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Scientific Areas of Integrated Review Groups (IRGs)

For a listing of the Scientific Review Officer and membership roster for each study section, click on the study section roster under the study section name within an IRG listed below or go to the [study section index](#) (study sections listed alphabetically) and click on the specified roster next to the name of the study section.

Brain Disorders and Clinical Neuroscience IRG [BDCN]

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- [Anterior Eye Disease Study Section \[AED\]](#)
- [Acute Neural Injury and Epilepsy \[ANIE\]](#)
- [Brain Injury and Neurovascular Pathologies Study Section \[BINP\]](#)
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Anterior Eye Disease Study Section [AED]

[\[AED Membership Roster\]](#) [\[AED Meeting Rosters\]](#)

The Anterior Eye Disease [AED] Study Section reviews basic, applied, and clinical research proposals to investigate the cornea, lens, conjunctiva, iris, ciliary body, trabecular meshwork, lacrimal glands, and retinal ganglion cells in the context of glaucoma. Proposals reviewed by AED address anatomical, biochemical, biophysical, cell biological, physiological, molecular and genetic aspects of the anterior eye related to normal and pathological processes. Studies using cell and tissue culture models, animal models, and clinical studies are reviewed. Specific areas covered by AED include:

- Disorders of the anterior segment of the eye, including the following: cataracts, dry eye, congenital and developmental abnormalities, inflammatory diseases, infectious diseases, hereditary and degenerative diseases, glaucoma, tumors, injury, trauma, and ocular manifestations of systemic diseases,
- Pathology and wound healing of the eye, including control of cell cycle, cell signaling, apoptosis, response to stress and tissue repair, angiogenesis.
- Design and evaluation of new tests for diagnosis and treatment of anterior eye disease and glaucoma.
- Unique aspects of ocular immunology and inflammation, including uveitis, immune privilege, and response to infectious disease.
- Development of normal and experimentally or pathologically altered eye tissues, excluding the retina/choroid.
- Pathogenesis, prevention, and treatment of ocular infections by bacteria, viruses, parasites, and fungi.

Study sections with most closely related areas of similar science listed in rank order are:

[Genetics of Health and Disease Study Section \[GHD\]](#)
[Innate Immunity and Inflammation Study Section \[III\]](#)
[Biology and Diseases of the Posterior Eye Study Section \[BDPE\]](#)
[Bacterial Pathogenesis Study Section \[BACP\]](#)
[Tumor Microenvironment Study Section \[TME\]](#)

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Acute Neural Injury and Epilepsy [ANIE]

[\[ANIE Membership Roster\]](#) [\[ANIE Meeting Rosters\]](#)

The Acute Neural Injury & Epilepsy (ANIE) Study Section addresses anatomical, cellular and functional basis of neural disease and injury. Emphasis is on the neural substrate, functional consequences, and the development of therapeutic and rehabilitation strategies. This Study Section considers patient-oriented research and animal models. Specific areas covered by ANIE:

- Relevant disorders include stroke/ischemia, epilepsy, spinal cord injury and traumatic brain injury.
- Neuropathological, neuroimaging, electrophysiological, and functional studies to monitor the onset, progression and treatment of brain and spinal cord disease and injury; therapeutic approaches and clinical studies; cerebral blood flow and metabolism in the context of clinical neuroimaging.
- Changes in functional domains that are consequences of disease and injury; strategies for therapeutic intervention.
- Studies of changes in the neural substrate and function of brain and spinal cord in response to disease and injury.
- Recovery of function/rehabilitation; neurological and functional evaluation of neural prostheses, electrical/magnetic stimulation, behavioral and pharmacological interventions, and physical therapy.

