When citing an abstract from the 2025 annual meeting, please use the format below.

[Authors]. [Abstract Title]. Program No. XXX.XX. 2025 Neuroscience Meeting Planner. San Diego, CA: Society for Neuroscience, 2025. Online.

Information is current as of October 1, 2025. See the Neuroscience 2025 Neuroscience Meeting Planner on SfN.org for the most up-to-date information.

Lecture

LEC01: Dialogues Between Neuroscience and Society: The Mindful Taster: Transforming Wine Appreciation From Sensory Experience to Mastery — Nicolas Quillé

Location: SDCC Ballroom 20

Time: Saturday, November 15, 2025, 10:00 AM - 12:00 PM

Moderator: *G. S. ASTON-JONES;
Piscataway, NJ

Disclosures:

Moderator: *C. BERNARD;
INSERM U1106, Marseille cedex 05, France

Disclosures:

Moderator: *P. J. MAGISTRETTI;
Thuwal, Saudi Arabia

Disclosures:

Moderator: *J. MORRISON;
University of California, Davis, Davis, CA

Disclosures:

Moderator: *D. SCHILLER;
Icahn School of Medicine at Mount Sinai, New York, NY

Disclosures:

Lecturer: *N. QUILLÉ;
Crimson Wine Group, Napa, OR

Disclosures: N. Quillé: None.

Abstract: Nicolas Quillé, MW, highly credentialed wine professional, will present his framework for understanding wine tasting in the style of Robert Greene's three phases of mastery. Quillé will explain that wine tasting is a comprehensive neurological workout, engaging many brain regions through cross-modal integration of visual, olfactory, gustatory, and trigeminal inputs. The brain processes these inputs, making analytical judgments, articulating descriptive language, and forming emotional responses.

Lecture

LEC02: Special Lecture: Memories and Engrams in Mice — Sheena A. Josselyn

Location: SDCC Ballroom 20

Time: Saturday, November 15, 2025, 1:00 PM - 2:00 PM

Moderator: *K. IGARASHI;
UC Irvine, Irvine, CA

Disclosures:

Lecturer: *S. A. JOSSELYN;
Neuroscience & Mental Health, The Hospital For Sick Children, Toronto, ON, Canada

Disclosures: S.A. Josselyn: None.

Abstract: Memory may be defined as the retention over time of internal representations gained through experience, and the capacity to reconstruct these representations at later times. Long-lasting physical brain changes ("engrams") are thought to encode these internal representations. The speaker's lab is interested in understanding how engrams may be formed, and how neuronal membership in an engram ensemble may change over time or with new experience. This lecture will describe data in their efforts to understand memories in mice and humans.

Grant Support: NIH NIMH (R01 MH119421-01)
CIHR FDN-143227
Toronto Cannabis and Cannabinoid Research Consortium
NSERC
CFI
Brain Canada Platform Support Grant

Lecture

LEC03: SfNova Lecture: Brandon J. Henderson; Jordan Squair

Location: SDCC Ballroom 20

Time: Saturday, November 15, 2025, 3:00 PM - 4:00 PM

Moderator: *E. LIKHTIK;
Hunter College, CUNY, New York, NY

Disclosures:

Moderator: *K. SATKUNENDRARAJAH;
Medical College of Wisconsin, Brookfield, WI

Disclosures:

Lecturer: *B. J. HENDERSON;
Marshall University, Huntington, WV

Disclosures: B.J. Henderson: None.

Lecturer: *J. SQUAIR;
SV, Swiss Federal Institute of Technology (EPFL), University Hospital Lausanne (CHUV), Geneva, Switzerland

Disclosures: J. Squair: E. Ownership Interest (stock, stock options, royalty, receipt of intellectual property rights/patent holder, excluding diversified mutual funds); ONWARD Medical.

Intro/Close: *D. SCHILLER;
Icahn School of Medicine at Mount Sinai, New York, NY

Disclosures:

Abstract: *The Flavor Factor: How Chemical Additives Influence Nicotine Addiction in Tobacco and Vaping*
Brandon J. Henderson, PhD
Marshall University
Theme H: Motivation and Emotion
Combustible cigarette smoking has slowly declined below 12% in America. However, the use of electronic cigarettes has increased tremendously. While nicotine is the main addictive component of tobacco products and a primary concern in electronic cigarettes, the majority of vaping products include chemical flavorants in addition to nicotine. This lecture will summarize preclinical investigations that focus on how chemical flavors alter neurons and brain circuits relevant to nicotine addiction-related behaviors.

