon;
Korea Advanced Institute of Science and Technology (KAIST), Yuseong-gu, Korea, Republic of

Time: Tuesday, October 8, 2024, 11:20 AM - 11:55 AM

SYM18.06. Brain-penetrating thyromimetics as novel therapeutics for neurodegeneration and affective disorders

M. D. Hartley;
University of Kansas, LAWRENCE, KS

Symposium

SYM19: Biomarkers for Cerebrovascular Contributions to Neurodegeneration: Genetic, Biofluid, and Imaging - Jane S. Paulsen

Theme C – Neurodegenerative Disorders and Injury

Location: MCP Room S100BC

Time: Wednesday, October 9, 2024, 2:00 PM - 4:30 PM

Description: This symposium will review biomarkers in cerebrovascular research from the perspectives of genetic biomarkers, biofluid biomarkers (i.e., blood and cerebrospinal fluid), and advanced neuroimaging techniques. Each speaker will address the utility of the genetic, biofluid, or neuroimaging marker regarding the detecting and tracking progressive cerebrovascular changes contributing to cognitive impairment and dementia.

Time: Wednesday, October 9, 2024, 2:00 PM - 4:30 PM

SYM19.01. Chair

J. S. Paulsen;
University of Wisconsin, Madison, Madison, WI

Time: Wednesday, October 9, 2024, 2:05 PM - 2:40 PM

SYM19.02. Genetic risk factors for cerebrovascular diseases

M. Fornage;
University of Texas Health Science Center at Houston, Houston, TX

Time: Wednesday, October 9, 2024, 2:40 PM - 3:15 PM

SYM19.03. Vascular disease models to explore pathomechanisms and develop biomarkers

E. A. Ferrante;
National Institutes of Health - National Heart, Lung, and Blood Institute, Bethesda, MD

Time: Wednesday, October 9, 2024, 3:15 PM - 3:50 PM

SYM19.04. Multivariate models for multimodal neuroimaging markers in cerebrovascular diseases

H. J. Bockholt;
Tri-Institutional Center for Translational Research in Neuroimaging and Data Science (TReNDS), Atlanta, GA

Time: Wednesday, October 9, 2024, 3:50 PM - 4:25 PM

SYM19.05. Overview of cerebrovascular disease and cognition: Knowledge gaps and progress

J. Biller;
Loyola University Chicago Stritch School of Medicine, Chicago, IL

Symposium

SYM20: Neuron-Glial Interactions: Implications for Plasticity, Behavior, and Cognition - Mauricio Rangel-Gomez

Theme H – Cognition

Location: MCP Room S406A

Time: Wednesday, October 9, 2024, 9:30 AM - 12:00 PM

Description: Glial cell interactions with neurons are essential to brain development and functions. Recent technological advances for selective manipulation of glia and neurons, and computational modeling approaches facilitate assessments of how neuron-glia interactions modulate *in vivo* cognitive behaviors. This symposium will present the latest developments in the measurements and manipulations of neuron-glial interactions, shedding light on their mechanisms and consequences on complex behaviors.

Time: Wednesday, October 9, 2024, 9:30 AM - 12:00 PM

SYM20.01. Chair

M. Rangel-Gomez;
NIH, National Institute of Mental Health (NIMH), Rockville, MD

Time: Wednesday, October 9, 2024, 9:30 AM - 12:00 PM

SYM20.02. Co Chair

A. Vicentic;
NIMH, Rockville, MD

Time: Wednesday, October 9, 2024, 9:35 AM - 10:10 AM

SYM20.03. Astrocyte-neuron interactions underlying reinforcement learning and goal-directed behavior

M. Sur;
MIT, Department of Brain and Cognitive Sciences, Cambridge, MA

Time: Wednesday, October 9, 2024, 10:10 AM - 10:45 AM

SYM20.04. Computational modeling of neuron-astrocyte interactions predicts astrocytic calcium involvement in spike-timing-dependent plasticity

T. Manninen;
Tampere University, Tampere, Finland

Time: Wednesday, October 9, 2024, 10:45 AM - 11:20 AM

SYM20.05. The active cooperation between astrocytes and neurons in long-term memory via metabolic coupling

C. P. Alberini;
New York University, NEW YORK, NY

Time: Wednesday, October 9, 2024, 11:20 AM - 11:55 AM

SYM20.06. Experience Dependent Astrocyte Plasticity in Functioning Circuits

B. Deneen;
Baylor College of Medicine, Houston, TX