

## 2022 Themes and Topics

### Theme A – Development

#### A.01. Neurogenesis and Gliogenesis

A.01.a. Nervous system patterning and developmental cell death

A.01.b. Proliferation

A.01.c. Cell lineage

A.01.d. Mechanisms of cell fate

A.01.e. Cell migration

A.01.f. Neuronal differentiation

A.01.g. Glial development

#### A.02. Postnatal Neurogenesis

A.02.a. Postnatal neurogenesis – Temporal and spatial patterns

A.02 b. Postnatal neurogenesis – Molecular mechanisms

A.02 c. Postnatal neurogenesis – Environmental and pharmacological regulation

#### A.03. Stem Cells and Reprogramming

A.03.a. Pluripotent stem cells – Disease models

A.03.b. Pluripotent stem cells – Differentiation and reprogramming

A.03.c. Neural stem cells - *In vivo* studies

A.03.d. Neural lineage reprogramming

A.03.e. Neural stem cells – *In vitro* studies

#### A.04. Transplantation and Regeneration

A.04.a. Regeneration – PNS

A.04.b. Regeneration – CNS

#### A.05. Axon and Dendrite Development

A.05.a. Axon growth and guidance – Adhesion and cytoskeletal dynamics

A.05.b. Axon growth and guidance – Axonal transport and trafficking

A.05.c. Axon growth and guidance – Extrinsic mechanisms

A.05.d. Dendritic growth and branching

#### A.06. Synaptogenesis and Activity-Dependent Development

A.06.a. Synapse formation

A.06.b. Synapse maturation and remodeling

A.06.c. Neural circuit maturation and remodeling

#### A.07. Developmental Disorders

A.07.a. Autism – Behavioral analysis

A.07.b. Autism – Genetic models

A.07.c. Autism – Synaptic and cellular mechanisms

A.07.d. Autism – Environment and pathology

A.07.e. Autism – Physiology and systems

A.07.f. Rett syndrome

A.07.g. Fragile X

A.07.h. Down syndrome

A.07.i. Angelman and other developmental disorders

A.07.j. ADHD, SLI, dyslexia, and other specific disorders of neurobehavior

A.07.k. Animal models of autism

A.07.l. Animal models of developmental disorders other than autism

A.07.m. Molecular mechanisms

#### A.08. Development of Motor, Sensory, and Limbic Systems

A.08.a. Motor systems
A.08.b. Sensory systems
A.08.c. Limbic system
<b>A.09. Adolescent Development</b>
A.09.a. Animal models
A.09.b. Human imaging
A.09.c. Mechanisms of vulnerability
<b>A.10. Development and Evolution</b>
A.10.a. Comparative anatomy
A.10.b. Comparative cellular and molecular mechanisms
<b>Theme B – Neural Excitability, Synapses, and Glia</b>
<b>B.01. Transmitters, Transporters, and Other Signaling Molecules</b>
B.01.a. Acetylcholine and glutamate
B.01.b. GABA and glycine
B.01.c. Catecholamines and purines
B.01.d. Neuropeptides, cytokines, growth factors, and other signaling molecules
<b>B.02. Transmitter Receptors and Ligand-Gated Ion Channels</b>
B.02.a. Nicotinic acetylcholine receptors
B.02.b. Ionotropic glutamate receptors
B.02.c. Ionotropic GABA and glycine receptors
B.02.d. Other ionotropic receptors
B.02.e. G-protein coupled receptors
<b>B.03. Ion Channels</b>
B.03.a. Sodium channels
B.03.b. Calcium channels
B.03.c. Potassium channels
B.03.d. Other ion channels
<b>B.04. Synaptic Transmission</b>
B.04.a. Vesicle docking, fusion, recycling, biogenesis
B.04.b. Presynaptic organization and structure
B.04.c. Transsynaptic organization and structure
B.04.d. Postsynaptic organization and structure
B.04.e. Pre- and postsynaptic signaling and modulation
<b>B.05. Synaptic Plasticity</b>
B.05.a. Short-term plasticity
B.05.b. LTP and LTD – Kinases, phosphatases, and intracellular signaling
B.05.c. LTP and LTD – Pre- and postsynaptic mechanisms
B.05.d. Spike-timing dependent plasticity
B.05.e. Homeostatic plasticity
B.05.f. Structural plasticity - Synapses
B.05.g. Structural plasticity - Neurons and networks
B.05.h. Transcription and translation in plasticity
B.05.i. Other
<b>B.06. Intrinsic Membrane Properties, Electrical Synapses, and Signal Integration</b>
B.06.a. Intrinsic properties and modulation of neuronal firing
B.06.b. Gap junctions – Structure and function
B.06.c. Somatic and dendritic integration