The Molecular Logic of Paralysis
Jordan Squair, MD, PhD
Swiss Federal Institute of Technology (EPFL), University Hospital Lausanne (CHUV)

Theme G: Integrative Physiology and Behavior

Single cell and spatial transcriptomic technologies have revealed the molecular logic of spinal cord injury across species. This lecture will highlight the importance of methods development to dissect multicellular responses to trauma in comparative single cell datasets, describe how recovery-organizing neurons enable recovery after paralysis, and discuss how this understanding is guiding molecular approaches to reverse engineer paralysis in order to design new gene therapies.

Grant Support: NIH Grant DA050717
NIH Grant DA046335
NIH Grant DA060846
NIH Grant DA040047
SNSF Grant PZ00P3_208988

Lecture

LEC04: Presidential Special Lecture: Cognition Emerges From Neural Dynamics — Earl K. Miller

Location: SDCC Ballroom 20

Time: Saturday, November 15, 2025, 5:30 PM - 6:45 PM

Moderator: *A. SHACKMAN;
University of Maryland, College Park, MD

Disclosures:

Lecturer: *E. K. MILLER;
The Picower Institute for Learning and Memory/Massachusetts Institute of Technology, Cambridge, MA

Disclosures: E.K. Miller: None.

Intro/Close: *J. MORRISON;
University of California, Davis, Davis, CA

Disclosures:

Abstract: Classic models likened brain function to neuron networks, like telegraph systems. Emerging evidence, however, suggests higher cognition relies on rhythmic oscillations or "brain waves" at the electric field level. This expands functionality, with "telegraph wires" also producing "radio waves" (electric fields) that rapidly spread influence. This lecture will discuss how these fields may facilitate large-scale organization, enabling executive control and energy-efficient analog computing.

Grant Support: NIMH 1R01MH131715-01
NEI 1R01EY033430-01A1
Office of Naval Research N00014-22-1-2453
Office of Naval Research MURI N00014-23-1-2768
Freedom Together Foundation
The Simons Center for the Social Brain

Lecture

LEC05: Special Lecture: Microglia Process Dynamics: Synapse Formation, Neuronal Activity, and Rescue — Junichi Nabekura

Location: SDCC Ballroom 20

Time: Sunday, November 16, 2025, 9:00 AM - 10:00 AM

Moderator: *L.-J. WU;
University of Texas Health Science Center at Houston, Houston, TX

Disclosures:

Lecturer: *J. NABEKURA;
National Institute for Physiological Sciences, Okazaki, Japan

Disclosures: J. Nabekura: None.

Abstract: In the intact brain, microglia engage in highly dynamic surveillance through the continuous movement of their fine processes. This lecture will highlight recent advances in our understanding of microglial process interactions with synapses and neurons. Accumulating evidence suggests that these transient contacts are not passive observations but actively contribute to the regulation of synaptic transmission, plasticity, and circuit remodeling in both healthy and diseased states.

Grant Support: AMED-CREST JP16gm0310007
Core Research for Evolutionary Science and Technology JPMJCR14G2
Grant-in-Aid for Scientific Research (JSPS) 22240042
Grant-in-Aid for Scientific Research (JSPS) 17H01530
Grant-in-Aid for Scientific Research (JSPS)20H00500

Lecture

LEC06: Clinical Neuroscience Lecture: The Pathogenesis of Cerebral Small Vessel Disease and Vascular Cognitive Impairment — Anne Joutel

Location: SDCC Ballroom 20

Time: Sunday, November 16, 2025, 10:30 AM - 11:30 AM

Moderator: *A. SHIH;
Seattle Children's Research Institute, Seattle, WA

Disclosures:

Lecturer: *A. JOUTEL;
Inserm, Institute of Psychiatry and Neurosciences of Paris, Paris, France

Disclosures: A. Joutel: None.