Study sections with most closely related areas of similar science listed in rank order are:

[Brain injury and Neurovascular Pathologies \[BINP\]](#)
[Clinical Neuroplasticity and Neurotransmitters \[CNNT\]](#)
[Neurotechnology \[NT\]](#)
[Developmental Brain Disorders \[DBD\]](#)
[Vascular Cell and Molecular Biology \[VCMB\]](#)
[Clinical Neuroimmunology and Brain Tumors \[CNBT\]](#)

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Brain Injury and Neurovascular Pathologies Study Section [BINP]

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The Brain Injury and Neurovascular Pathologies [BINP] Study Section reviews applications aimed to understanding mechanisms of neural injury, related vascular abnormalities, and alterations in the blood brain barrier in stroke, brain ischemia, traumatic brain injury, blast injury, and intracerebral hemorrhage among other conditions. Specific areas covered by BINP:

- Development of novel in vivo and in vitro models of acute neural injury.
- Identification and analysis of molecular mechanisms and signal transduction pathways of cell death and a role for various types of cell death in acute neural injury.
- Identification of novel therapeutic targets, neuroprotective agents and therapeutic strategies to prevent and treat neural injury.
- Studies aimed at elucidating a role for age, gender, genetics, and environment in response to and recovery from acute brain injury.
- A role for blood brain barrier and vascular functions in development and treatment of neural injury.

Study sections with most closely related areas of similar science listed in rank order are:

[Acute Neural Injury and Epilepsy \[ANIE\]](#)

[Cell Death in Neurodegeneration \[CDIN\]](#)

[Cellular and Molecular Biology of Neurodegeneration \[CMND\]](#)

[Cellular and Molecular Biology of Glia \[CMBG\]](#)

[Clinical Neuroplasticity and Neurotransmitters \[CNNT\]](#)

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Cell Death in Neurodegeneration Study Section [CDIN]

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The Cell Death in Neurodegeneration [CDIN] Study Section addresses the underlying bases of chronic neural disorders. This study section focuses on specific diseases and disease processes and primarily reviews studies of animal models. Specific areas covered by are CDIN:

- Neurodegenerative diseases such as Alzheimer's, Parkinson's, Huntington's disease, and ALS, dystonia/ataxia.
- Animal models of neurodegeneration; generation of relevant transgenic models, models to evaluate treatments to limit or prevent neurodegeneration and its functional consequences.
- Mechanisms of degeneration and neurotoxicity in neurodegenerative diseases; role of intracellular Ca⁺⁺, glutamate excitotoxicity, metals, oxidative stress and free radicals, amyloid and paired helical filaments.
- Metabolic abnormalities in degeneration; mitochondrial function, interaction of genetics, environment, drugs, metabolites, and age on cell dysfunction and neuropathology.
- Abnormal protein and macromolecular function; synthesis, assembly, processing, trafficking, structure/function, regulation, and degradation of proteins and other macromolecules implicated in neurodegenerative diseases

Study sections with most closely related areas of similar science listed in rank order are:

[Cellular and Molecular Biology of Neurodegeneration \[CMND\]](#)

[Clinical Neuroscience and Neurodegeneration \[CNN\]](#)

[Clinical Neuroplasticity and Neurotransmitters \[CNNT\]](#)

[Clinical Neuroimmunology and Brain Tumors \[CNBT\]](#)

[Neural Oxidative Metabolism and Death \[NOMD\]](#)

Clinical Neuroimmunology and Brain Tumors Study Section [CNBT]

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The Clinical Neuroimmunology and Brain Tumors [CNBT] Study Section reviews applications involving central and nervous system disorders where the focus is on immune response, inflammation and infections. The experimental systems include in vitro, animal models of human neuromuscular and neurodegenerative disorders as well as patient-oriented research. Specific areas covered by CNBT:

- The relevant diseases are multiple sclerosis, myasthenia gravis, inflammatory neuropathies and myopathies, infectious diseases of the nervous system, prion disease and nervous system tumors.
- Immunological processes in neural disease or injury: Cellular and humoral responses, innate immunity, inflammation, autoimmunity, immunotherapy, neuroimmune modulation, and cytokines/chemokines.
- Demyelination, neuroinflammation in Alzheimer's disease and Parkinson's disease; reactive microglia, astrocytes, macrophages, axonal damage, regeneration, and myelination/remyelination.
- Infectious diseases of nervous system: The parasitic, fungal, bacterial, and viral agents (excluding HIV) as well as prions causing prominent neurological symptoms; viral neurotropism/invasion, uptake, spread and characterization of infectious prions.
- The role of blood brain barrier in inflammation, migration of leukocytes and trafficking in brain, viral gene therapy, cell transplantation, biomarkers and immune cell mediated vascular permeability.
- Central nervous system tumors (emphasis on CNS functional consequences): Diagnosis, mechanism, and treatment of glioblastomas, medulloblastomas, neuroblastomas and gliomas; tumorigenesis, migration, immune response, gene therapy, invasion, and angiogenesis.

