National Institute of Neurological Disorders and Stroke

Our mission

To seek fundamental knowledge about the brain and nervous system and to use that knowledge to reduce the burden of neurological disease for all people.

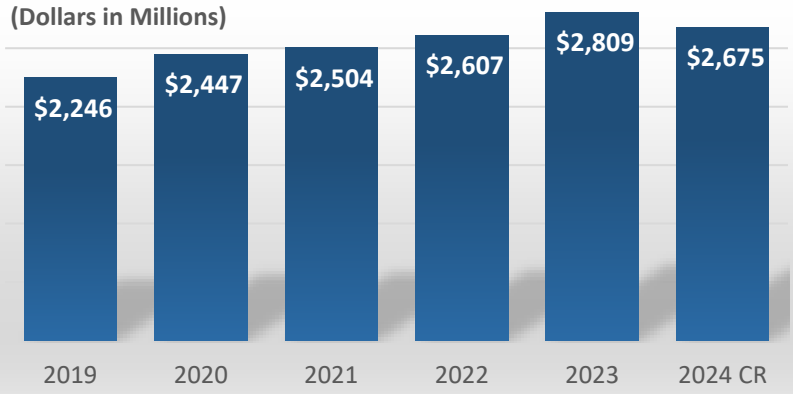
Neurological disorders include common and rare conditions that affect people of all ages. By some measures, they account for a greater burden than any other group of diseases.

Walter J. Koroshetz, M.D., Director

What we do

- Support and perform basic, translational, and clinical neuroscience research to understand the nervous system in health and disease and to develop new and improved therapies.
- Fund and conduct research training and career development programs to ensure a vibrant, talented, and diverse neuroscience workforce.
- Disseminate neuroscience discoveries and their implications for health to the public, health professionals, researchers, and policymakers.

NINDS Funding History



FY 2025 President's Budget: $2,834 million

Levels through FY 2023 represent final post-transfer levels.

All amounts include Cures Act funding.

Facts and Figures FY 2023

650 Full-Time Equivalent (FTE) Employment

932 Research Project Grants[1]

1,205 Extramural Principal Investigators[2]

150 Extramural Early Stage Investigators[1,3]

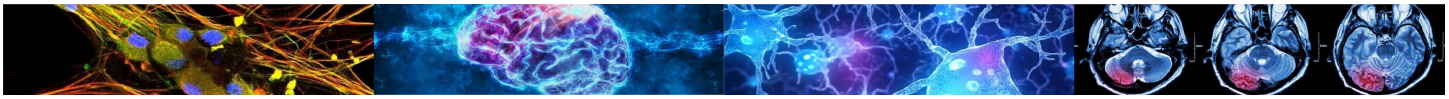
50 Intramural Principal Investigators

Research Highlights

Research supported and conducted by NINDS has contributed to:

- Decades of decline in stroke deaths, due to advances in prevention and treatment including the clot-busting drug t-PA, clot retrieval devices, and innovative acute stroke imaging methods.
- New therapies for diseases such as epilepsy, multiple sclerosis, migraine, spinal muscular atrophy, amyotrophic lateral sclerosis (ALS), muscular dystrophy, and others, including the first gene-directed therapies for neurological disorders.
- Devices that connect to the nervous system to treat disease or restore function, including brain stimulation therapies and brain-computer interfaces for movement disorders, stroke recovery, epilepsy, and spinal cord injury.
- Growing evidence for vascular contributions to dementia, which is informing approaches to prevent cognitive decline and promote healthy brain aging.
- Biomarkers for neurodegenerative diseases that may allow earlier diagnosis and intervention designed to prevent or modify the progressive course of these conditions.
- Cutting-edge tools for neuroscience research allowing studies to classify the many cell types in the human brain, map complex neural circuits, and observe brain activity in unprecedented detail.

[1] Competing awards only. [2] Includes Principal Investigators and Multiple Principal Investigators. [3] Early Stage Investigators are within 10 years of their final research degree or end of post-graduate clinical training and have not received a substantial independent research grant from NIH.



