

NATIONAL INSTITUTE ON NEUROSCIENCE AND BRAIN RESEARCH

CONGRESSIONAL JUSTIFICATION
FY 2026

Department of Health and Human Services
National Institutes of Health

[THIS PAGE INTENTIONALLY LEFT BLANK]

DEPARTMENT OF HEALTH AND HUMAN SERVICES

NATIONAL INSTITUTES OF HEALTH

National Institute on Neuroscience and Brain Research

FY 2026 Budget Table of Contents

Summary.....	3
Major Changes.....	4
Budget Mechanism Table.....	5
Summary of Changes	6
Budget Graphs	7
Justification of Budget Request.....	9
Appropriations History	18
Budget Authority by Object Class.....	19
Detail of Positions	20

General Notes

1. The proposed National Institute on Neuroscience and Brain Research (NINBR) will consolidate the research activities of the National Institute of Dental and Craniofacial Research (NIDCR), the National Institute of Neurological Disorders and Stroke (NINDS), and the National Eye Institute (NEI). Figures for FY 2024 and FY 2025 in this document aggregate NIDCR, NINDS, and NEI to provide for comparability to the FY 2026 estimates for NINBR.
2. FY 2025 Enacted levels cited in this document reflect the FY 2025 full-year continuing resolution (Public Law 119-4) and include the effects of the FY 2025 HIV/AIDS transfer.
3. FY 2026 FTE levels reflect estimates and are subject to change.
4. Detail in this document may not sum to the subtotals and totals due to rounding.

[THIS PAGE INTENTIONALLY LEFT BLANK]

Summary

The National Institute on Neuroscience and Brain Research (NINBR) will be a newly streamlined Institute consisting of the National Institute of Dental and Craniofacial Research (NIDCR), National Institute of Neurological Disorders and Stroke (NINDS), and National Eye Institute (NEI). The missions of these Institutes will be integrated into NINBR.

The National Institute of Dental and Craniofacial Research (NIDCR) leads federal government efforts on research on dental, oral, and craniofacial health and focuses on the biological links between the mouth and the rest of the body, also known as the “oral-systemic connection.” NIDCR’s mission is to advance fundamental knowledge about dental, oral, and craniofacial health and disease and translate findings into prevention, early detection, and treatment strategies that improve overall health for all individuals and communities across the lifespan.

The National Institute of Neurological Disorders and Stroke’s (NINDS) mission is 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. As the U.S. population ages, the impact of conditions such as neurodegenerative diseases and stroke continues to grow. NINDS is committed to investing in innovative, rigorous neuroscience research.

The National Eye Institute (NEI) supports vision research through research grants and training awards. NEI also conducts intramural laboratory and patient-oriented clinical research at its facilities in Maryland. NEI has forged many strategic partnerships to bridge the laboratory, clinic, and communities. Vision research is pioneering technologies in imaging, artificial intelligence (AI), and gene therapy.

Through continued investments across a broad range of scientific approaches, goals, and objectives, NINBR research will lead to advances in diagnostics, therapies, and cures, utilizing data, precision medicine, AI, and the development of biomarkers.

The FY 2026 budget request for NINBR is \$2,445.0 million, consisting of \$2,347.5 million in general fund budget authority and \$97.5 million derived by transfer from the NIH Innovation Account under the 21st Century Cures Act.

Major Changes in the Budget Request

Major changes by budget mechanism and/or budget activity detail are briefly described below. Note that there may be overlap between budget mechanism and activity details and these highlights will not sum to the total change for the FY 2026 President's Budget request for NINBR. The FY 2026 President's Budget request is \$2,445.0 million, a decrease of \$1,616.2 million compared to the FY 2025 Full-Year Continuing Resolution (CR) level. The request includes \$97.5 million provided through the 21st Century Cures Act.

Research Project Grants (RPGs) (-\$1,229.4 million; total \$1,566.5 million):

The NINBR budget request would include \$1,566.5 million for RPGs, reflecting a decrease of \$1,229.4 million in the Research Project Grants portfolio, including Small Business Innovation Research and Small Business Technology Transfer Research (SBIR/STTR) awards, compared to the FY 2025 Full-Year CR level. The reduction includes the effects of limiting indirect costs for competing and noncompeting RPG awards to no more than 15 percent of direct costs. RPG awards are expected to decrease by 1,290 grants in FY 2026 compared to the FY 2025 Full-Year CR level of awards. The FY 2026 request will continue the FY 2025 NIH policy of allocating half of the budget for competing RPGs for awards that fully fund their outyear commitments as part of the initial grant award.

Research and Development (R&D) Contracts (-\$107.5 million; total \$120.9 million):

The NINBR budget request reflects a decrease of \$107.5 million in Research and Development Contracts including SBIR/STTR awards. NINBR plans to decrease R&D contract funding to align with the administration priorities and reflect the reduction of the overall budget.

Intramural Research (-\$129.9 million; total \$295.8 million):

The request for the intramural budget mechanism of \$295.8 million reflects a 31 percent decrease from the FY 2025 Full-Year CR level, including a reduction of 78 FTE.