<b>B.07. Network Interactions</b>
B.07.a. Signal propagation
B.07.b. Oscillations and synchrony – Unit studies
B.07.c. Oscillations and synchrony – EEG studies
B.07.d. Oscillations and synchrony – LFP studies
B.07.e. Network interactions – Other
B.07.f. Computational modelling of synaptic networks
<b>B.08. Epilepsy</b>
B.08.a. Human and animal genetics
B.08.b. Channels and synaptic mechanisms
B.08.c. Networks
B.08.d. Post-seizure modifications
B.08.e. <i>In vivo</i> and behavior
B.08.f. Animal models
B.08.g. Anticonvulsant and antiepileptic therapies
B.08.h. Human studies
<b>B.09. Glial Mechanisms</b>
B.09.a. Astrocytes – Biology
B.09.b. Astrocytes – Disease mechanisms
B.09.c. Microglia – Biology
B.09.d. Microglia – Disease mechanisms
B.09.e. Oligodendrocytes
B.09.f. Glia-neuron interactions in physiology
B.09.g. Glia-neuron interactions in injury and disease
<b>B.10. Demyelinating Disorders</b>
B.10.a. Molecular and cellular mechanisms
B.10.b. Human and animal studies and therapeutics
<b>B.11. Neuro-Oncology</b>
B.11.a. Neuro-oncology
<b>Theme C – Neurodegenerative Disorders and Injury</b>
<b>C.01. Brain Wellness and Aging</b>
C.01.a. Molecular and cellular changes
C.01.b. Metabolism, oxidative stress, and cellular mechanisms
C.01.c. Pharmacological and non-pharmacological interventions
C.01.d. Systemic factors and brain function
C.01.e. Brain wellness – Mechanisms and biomarkers
<b>C.02. Alzheimer's Disease and Other Dementias</b>
C.02.a. Alzheimer's disease – Genetics, genomics, and other omics approaches
C.02.b. Alzheimer's disease – Neuroinflammation and immune actions – <i>In vitro</i> models
C.02.c. Alzheimer's disease – Neuroinflammation and immune actions – <i>In vivo</i> models
C.02.d. Glial cells and Alzheimer's disease
C.02.e. Vasculature, BBB and AD
C.02.f. Mechanisms of synaptic dysfunction in Alzheimer's disease – <i>In vitro</i> models
C.02.g. Mechanisms of synaptic dysfunction in Alzheimer's disease – <i>In vivo</i> models
C.02.h. MTL circuits and AD
C.02.i. Non MTL circuits and AD

C.02.j. Clinical and pre-clinical imaging studies in Alzheimer's disease
C.02.k. APP and metabolites – Function and processing
C.02.l. Abeta mechanisms of toxicity
C.02.m. APP/Abeta – Cellular and animal models
C.02.n. Abeta as a therapeutic target
C.02.o. Tau
C.02.p. ApoE and associated pathways
C.02.q. Altered energy homeostasis in Alzheimer's disease
C.02.r. Therapeutic strategies – Preclinical models
C.02.s. Therapeutic strategies – Preclinical animal models and other therapeutic approaches
C.02.t. Therapeutic strategies – Clinical trials
C.02.u. Other dementias, proteinopathies, and pathologies
C.02.v. Biomarkers
<b>C.03. Parkinson's Disease</b>
C.03.a. Cellular mechanisms
C.03.b. Mitochondrial mechanisms and genetics
C.03.c. Dopamine and non-dopamine pathways
C.03.d. LRRK2 mechanisms, targets, and pathways
C.03.e. Alpha-synuclein – Models
C.03.f. Alpha-synuclein – Mechanisms and transmission
C.03.g. Circuit mechanisms
C.03.h. Parkinson's disease – Animal models
C.03.i. Neuroprotective mechanisms
C.03.j. Therapeutic strategies – Cellular models
C.03.k. Therapeutic strategies – Preclinical animal models – Small molecule therapeutics
C.03.l. Therapeutic strategies – Preclinical animal models – Other therapeutics
C.03.m. Therapeutic strategies – Clinical trials
C.03.n. Human studies – Genetics and diagnostic
<b>C.04. Movement Disorders other than Parkinson's Disease</b>
C.04.a. Huntington's disease – Molecular mechanisms
C.04.b. Huntington's disease – Animal models
C.04.c. Ataxias and dystonia
C.04.d. Clinical trials for movement disorders other than Parkinson's
<b>C.05. Tauopathies, Tau-dementias, and Prion Diseases</b>
C.05.a. Cellular and molecular mechanisms
C.05.b. Animal models
<b>C.06. Neuromuscular Diseases</b>
C.06.a. Motor neuron disease – Human genetics and cellular mechanisms
C.06.b. Motor neuron disease – <i>In vitro</i> studies
C.06.c. Motor neuron disease – Animal models
C.06.d. Motor neuron disease – Therapeutics
C.06.e. Other neuromuscular diseases
<b>C.07. Neurotoxicity, Inflammation, and Neuroprotection</b>
C.07.a. Cellular stress and death mechanisms
C.07.b. Mechanisms of neurotoxicity