Abstract: Cerebral small vessel disease (cSVD) encompasses a heterogeneous group of diseases caused by in situ damages of small brain vessels commonly related to aging, hypertension, or genetic factors. cSVD causes a quarter of all ischemic strokes, the majority of spontaneous hemorrhages, and accounts for 20% or more of all dementia. This lecture will provide a comprehensive and critical appraisal of the biggest advances in our understanding of how cSVD affects the structure and function of small brain vessels, causes brain lesions, and alters cognition.

Grant Support: NIH1RF1NS128963
Leducq Transatlantic Network of Excellence 22CVD01 BRENDA
Fondation pour la Recherche Médicale (PROJET EQU202203014672)

Lecture

LEC07: Special Lecture: Emotional Learning and the Primate Amygdala: From Adaptive Behaviors to Psychopathologies — Rony Paz

Location: SDCC Ballroom 20

Time: Sunday, November 16, 2025, 12:00 PM - 1:00 PM

Moderator: *S. CHANG;
Yale University, New Haven, CT

Disclosures:

Lecturer: *R. PAZ;
Brain Sciences, Weizmann Institute of Science, Rehovot, Israel

Disclosures: R. Paz: None.

Abstract: Our brains are equipped with specialized circuits to process negative emotional experiences. While essential for adaptive behavior and survival, these circuits can also drive maladaptive behavior and psychopathologies such as anxiety and post-traumatic stress disorder. The lecture explores how emotional learning and neural representations in the amygdala and prefrontal cortex of human and nonhuman primates shape adaptive responses, yet may also contribute to mental health disorders.

Grant Support: ERC-StG / CoG / AdG
ISF (Israel science foundation)

Lecture

LEC08: Special Lecture: Mechanisms Linking Human Neuron Development, Evolution, and (Dys)function — Pierre P. Vanderhaeghen

Location: SDCC Ballroom 20

Time: Sunday, November 16, 2025, 1:30 PM - 2:30 PM

Moderator: *S. HIPPENMEYER;
IST Austria, Klosterneuburg, Austria

Disclosures:

Lecturer: *P. P. VANDERHAEGHEN;
VIB-KU Leuven Center for Brain & Disease Research, Leuven, Belgium

Disclosures: P.P. Vanderhaeghen: None.

Abstract: The human cerebral cortex underwent rapid changes during recent hominid evolution, leading to the emergence of *Homo sapiens* specialized cognitive and social skills. This lecture will discuss the molecular and cellular mechanisms underlying the evolution of cortical circuits, including human-specific gene regulatory programs and species-specific cellular features, such as metabolism. Human-specific modifiers of cortical neuron development and function shed light on human evolution, with unexpected links to brain diseases.

Grant Support: European Research Council Grants GENDEVOCORTEX and NEUROTEMPO

Lecture

LEC09: Peter and Patricia Gruber Lecture: The Neural Code of Speech — Edward F. Chang

Location: SDCC Ballroom 20

Time: Sunday, November 16, 2025, 3:00 PM - 4:30 PM

Session Sponsor: The Gruber Foundation

Moderator: *E. E. MARDER;
WALTHAM, MA

Moderator: J. H. MAUNSELL;
Chicago, IL

Featured Lecturer: *E. F. CHANG;
University of California, San Francisco, Piedmont, CA

Disclosures:

Intro/Close: *J. R. SANES;
Cambridge, MA

Disclosures:

Intro/Close: *A. HREHA;
Yale University, Office of Development, The Gruber Foundation, New Haven, CT

Disclosures:

Intro/Close: *J. MORRISON;
University of California, Davis, Davis, CA

Disclosures:

Intro/Close

Abstract: Speech is a defining behavior of the human species. This lecture will review discoveries on the representations and computations that underlie the specialized human ability to process words — and the elements that compose them.

Lecture

LEC10: Presidential Special Lecture: The Importance of Synapses in Alzheimer's Disease — Tara Spires-Jones

Location: SDCC Ballroom 20

Time: Sunday, November 16, 2025, 5:30 PM - 6:45 PM

Moderator: *C. FERRARIO;
The University of Michigan, Ann Arbor, MI

Disclosures:

Lecturer: *T. SPIRES-JONES;
UK Dementia Research Institute at the University of Edinburgh, Edinburgh, United Kingdom

Disclosures: T. Spires-Jones: None.