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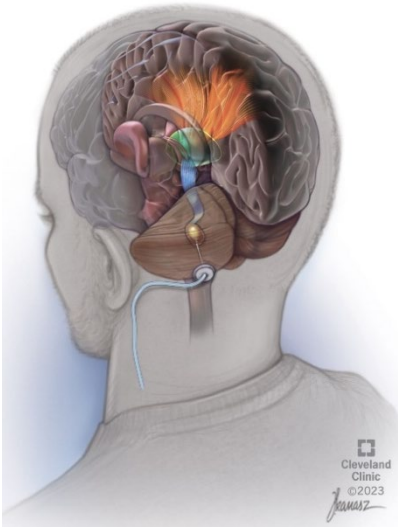
Recent successes

Brain and spinal cord stimulation therapies may aid stroke recovery

Each year, nearly 800,000 people in the United States have a stroke, and about half of survivors have persistent disabilities. Two small studies supported by the BRAIN Initiative® showed that devices for stimulating the nervous system may provide a new way to help people recover impaired hand and arm function after stroke. One study used deep brain stimulation in the cerebellum, and another used spinal cord stimulation. Improvements remained even after turning stimulation off, suggesting the potential for lasting beneficial changes, or plasticity, in neural circuits.



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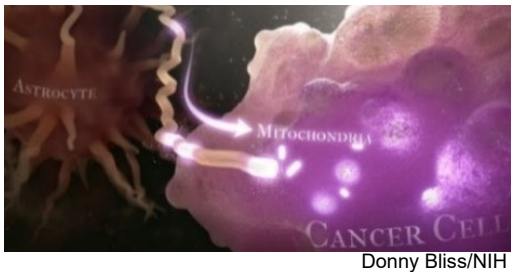
Brain activity signatures for chronic pain

For the first time, researchers supported by the NIH BRAIN Initiative® and HEAL Initiative® recorded pain-related brain activity directly from people with chronic pain. In three people with post-stroke pain and one with phantom limb pain after amputation, researchers surgically implanted electrodes in brain regions important for processing pain signals. Using machine learning to analyze participants' pain ratings and brain activity data, researchers identified objective biomarkers of chronic pain, an exciting step toward future therapies that modulate brain activity to relieve pain.



Donny Bliss/NIH

Understanding brain tumor growth

Glioblastoma is a fast-growing, hard to treat brain cancer. A basic research study discovered that glioblastoma cells steal cellular powerhouses called mitochondria from healthy surrounding cells. The acquired mitochondria boost energy production in cancer cells, fueling tumor growth. The study also found that this mitochondrial transfer requires a protein called GAP43, together suggesting a mechanism behind glioblastoma's aggressive growth and a new target for trying to halt it.

Future Initiatives

- The Community-Engaged Health Equity Research in Neuroscience Initiative (HERN) supports and builds capacity for rigorous community-engaged research to understand and address health disparities across neurological disorders.
- A new Accelerating Medicines Partnership® (AMP) program on ALS and a new clinical research consortium will launch as part of the public private partnership established by NIH and the FDA under the ACT for ALS.
- The Sustainable Transformation of Institutional Research Rigor (STIRR) initiative supports programs to enhance research rigor and transparency practices within academic and research institutions.
- New projects through NINDS and NIH programs aim to develop gene-based therapies for rare and ultra-rare neurological disorders, and a new gene therapy consortium will facilitate clinical trials.

Neuroscience research across NIH

NINDS is a leader in NIH-wide initiatives, reflecting the nervous system's broad role in human health.

- The Researching COVID to Enhance Recovery (RECOVER) Initiative aims to understand, prevent, and treat Long COVID, including persistent neurological effects.
- The Brain Research through Advancing Innovative Neuro-technologies (BRAIN) Initiative® is an ambitious effort to develop and use new technologies to study brain circuits, and ultimately to understand and treat brain diseases.
- Within the NIH Helping to End Addiction Long-term® (HEAL) Initiative, NINDS focuses on non-addictive treatments for pain. NINDS also leads the NIH Pain Consortium.
- Through the NIH Blueprint for Neuroscience Research, NIH Institutes, Centers, and Offices collaborate on cross-cutting needs for neuroscience research and research training.
- NINDS leads the NIH Undiagnosed Diseases Network (UDN), to sustain and expand this successful program initiated through the NIH Common Fund.
- NINDS and NIA are partners in research on Alzheimer's Disease and Alzheimer's Disease-Related Dementias (ADRD), including the Center for Alzheimer's and Related Dementias at NIH.
- NINDS and the National Institute of Allergy and Infectious Diseases (NIAID) lead the trans-NIH ME/CFS working group.
- NINDS helps to lead innovative programs of the NIH Common Fund and Foundation for the NIH.