C.07.c. Mechanisms of neurodegeneration
C.07.d. Neuroprotective mechanisms – Preclinical – Small model therapeutics
C.07.e. Neuroprotective mechanisms – Preclinical – Other therapeutics
C.07.f. Neuroinflammation – Microglia
C.07.g. Neuroinflammation – Beyond microglia
C.07.h. Neuroinflammation – Neurodegeneration
C.07.i. Neuroinflammation – Animal models
C.07.j. Neuroinflammation – HIV and infections
<b>C.08. Ischemia</b>
C.08.a. Ischemia – Molecular and cellular mechanisms
C.08.b. Ischemia – Perinatal and recovery
C.08.c. Ischemia and hemorrhage – Animal models
C.08.d. Ischemia – Therapeutic, interventional, and translational studies
<b>C.09. Stroke</b>
C.09.a. Stroke, damage, or disease – Imaging and assessment
C.09.b. Stroke, damage, or disease – Mechanisms of abnormal movement
C.09.c. Stroke recovery – Pharmacological approaches to therapy
C.09.d. Stroke recovery – Non-pharmacological approaches to therapy
<b>C.10. Brain Injury and Trauma</b>
C.10.a. Brain – Cellular and molecular mechanisms
C.10.b. Brain – Histology and cellular markers of brain injury
C.10.c. Brain – Animal models of brain injury – Molecular mechanism
C.10.d. Brain – Animal models of brain injury – Biomarkers
C.10.e. Brain – Human studies
C.10.f. Brain – Pre-clinical therapeutic strategies
C.10.g. Brain – Clinical therapeutic strategies
C.10.h. Peripheral nerve trauma, crush, and toxic injury
<b>C.11. Spinal Cord Injury and Plasticity</b>
C.11.a. Spinal cord injury – Cellular and molecular mechanisms
C.11.b. Spinal cord injury – Animal models and human studies
C.11.c. Spinal cord injury – Therapeutic strategies – <i>In vivo</i> – Pharmacological
C.11.d. Spinal cord injury – Therapeutic strategies – <i>In vivo</i> – Non-pharmacological
C.11.e. Spinal cord injury – Recovery
C.11.f. Spinal cord injury – Training, rehabilitation, and repair
C.11.g. Plasticity – Neurophysiology
<b>Theme D – Sensory Systems</b>
<b>D.01. Somatosensation</b>
D.01.a. Spinal circuits
D.01.b. Itch
D.01.c. Ion channels
<b>D.02. Somatosensation – Pain</b>
D.02.a. Nociceptors
D.02.b. Headache, migraine, and trigeminal circuits
D.02.c. Thalamic and cortical processing
D.02.d. Descending modulation
D.02.e. Treatments for persistent pain
D.02.f. Pain models