Intro/Close: *J. MORRISON;
University of California, Davis, Davis, CA

Disclosures:

Abstract: Alzheimer’s disease is one of the most pressing medical issues of our time. In this lecture, Spires-Jones discusses advances in understanding the role of synapses in disease pathogenesis, including the accumulation of pathological proteins within synapses, the involvement of glia in synapse degeneration, and trans-synaptic spread of pathology through the brain. The lecture will explore the importance of understanding synaptic pathology for developing life-changing treatments.

Grant Support: UK Dementia Research Institute
UK Medical Research Council Centres of Excellence in Neurodegeneration (COEN)
Wellcome Trust
Alzheimer's Research UK
Foundations for the National Institutes of Health

Lecture

LEC11: Special Lecture: From Foraging to Flashbacks: The Neural Basis of Spatial Memory and Mental Time Travel — Nanthia Suthana

Location: SDCC Ballroom 20

Time: Monday, November 17, 2025, 9:00 AM - 10:00 AM

Moderator: *L. COLGIN;
The University of Texas At Austin, Austin, TX

Disclosures:

Lecturer: *N. SUTHANA;
Neurosurgery / Psychiatry / Bioengineering, Duke University, Durham, NC

Disclosures: N. Suthana: None.

Abstract: Memory enables both navigation and the mental reconstruction of past experiences, playing a crucial role in learning and decision-making. While generally adaptive, this process can become dysregulated, leading to intrusive flashbacks in post-traumatic stress disorder. This lecture will present findings from human intracranial recordings, focusing on the hippocampus and related regions, to reveal how neural activity during real-world navigation and memory recall underlies both memory function and its pathological disruptions.

Grant Support: NIH U01NS117838
NIH R01MH124761
NIH UH3NS107673
NIH R61MH135106
McKnight Foundation Technological Innovations in Neuroscience
UCLA DGSOM W. M. Keck Foundation Junior Faculty Award
NIH UO1NS103802

Lecture

LEC12: Special Lecture: Motor Cortex Circuits for Learned Movements — Takaki Komiyama

Location: SDCC Ballroom 20

Time: Monday, November 17, 2025, 10:30 AM - 11:30 AM

Moderator: *J. DING;
Stanford University, Stanford, CA

Disclosures:

Lecturer: *T. KOMIYAMA;
Center for Neural Circuits and Behavior Rm 304, University of California, San Diego, La Jolla, CA

Disclosures: T. Komiyama: F. Consulting Fees (e.g., advisory boards); Scientific Advisor, SpaceRx.

Abstract: The brain refines its movement-generating circuit through motor learning. This lecture will explore neural circuit mechanisms underlying the generation of learned movements, focusing on the circuits centered around the primary motor cortex in mice. The lecture will also discuss synaptic plasticity rules that contribute to the refinement of the neural circuit for learned movements.

Grant Support:
-NIH R01 MH128746
-NIH R01 NS125298
-NIH R01 NS091010
-NIH R01 DC018545
-NSF 2024776
-NIH 1U01NS139877
-Chan Zuckerberg Initiative Collaborative Pairs Pilot Project

Lecture

LEC13: Special Lecture: Transmission of Misfolded Proteins in Neurodegenerative Disorders: A Common Mechanism of Disease Progression — Virginia M. Y. Lee

Location: SDCC Ballroom 20

Time: Monday, November 17, 2025, 12:00 PM - 1:00 PM

Moderator: *S. SPENCER;
RMIT University, Melbourne, Australia

Disclosures:

Lecturer: *V. M. Y. LEE;
Dept Pathol & Lab Med, University of Pennsylvania School of Medicine, Philadelphia, PA

Disclosures: V.M.Y. Lee: None.

Abstract: Misfolded pathological protein aggregates formed by disease-specific proteins are common features of neurodegenerative diseases. They cause neuronal dysfunction directly or indirectly. This lecture will discuss the transmission models of tauopathies, synucleinopathies, and TAR DNA-binding protein 43 (TDP-43) proteinopathies that have been developed and used to test the “transmission” hypothesis and the “strain” hypothesis to elucidate mechanisms of progressive spread of neurofibrillary tangles (NFTs), Lewy bodies (LBs), and TDP-43 aggregates and the molecular basis of strain heterogeneity.