Study sections with most closely related areas of similar science listed in rank order are:

[Hypersensitivity, Autoimmune, and Immune-mediated Diseases \[HA\]](#)

[Cellular and Molecular Biology of Glia \[CMBG\]](#)

[Cell Death in Neurodegeneration \[CDIN\]](#)

[Cancer Immunopathology and Immunotherapy \[CII\]](#)

[Virology A Study Section \[VIRA\]](#)

[Virology B Study Section \[VIRB\]](#)

Clinical Neuroscience and Neurodegeneration Study Section [CNN]

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The Clinical Neuroscience and Neurodegeneration [CNN] Study Section addresses chronic and neurodegenerative diseases. Emphasis is on the neural substrate, functional consequences and the development of therapeutic strategies for chronic/neurodegenerative disorders. This Study Section primarily considers patient-oriented research but also clinically oriented research using animal models. Specific areas covered by CNN:

- Alzheimer's disease and other dementias.
- Parkinson's disease and other movement disorders (Huntington's, Dystonias, Ataxias).
- Amyotrophic Lateral Sclerosis (ALS) and related motor neuron disorders.
- Neuroimaging, functional, biochemical, and neuropathological studies to assess the onset, progression, treatment, and development of biomarkers for brain disorders.
- Changes in learning, memory, language, attention, behavior, and other functional domains that are consequences of disease.
- Cellular, anatomical, and systems-based studies of changes in the neural substrate and function of brain in response to disease.

Study sections with most closely related areas of similar science listed in rank order are:

[Acute Neural Injury and Epilepsy \[ANIE\]](#)

[Cell Death in Neurodegeneration \[CDIN\]](#)

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Clinical Neuroplasticity and Neurotransmitters Study Section [CNNT]

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The Clinical Neuroplasticity and Neurotransmitters (CNNT) Study Section reviews applications from the perspective of neurotransmitters and neurotrophic factors. The areas covered are neurodegeneration (Parkinson's disease, ALS, neuropathies) spinal cord injuries and epilepsy. The study section evaluates predominantly small animal models. Specific areas covered by CNNT:

- Neurotransmitter metabolism, receptor regulation at the molecular level, abnormalities of synaptic physiology; role of neurotrophins, growth factors, imaging in small animal models of neurotransmitter and neurotrophin pathways.
- Pharmacological studies; therapeutic strategies involving receptor agonists and antagonists; pharmacological effects on synaptic physiology, neurotransmitter pathways, neurotrophins and neurohormones.
- Mechanisms of degeneration, plasticity and recovery. Alterations in synaptic function, neurotransmitter function, trophic factors and neurogenesis with an emphasis on epilepsy, spinal cord injury, Parkinson's disease.
- Gene therapy, tissue transplantation including stem cells and in vivo neurogenesis in epilepsy, spinal cord injury, Parkinson's disease.

Study Sections most closely related of similar areas of Science in rank order are:

[Acute Neural Injury and Epilepsy \[ANIE\]](#)
[Sensorimotor Integration Study Section \[SMI\]](#)
[Clinical Neuroscience and Neurodegeneration \[CNN\]](#)
[Neurogenesis and Cell Fate Study Section \[NCF\]](#)

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Developmental Brain Disorders Study Section [DBD]

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The Developmental Brain Disorders [DBD] Study Section reviews applications concerned with the genetic, metabolic, infectious, environmental and behavioral factors in fetal, neonatal or pediatric brain that lead to abnormal brain development and function. Emphasis is on the vulnerability and plasticity of the developing brain in either clinical (patient-oriented research in infants/children) or basic studies (relevant animal models). Specific areas covered by DBD:

- Brain development in utero: Transplacental exposure to maternal drugs, and metabolic imbalances.
- Genetic, metabolic and morphological abnormalities: Developmental abnormalities of brain structure, volume, and ventricular space; congenital CSF abnormalities [hydrocephalus]; developmental aspects of inborn errors of metabolism, storage diseases, and neurotransmitter/receptor function; genetic basis of metabolic and morphological abnormalities; Identification and characterization of genetic mechanisms and development of animal models and therapeutic strategies specifically relevant to disorders of the developing brain.
- Perinatal insults and low-birth-weight infants: Developmental aspects of perinatal injury, hypoxic/ischemia, pediatric epilepsy, congenital infections involving the CNS [excluding HIV].
- Developmental disorders: Mental retardation, learning disabilities, specific language impairment, dyslexia, autism, cerebral palsy, sudden infant death syndrome [SIDS], and other relevant disorders.
- Therapeutic interventions and brain plasticity: Medical, surgical, pharmacological, and behavioral interventions; plasticity and rehabilitation in the developing brain; clinical studies in children.

Study sections with most closely related areas of similar science listed in rank order are:

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Neural Basis of Psychopathology, Addictions and Sleep Disorders Study Section [NPAS]

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The Neural Basis of Psychopathology, Addictions and Sleep Disorders [NPAS] Study Section addresses the neurobiological bases of addictive, behavioral, cognitive and emotional disorders. NPAS covers a very broad range of topics including structural, functional, electrophysiological, biochemical, pharmacological, neuroanatomical, neuroendocrine, neurotoxicological, physiological, genetic, and neuropsychological aspects of these disorders. NPAS focuses on patient-oriented research and post mortem studies. Specific areas covered by NPAS are:

- Etiology, pathophysiology, diagnosis and treatment of a wide range of disorders, including: schizophrenia and other psychotic disorders, mood disorders, anxiety disorders, cognitive disorders, attention disorders, activity disorders, sleep disorders, and personality disorders.
- Etiology, pathogenesis, pathophysiology, and treatment strategies of substance abuse, and addictive disorders; co-morbidity factors; neurobiological, behavioral and cognitive processes underlying drug-seeking behavior, craving, tolerance, withdrawal, relapse, dependence and sensitization; neurobiological basis of individual differences in vulnerability and resiliency to drug abuse.
- Genetic basis and models of addictive and mental disorders. Identification and expression of genes or genetic mechanisms associated with addictive and mental disorders or models of these disorders, genomic screening, and linkage analysis.

Study sections with most closely related areas of similar science listed in rank order are:

[Pathophysiology Basis of Mental Disorders and Addictions \[PMDA\]](#)
[Adult Psychopathology and Disorders of Aging \[APDA\]](#)
[Developmental Brain Disorders \[DBD\]](#)
[Neurotoxicology and Alcohol Study Section \[NAL\]](#)
[Genetics of Health and Disease \[GHD\]](#)

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Pathophysiological Basis of Mental Disorders and Addictions [PMDA]

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The PMDA Study Section addresses the pathophysiology of a broad range of psychiatric, addictive and neurological disorders and the biological systems that mediate cognitive, behavioral, emotional, social and learning abnormalities. The emphasis is on an integrative biological systems understanding of the abnormalities using a wide range of molecular, genetic, biochemical, pharmacological, cellular, behavioral, electrophysiological and neuroanatomical methods. Specific areas covered by PMDA:

- Psychiatric disorders including, schizophrenia, mood, anxiety and post-traumatic stress disorders.
- Behavioral disorders including phobias, antisocial personality, obsessive-compulsive and attention deficit disorders.
- Addictive disorders and comorbidities among addictive and other psychiatric disorders.
- Neurobiology of psychiatric manifestations in neurological disorders and chromosomal abnormalities (e.g., Alzheimer's disease, multiple sclerosis).
- Models of neuropsychiatric disorders and studies of neurobiological and behavioral deficits that are core features of neuropsychiatric and addictive disorders.
- Neurobiological and behavioral consequences of allelic variations associated with mental disorders and their investigations in model systems.

Study sections with most closely related areas of similar science listed in rank order are:

[Neural Basis of Psychopathology, Addictions and Sleep Disorders \[NPAS\]](#)

[Neurobiology of Motivated Behavior \[NMB\]](#)

[Neuroendocrinology, Neuroimmunology, and Behavior \[NNB\]](#)

[Molecular Neuropharmacology and Signaling \[MNPS\]](#)

[Molecular Neurogenetics \[MNG\]](#)

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