D.02.g. Inflammatory pain
D.02.h. Peripheral mechanisms of neuropathic pain
D.02.i. Central mechanisms of neuropathic pain
D.02.j. Pain imaging and perception
D.02.k. Opioids
D.02.l. Non-opioid treatments
<b>D.03. Somatosensation – Touch</b>
D.03.a. Transduction mechanisms
D.03.b. Plasticity and reorganization
D.03.c. Thalamic and cortical processing
D.03.d. Barrel cortex
D.03.e. Stimulus feature receptive fields and response properties
D.03.f. Stimulus feature neural coding
<b>D.04. The Chemical Senses</b>
D.04.a. Peripheral mechanisms
D.04.b. Olfaction – Higher-order circuits
D.04.c. Olfaction – Behavior, perception, and its relation to neurophysiology
D.04.d. Taste
<b>D.05. Auditory &amp; Vestibular Systems</b>
D.05.a. Hair cells and the periphery
D.05.b. Auditory processing – Sound localization and binaural interactions
D.05.c. Auditory processing – Temporal, frequency, and spectral processing
D.05.d. Auditory processing – Vocalizations and natural sounds
D.05.e. Auditory processing – Circuits, synapses, and neurotransmitters
D.05.f. Auditory processing – Adaptation, learning, and memory
D.05.g. Auditory processing – Neural coding, experiment, and theory
D.05.h. Auditory processing – Perception, cognition, and action
D.05.i. Vestibular central physiology and anatomy
D.05.j. Vestibular perception, posture, and spatial orientation
<b>D.06. Vision</b>
D.06.a. Retina – Photoreceptors
D.06.b. Retinal circuitry
D.06.c. Subcortical visual pathways
D.06.d. Visual cortex – Circuits
D.06.e. Visual cortex – Populations
D.06.f. Visual system – Responses during behavior
D.06.g. Visual system – Response modulation and adaptation
D.06.h. Higher visual areas
D.06.i. Visual cortex – Functional architecture and circuits
D.06.j. Visual pathways – To and from the cortex
D.06.k. Visual system - Plasticity
D.06.l. Processing of contrast, form, and color
D.06.m. Visual motion
D.06.n. Representation of objects and scenes
D.06.o. Representation of faces and bodies
D.06.p. Visual learning, memory, and categorization
D.06.q. Spatial and feature-based attention

D.06.r. Visual cognition – Decision making
<b>D.07. Visual Sensory-Motor Processing</b>
D.07.a. Sensorimotor transformation – Behavior and whole animal
D.07.b. Sensorimotor transformation – Neuroprocessing
D.07.c. Visually-guided reaching
<b>D.08. Multisensory Integration</b>
D.08.a. Cross-modal processing – Spatial and temporal factors
D.08.b. Cross-modal processing – Neural circuitry and development
D.08.c. Cross-modal processing – In humans
<b>Theme E – Motor Systems</b>
<b>E.01. Eye Movements</b>
E.01.a. Eye movements – Central mechanisms
E.01.b. Eye movements – Saccades
E.01.c. Eye movements - Perception and cognition
<b>E.02. Cerebellum</b>
E.02.a. Cerebellum – Cortex and nuclei
E.02.b. Cerebellum – Plasticity and climbing fibers
E.02.c. Cerebellum – Human studies
<b>E.03. Basal Ganglia</b>
E.03.a. Transmitters and neuromodulation
E.03.b. Cellular physiology
E.03.c. Systems physiology and plasticity
E.03.d. Systems behavior
<b>E.04. Voluntary Movements</b>
E.04.a. Finger and grasp control – Normal human behavior
E.04.b. Finger and grasp control – Age, pathology, and physiology
E.04.c. Reaching control – Action and sensation
E.04.d. Reaching control – Movement selection and strategy
E.04.e. Reaching control – Motor learning – Human psychophysics
E.04.f. Reaching control – Motor learning – Human neurophysiology
E.04.g. Reaching control – Motor learning – Animal
E.04.h. Interlimb and bimanual control
E.04.i. Cortical planning and execution – Behavior
E.04.j. Cortical planning and execution – Neurophysiology – Human
E.04.k. Cortical planning and execution – Premotor and motor cortex – Neurophysiology – Animal
E.04.l. Cortical planning and execution – Fronto-parietal stream – Neurophysiology – Animal
E.04.m. Cortical planning and execution – Neuroimaging
E.04.n. Oral motor and speech
<b>E.05. Brain-Machine Interface</b>
E.05.a. Neurophysiology – Non-invasive techniques
E.05.b. Neurophysiology – Implanted electrodes and other direct interactions with neurons
E.05.c. Neurophysiology – Decoding and neural processing
E.05.d. Neuroprosthetics – Control of real and artificial arm, hand, other grasping devices