Lecture

LEC14: Albert and Ellen Grass Lecture: Making Sense of Touch — David D. Ginty

Location: SDCC Ballroom 20

Time: Monday, November 17, 2025, 3:00 PM - 4:30 PM

Session Sponsor: The Grass Foundation

Moderator: *R. SEAL;
University of Pittsburgh, Pittsburgh, PA

Disclosures:

Featured Lecturer: *D. D. GINTY;
Dept Neurosci, Harvard Medical School, Boston, MA

Disclosures: D.D. Ginty: None.

Intro/Close: *J. MORRISON;
University of California, Davis, Davis, CA

Disclosures:

Abstract: Our relationship with the physical world is rich, complex, and essential for life. This lecture will explore the properties and functions of the physiologically distinct types of touch sensory neurons, the Low-Threshold Mechanoreceptors (LTMRs), as well as high-threshold mechanoreceptors (HTMRs) and other somatosensory neuron types. This lecture will also discuss the organizational logic of sensory neuron synapses in the spinal cord and the subcortical circuitry underlying early stages of tactile feature representation, pain information processing, and sensory-motor reflexes.

Grant Support: Howard Hughes Medical Institute
NIH Grant 5R35NS097344
Hock E. Tan and Lisa Yang Center for Autism Research

Lecture

LEC15: Presidential Special Lecture: Sex Differences in the Brain Are Misunderstood — Catherine S. Woolley

Location: SDCC Ballroom 20

Time: Monday, November 17, 2025, 5:30 PM - 6:45 PM

Moderator: *A. SINGER;
Georgia Institute of Technology & Emory University, Atlanta, GA

Disclosures:

Featured Lecturer: *C. S. WOOLLEY;
Dept Neurobiol, Northwestern University, Evanston, IL

Disclosures: C.S. Woolley: None.

Intro/Close: *J. MORRISON;
University of California, Davis, Davis, CA

Disclosures:

Abstract: Sex differences in the brain are real, but they're not what many people think of when they hear about them. This lecture will discuss some of the historical and current controversies surrounding sex differences in the brain; present evidence for different types of brain sex differences with an emphasis on molecular mechanisms of synaptic modulation; and explain the value of studying both sexes to ensure that advances in science and medicine have maximal impact for human health.

Grant Support: NIH grant MH113189
NIH grant MH095248
NIH grant NS037324

Lecture

LEC16: Special Lecture: Microglia in Brain Construction and Maintenance — Sonia Garel

Location: SDCC Ballroom 20

Time: Tuesday, November 18, 2025, 9:00 AM - 10:00 AM

Moderator: L. MA;
Thomas Jefferson University, Philadelphia, PA

Disclosures:

Lecturer: *S. GAREL;
Collège de France / Ecole Normale Supérieure, Paris, France

Disclosures: S. Garel: None.

Abstract: Microglia, the resident immune cells of the brain, are traditionally known for their roles in immune surveillance, repair, and synapse regulation. This lecture will focus on recent research uncovering novel roles for microglia in the early brain, particularly in wiring, circuit assembly, and tissue integrity. Understanding these developmental roles provides a framework for decoding microglial functions throughout life and their impact on brain physiology and pathology, from neurodevelopmental disorders to neurodegenerative diseases.

Lecture

LEC17: David Kopf Lecture on Neuroethics: Designing Globally Inclusive and Ethically Deliberate Neurofutures — Karen S. Rommelfanger

Location: SDCC Ballroom 20

Time: Tuesday, November 18, 2025, 10:30 AM - 11:30 AM

Session Sponsor: David Kopf Instruments

Moderator: *M. GRAY;
University of Alabama, Birmingham, Birmingham, AL

Disclosures:

Featured Lecturer: *K. S. ROMMELFANGER;
Department of Neurology, Institute of Neuroethics Think and Do Tank, Atlanta, GA

Disclosures: K.S. Rommelfanger: None.