E.05.e. Neuroprosthetics – Other motor sensory interfaces (e.g. artificial vision)
<b>E.06. Posture and Gait</b>
E.06.a. Posture and gait – Kinematics, muscle activity, exercise and fatigue, and biomechanics
E.06.b. Posture and gait – Afferent control
E.06.c. Posture and gait – Higher order control, multi-task integration, and theory
E.06.d. Posture and gait – Aging, injury, and disease
E.06.e. Reflexes and reflex modulation
<b>E.07. Rhythmic Motor Pattern Generation</b>
E.07.a. Cellular properties – Interneurons and motor neurons
E.07.b. Connectivity
E.07.c. Neuromodulation of neuronal and synaptic properties
E.07.d. Afferent and descending control
E.07.e. Respiratory rhythm and pattern generation
<b>E.08. Respiratory Regulation</b>
E.08.a. Respiratory control
<b>E.09. Motor Neurons and Muscle</b>
E.09.a. Motor neurons – Activity, sensory, and central control – Exercise, injury, and disease
E.09.b. Motor neurons – Development, identification, intrinsic properties, and modulation
E.09.c. Motor unit recordings, kinematics, and EMG
E.09.d. Motorneuron-muscle interface and muscle physiology/biochemistry
<b>Theme F – Integrative Physiology and Behavior</b>
<b>F.01. Neuroethology</b>
F.01.a. Sensory systems
F.01.b. Sensory motor systems
F.01.c. Vocal/social communication – Avian
F.01.d. Vocal/social communication – Non-avian
<b>F.02. Neuroendocrine Processes and Behavior</b>
F.02.a. Social and sexual behavior
F.02.b. Parental behavior
F.02.c. Defensive behavior and aggression
F.02.d. Hormones and cognition
F.02.e. HPG axis
F.02.f. Neuroendocrine anatomy and physiology
<b>F.03. Stress and the Brain</b>
F.03.a. Stress and neuroimmunology
F.03.b. Cellular actions of stress
F.03.c. Early-life Stress – Neural, neurochemical, and physiologic effects
F.03.d. Early-life Stress – Molecular mechanisms and cellular effects
F.03.e. Early-life Stress – Effects on anxiety, social function, and depression
F.03.f. Early-life Stress – Adolescence
F.03.g. Stress-modulated pathways – Cortex, hippocampus, and striatum
F.03.h. Stress-modulated pathways – Hypothalamus, amygdala, and bed nucleus
F.03.i. Stress-modulated pathways – Brainstem and other
F.03.j. Stress and cognition



<b>F.04. Neuroimmunology</b>
F.04.a. Regulating systems
F.04.b. Behavioral effects
<b>F.05. Brain Blood Flow, Metabolism, and Homeostasis</b>
F.05.a. Energy metabolism
F.05.b. Blood flow
F.05.c. Blood brain barrier
F.05.d. Functional imaging
<b>F.06. Autonomic Regulation</b>
F.06.a. Cardiovascular regulation
F.06.b. Gastrointestinal, renal, urinary, and reproductive regulation
F.06.c. Thermoregulation and other
<b>F.07. Biological Rhythms and Sleep</b>
F.07.a. Entrainment and phase shifts
F.07.b. Molecular biology and physiology of clocks
F.07.c. Sleep regulation – Molecular, cellular, and pharmacological
F.07.d. Sleep regulation – Anatomy, physiology, neurochemistry
F.07.e. Sleep – Systems
F.07.f. Sleep – Behavior
<b>F.08. Food and Water Intake and Energy Balance</b>
F.08.a. Integration of peripheral signals
F.08.b. Central pathways – Anatomy and development
F.08.c. Neuropeptide regulators
F.08.d. Monoamines, amino acids, and other regulators
<b>Theme G – Motivation and Emotion</b>
<b>G.01. Fear and Aversive Learning and Memory</b>
G.01.a. Acquisition
G.01.b. Memory modification
G.01.c. Neural systems
G.01.d. Cellular and molecular
G.01.e. Human fear and aversive learning and memory
<b>G.02. Reward and Appetitive Learning and Memory</b>
G.02.a. Acquisition
G.02.b. Memory modification
G.02.c. Neural systems
G.02.d. Cellular and molecular
G.02.e. Neuropharmacology
G.02.f. Human reward and appetitive learning and memory
<b>G.03. Motivation</b>
G.03.a. Motivation – Subcortical neurocircuitry
G.03.b. Motivation – Cortical neurocircuitry
G.03.c. Motivation – Social communication and behavior
<b>G.04. Emotion</b>
G.04.a. Human emotion
G.04.b. Emotion – Neural circuitry
G.04.c. Emotion – Fear, anxiety, and pain
G.04.d. Emotion – Positive and negative emotional states