Intro/Close: *J. MORRISON;
University of California, Davis, Davis, CA

Disclosures:

Abstract: Unlike any other organ, the brain's role in identity, agency, and experience makes it biologically and culturally unique. The transformative potential of global neuroscience demands robust, integrated ethical engagement across the research life cycle. This talk advocates a proactive "neuroethics-by-design" approach and presents five key neuroethical questions to guide responsible, inclusive, and globally responsive neuroscience. The commitment and actions of today's neuroscientists have the power to shape tomorrow's society for everyone.

Lecture

LEC18: Special Lecture: The Brain-Immune Ecosystem: Immunotherapy Empowers the Immune System to Defeat Alzheimer's Disease and Retard Brain Aging — Michal Schwartz

Location: SDCC Ballroom 20

Time: Tuesday, November 18, 2025, 2:00 PM - 3:00 PM

Moderator: *B. MORRISON;
Johns Hopkins University, Baltimore, MD

Disclosures:

Lecturer: *M. SCHWARTZ;
Brain Sciences, Weizmann Institute of Science, Rehovot, Israel

Disclosures: M. Schwartz: F. Consulting Fees (e.g., advisory boards); Iam acting as a consulting cso of Immunobrain.

Abstract: The lecture will cover the speaker's 25-year journey from concept to clinical application, including the transformed understanding of brain-immune relationships; peripheral immunity dysfunction as a catalyzer in brain aging and Alzheimer's disease. Immunotherapy that boosts systemic immunity by transiently blocking inhibitory immune checkpoints restores brain immune support, mitigating inflammation, toxic protein buildup, senescent cells, and neuronal loss, thereby arresting cognitive decline.

Grant Support: Advanced European Council Grant 7417
Israel science foundation, ISF grant 99/16
Thompson foundation

Lecture

LEC19: History of Neuroscience Lecture: The Troubled History of the Emotional Brain — Joseph E. LeDoux

Location: SDCC Ballroom 20

Time: Tuesday, November 18, 2025, 3:30 PM - 4:30 PM

Moderator: *D. SCHILLER;
Icahn School of Medicine at Mount Sinai, New York, NY

Disclosures:

Featured Lecturer: *J. E. LEDOUX;
Center for Neural Science, New York University, New York, NY

Disclosures: J.E. LeDoux: None.

Intro/Close: *J. MORRISON;
University of California, Davis, Davis, CA

Disclosures:

Abstract: As a young scientist in the young discipline of neuroscience, LeDoux saw the dearth of emotion research in the field as low-hanging fruit. Work that he and others did in the 80s and early 90s helped pave the way for a new neuroscience of emotion. But over time he came to believe that much of the research was not about emotion itself, a problem that began with Darwin, and that later impaired efforts to treat mental disorders. This lecture will explore his view of what emotion is and is not.

Lecture

LEC20: Presidential Special Lecture: Neuronal Aging: A Major Risk for Cognitive Decline in Humans — Fred H. Gage

Location: SDCC Ballroom 20

Time: Tuesday, November 18, 2025, 5:30 PM - 6:45 PM

Moderator: *Y. MOAYEDI;
New York University, New York, NY

Disclosures:

Lecturer: *F. H. GAGE;
LOG-G, Salk Institute, La Jolla, CA

Disclosures: F.H. Gage: None.

Intro/Close: *J. MORRISON;
University of California, Davis, Davis, CA

Disclosures:

Abstract: This lecture will address the question: Why do we lose cognitive capacity and function as we age? New cellular models of human brain aging have led to a more comprehensive understanding of the cellular and molecular mechanisms that underly brain aging. Energy metabolism, inflammation, and genome instability combine to drive cognitive decline in age and disease.

Grant Support: AHA-Allen Initiative in Brain Health and Cognitive Impairment award made jointly through the American Heart Association and The Paul G. Allen Frontiers Group: 19PABH134610000
Freedom Together Foundation
Dolby Family
Brinson Foundation
R01 MH114030-07
R37 AG072502
P01 AG051449

Lecture

LEC21: Special Lecture: Power Play: How the Immune, Endocrine, and Social Systems Collaborate to Sculpt Neural Development — Margaret M. McCarthy

Location: SDCC Ballroom 20

Time: Wednesday, November 19, 2025, 9:00 AM - 10:00 AM

Moderator: *D. SCHAFER;
University of Massachusetts Chan Medical School Graduate Program in Neuroscience, Upton, MA

Disclosures:

Lecturer: *M. M. MCCARTHY;
Department of Pharmacology, University of Maryland School of Medicine, Baltimore, MD

Disclosures: M.M. McCarthy: None.