<b>G.05. Mood Disorders</b>
G.05.a. Human imaging and behavioral studies
G.05.b. Treatment and drug discovery
G.05.c. Animal models – Behavioral mechanism
G.05.d. Animal models – Neural mechanisms
G.05.e. Animal models of therapeutics
<b>G.06. Anxiety Disorders</b>
G.06.a. Human studies and therapeutic approaches
G.06.b. Preclinical models
<b>G.07. Post-Traumatic Stress Disorder</b>
G.07.a. Human studies and therapeutic approaches
G.07.b. Preclinical models
<b>G.08. Other Psychiatric Disorders</b>
G.08.a. Preclinical models, human studies, and therapeutic approaches
<b>G.09. Drugs of Abuse and Addiction</b>
G.09.a. Addictive drugs – Developmental effects
G.09.b. Addictive drugs – Drug tolerance, dependence, and toxicity
G.09.c. Addictive drugs - Neural mechanism
G.09.d. Addiction – Genetics, translational, and clinical studies
G.09.e. Addiction – Learning and memory
G.09.f. Alcohol – Intake and preference
G.09.g. Alcohol – Cognitive and behavioral effects
G.09.h. Alcohol – Cell signaling, circuitry, and neurophysiology
G.09.i. Amphetamines – Behavioral mechanisms of addiction
G.09.j. Amphetamines – Neural mechanisms of addiction
G.09.k. Cannabinoids – Behavioral and neural mechanisms and addiction
G.09.l. Cocaine – Reinforcement, seeking, and reinstatement
G.09.m. Cocaine – Cognitive and behavioral effects
G.09.n. Cocaine – Cell signaling, circuitry, and neurophysiology
G.09.o. Opioids – Reinforcement, seeking, and reinstatement
G.09.p. Opioids – Cell signaling, circuitry, and neurophysiology
G.09.q. Nicotine – Cognitive, behavioral, and physiological effects
G.09.r. Nicotine – Neural mechanisms
G.09.s. Non-addictive drugs of abuse – Neural mechanisms of hallucinogens
<b>Theme H – Cognition</b>
<b>H.01. Attention</b>
H.01.a. Attentional networks
H.01.b. Mechanisms of attention – Human studies
H.01.c. Mechanisms of attention – Animal models
<b>H.02. Perception and Imagery</b>
H.02.a. Human perception, imagery, and imagination
<b>H.03. Decision Making</b>
H.03.a. Computational models
H.03.b. Prefrontal cortex
H.03.c. Orbitofrontal cortex
H.03.d. Corticolimbic circuits
H.03.e. Neural mechanisms – Choice

H.03.f. Neural mechanisms – Value
H.03.g. Neural mechanisms - Risk and ambiguity
<b>H.04. Executive Functions</b>
H.04.a. Prefrontal mechanisms
H.04.b. Subcortical-cortical interactions
H.04.c. Network activity
H.04.d. Effects on learning and memory
H.04.e. Inhibitory control
H.04.f. Disorders of executive functions and inhibitory control
<b>H.05. Working Memory</b>
H.05.a. Central and prefrontal mechanisms
H.05.b. Distributed mechanisms
H.05.c. Behavioral studies
<b>H.06. Social Cognition</b>
H.06.a. Human behavior, disorders, and mechanisms
H.06.b. Animal behavior
H.06.c. Circuits and neural mechanisms
<b>H.07. Long-Term Memory</b>
H.07.a. Consolidation and reconsolidation – Behavior
H.07.b. Consolidation and reconsolidation – Molecular mechanisms
H.07.c. Consolidation and reconsolidation – Neural circuit mechanisms
H.07.d. Human LTM – Medial temporal lobe
H.07.e. Human LTM – Encoding and retrieval
H.07.f. Episodic and episodic-like memory
<b>H.08. Learning and Memory</b>
H.08.a. Prefrontal cortex networks
H.08.b. Cortical networks
H.08.c. Thalamic and brainstem circuits
H.08.d. Striatal and corticostriatal circuits
H.08.e. Hippocampal – Formation circuitry
H.08.f. Hippocampal – Cortical interactions
H.08.g. Hippocampal – Subcortical interactions
H.08.h. Intrinsic hippocampal circuits
H.08.i. Dentate gyrus
H.08.j. The role of oscillations
H.08.k. Genes and molecular mechanisms
H.08.l. Physiology
H.08.m. Pharmacology
H.08.n. Invertebrates
H.08.o. Timing and temporal processing
<b>H.09. Spatial Navigation</b>
H.09.a. Intrinsic hippocampal circuits
H.09.b. Cortical circuits
H.09.c. Cortico-hippocampal interactions
H.09.d. Place cells
H.09.e. Grid cells
H.09.f. Human and animal navigation

<b>H.10. Human Learning and Cognition</b>
H.10.a. Relational and spatial learning
H.10.b. Motor and skill learning
H.10.c. Feedback, reinforcement, and reward
H.10.d. Associative learning
H.10.e. Timing and temporal processing
<b>H.11. Language</b>
H.11.a. Language – Acquisition and usage
H.11.b. Disorders
H.11.c. Neural circuits and mechanisms
<b>H.12. Aging and Development</b>
H.12.a. Cognitive development
H.12.b. Cognitive natural aging – Behavior and cognitive disorders
H.12.c. Cognitive natural aging – Neural mechanisms
H.12.d. Learning and memory in aging
H.12.e. Animal models
<b>H.13. Schizophrenia</b>
H.13.a. Neuropathology, genetics, genomics, and molecular mechanisms
H.13.b. Behavior and symptoms
H.13.c. Circuits and systems
H.13.d. Animal models – Developmental
H.13.e. Animal models – Pharmacological
<b>Theme I – Techniques</b>
<b>I.01. Molecular, Biochemical, and Genetic Techniques</b>
I.01.a. Biochemical and molecular techniques
I.01.b. Genetic techniques
I.01.c. Genomic and transcriptomic techniques
I.01.d. Single-cell techniques
<b>I.02. Systems Biology and Bioinformatics</b>
I.02.a. Genomics, proteomics, and systems biology
I.02.b. Bioinformatics
<b>I.03. Anatomical Methods</b>
I.03.a. Sample preparation and novel probes
I.03.b. Light and electron microscopy
I.03.c. Circuit tracing
I.03.d. Connectomics
<b>I.04. Physiological Methods</b>
I.04.a. Optical methodology – Development
I.04.b. Optical methodology – Application
I.04.c. Probe design and engineering
I.04.d. Electrophysiology – Cellular
I.04.e. Electrophysiology – Neural networks
I.04.f. Electrophysiology – Electrode arrays
<b>I.05. Biomarker, Drug Discovery, and Experimental Therapeutics</b>
I.05.a. Affective disorders and schizophrenia
I.05.b. Neurodegenerative diseases (AD, PD, MS, stroke)
I.05.c. Drug delivery

I.05.d. Gene, protein, or cell based approaches
<b>I.06. Computation, Modeling, and Simulation</b>
I.06.a. Cellular models
I.06.b. Network Computations – Theory, modeling, data analysis, and statistics
I.06.c. Network models – Experimentation
I.06.d. Computational tools – Experimental
I.06.e. Computational tools – Analytical
<b>I.07. Data Analysis and Statistics</b>
I.07.a. Data analysis and statistics – Human data
I.07.b. Software Tools
<b>I.08. Methods to Modulate Neural Activity</b>
I.08.a. Electrical
I.08.b. Optogenetic
I.08.c. Other
<b>Theme J – History, Education, and Society</b>
<b>J.01. History of Neuroscience</b>
J.01.a. History of neuroscience
<b>J.02. Teaching of Neuroscience</b>
J.02.a. K-12 teaching and outreach
J.02.b. College
J.02.c. Graduate and professional
<b>J.03. Public Awareness of Neuroscience</b>
J.03.a. Outreach activities
<b>J.04. Ethical and Policy Issues in Neuroscience</b>
J.04.a. Ethical and policy issues in neuroscience