Abstract: Critical periods direct neural trajectories that diverge as a function of sex, endocrine status, metabolism, or exposure to essential stimuli. Brain sexual differentiation is mediated by early life exposure to hormones, modified by immune cells, and programs adolescent social play behavior thereby creating an additional critical window in that play deprivation dysregulates adult sociosexual behaviors. Other immune-defined epochs create a rich tapestry of interwoven and unique neurodevelopment. This lecture will review known and new critical periods in the rodent brain.

Grant Support: NIH Grant RO1 MH52716
NIH Grant R01 DA039062
NIH Grant R01 MH091424
Simons Foundation Pilot Award

Lecture

LEC22: Special Lecture: Learnt and Inbuilt Neural Control of Innate Behavioral Strategies — Sonja B. Hofer

Location: SDCC Ballroom 20

Time: Wednesday, November 19, 2025, 10:30 AM - 11:30 AM

Moderator: *I. FUKUNAGA;
OIST Graduate School, Okinawa, Japan

Disclosures:

Lecturer: *S. B. HOFER;
Sainsbury Wellcome Centre, University College London, London, United Kingdom

Disclosures: S.B. Hofer: None.

Abstract: To survive in evolving environments with uncertain resources and risks, animals need to dynamically adapt their behavior and exhibit flexibility in choosing appropriate strategies, such as staying safe from predators, exploring their environment, or exploiting known resources. The lecture will explore how the brain implements and switches between such fundamental behavioral strategies, focusing on subcortical neural circuits for flexible behavioral control.

Grant Support: Wellcome Trust Investigator Grant
Wellcome Trust Henry Dale Fellowship
Gatsby Charitable Foundation

Lecture

LEC23: Special Lecture: Spying on Neuromodulator Dynamics *In Vivo* by Constructing Multi-Color Genetically-Encoded Sensors — Yulong Li

Location: SDCC Ballroom 20

Time: Wednesday, November 19, 2025, 12:30 PM - 1:30 PM

Moderator: *V. EMILIANI;
Vision Insitut, Paris, France

Disclosures:

Lecturer: *Y. LI;
Peking University, Beijing, China

Disclosures: Y. Li: None.

Abstract: Neuromodulators are essential for brain functions such as perception, motion, learning, and memory, and are implicated in neurological disorders. Understanding these processes requires real-time monitoring of neuromodulator dynamics. The speaker will introduce the development of multi-color G-protein-coupled receptors (GPCR)-activation-based (GRAB) sensors with high spatiotemporal resolution and discuss how spectrally expanded sensors enable simultaneous detection of multiple neurochemicals in vivo in different animal models, offering new insights into the neuromodulatory system.

Grant Support: National Natural Science Foundation of China (31925017)
National Key R&D Program of China (2022YFE0108700)
National Key R&D Program of China (2023YFE0207100)
Beijing Municipal Science & Technology Commission (Z220009)
NIH BRAIN Initiative (1U01NS120824)

Lecture

LEC24: Special Lecture: Deep Decisions: Uncovering the Subcortical Role in Perceptual Choice — Michele A. Basso

Location: SDCC Ballroom 20

Time: Wednesday, November 19, 2025, 2:00 PM - 3:00 PM

Moderator: *T. DESROCHERS;
Brown University, Providence, RI

Disclosures:

Lecturer: *M. A. BASSO;
WaNPRC, University of Washington, Seattle, WA

Disclosures: M.A. Basso: None.

Abstract: Understanding of how the mammalian brain makes decisions centers largely on the integrative functions of the cerebral cortex. Yet organisms lacking a cerebral cortex can combine information from different sources to make decisions. This lecture will focus on the roles of the superior colliculus and basal ganglia in perceptual decision-making. The emerging view is that deep brain structures play a critical role in flexible, goal-directed choices and cognitive control.

Grant Support: NIH R01EY013692
NIH R01AG098325
NIH UF1NS12040