Research Management and Support (RMS) (-\$57.2 million; total \$158.2 million):

The RMS request of \$158.2 million reflects a 27 percent decrease from the FY 2025 Full-Year CR level, including a reduction of 145 FTE.

BUDGET MECHANISM TABLE

NATIONAL INSTITUTES OF HEALTH National Institute on Neuroscience and Brain Research

Budget Mechanism ^{*,1} (Dollars in Thousands)

Mechanism	FY 2024 Final		FY 2025 Full-Year CR		FY 2026 President's Budget		FY 2026 +/- FY 2025	
	Number	Amount	Number	Amount	Number	Amount	Number	Amount
<u>Research Projects:</u>								
Noncompeting	3,712	\$1,958,794	3,684	\$2,073,913	2,702	\$1,225,007	-982	-\$848,906
Administrative Supplements	(382)	\$32,904	(89)	\$10,173	(59)	\$6,772	-(30)	-\$3,402
<u>Competing:</u>								
Renewal	189	\$106,517	84	\$85,450	69	\$43,803	-15	-\$41,647
New	1,066	\$602,049	567	\$506,306	321	\$219,121	-246	-\$287,185
Supplements	1	\$580	0	\$0	0	\$0	0	\$0
Subtotal, Competing	1,256	\$709,146	651	\$591,756	390	\$262,924	-261	-\$328,833
Subtotal, RPGs	4,968	\$2,700,844	4,335	\$2,675,842	3,092	\$1,494,702	-1,243	-\$1,181,141
SBIR/STTR	164	\$125,112	162	\$120,141	115	\$71,838	-47	-\$48,303
Research Project Grants	5,132	\$2,825,956	4,497	\$2,795,983	3,207	\$1,566,540	-1,290	-\$1,229,444
<u>Research Centers</u>								
Specialized/Comprehensive	49	\$64,274	51	\$66,133	30	\$34,323	-21	-\$31,810
Clinical Research	0	\$0	0	\$0	0	\$0	0	\$0
Biotechnology	0	\$137	0	\$137	0	\$137	0	\$0
Comparative Medicine	0	\$144	0	\$144	0	\$144	0	\$0
Research Centers in Minority Institutions	0	\$0	0	\$0	0	\$0	0	\$0
Research Centers	49	\$64,555	51	\$66,414	30	\$34,604	-21	-\$31,810
<u>Other Research:</u>								
Research Careers	456	\$88,441	376	\$82,412	334	\$77,196	-42	-\$5,216
Cancer Education	0	\$0	0	\$0	0	\$0	0	\$0
Cooperative Clinical Research	18	\$35,326	29	\$42,603	15	\$21,757	-14	-\$20,846
Biomedical Research Support	2	\$321	0	\$300	1	\$135	1	-\$165
Other Biomedical Research Support	0	\$104	1	\$150	0	\$0	-1	-\$150
Other	380	\$169,036	307	\$139,746	234	\$109,704	-73	-\$30,041
Other Research	856	\$293,227	713	\$265,210	584	\$208,792	-129	-\$56,418
Total Research Grants	6,037	\$3,183,738	5,261	\$3,127,608	3,821	\$1,809,936	-1,440	-\$1,317,671
<u>Ruth L. Kirschstein Training Awards:</u>	<u>FTTPs</u>		<u>FTTPs</u>		<u>FTTPs</u>		<u>FTTPs</u>	
Individual Awards	578	\$28,285	582	\$28,547	550	\$27,132	-32	-\$1,415
Institutional Awards	590	\$32,830	640	\$35,513	618	\$32,983	-22	-\$2,531
Total Research Training	1,168	\$61,115	1,222	\$64,060	1,168	\$60,114	-54	-\$3,946
Research & Develop. Contracts	189	\$226,459	147	\$228,444	70	\$120,900	-77	-\$107,544
SBIR/STTR (non-add)	(7)	(\$2,272)	(6)	(\$2,112)	(4)	(\$1,745)	-(2)	-(366)
Intramural Research	669	\$428,623	660	\$425,666	582	\$295,813	-78	-\$129,853
Res. Management & Support	547	\$201,756	551	\$215,413	406	\$158,208	-145	-\$57,205
SBIR Admin. (non-add)		(\$1,052)		(\$1,028)		(\$986)		-(43)
Construction		\$0		\$0		\$0		\$0
Buildings and Facilities		\$0		\$0		\$0		\$0
Total, NINBR	1,216	\$4,101,692	1,211	\$4,061,192	988	\$2,444,972	-223	-\$1,616,220

* All items in italics and brackets are non-add entries.

¹ Of which \$86.0 million in FY 2024, \$45.5 million in FY 2025, and \$97.5 million in FY 2026 is derived by transfer from the NIH Innovation Account under the 21st Century Cures Act.

SUMMARY OF CHANGES

NATIONAL INSTITUTES OF HEALTH National Institute on Neuroscience and Brain Research

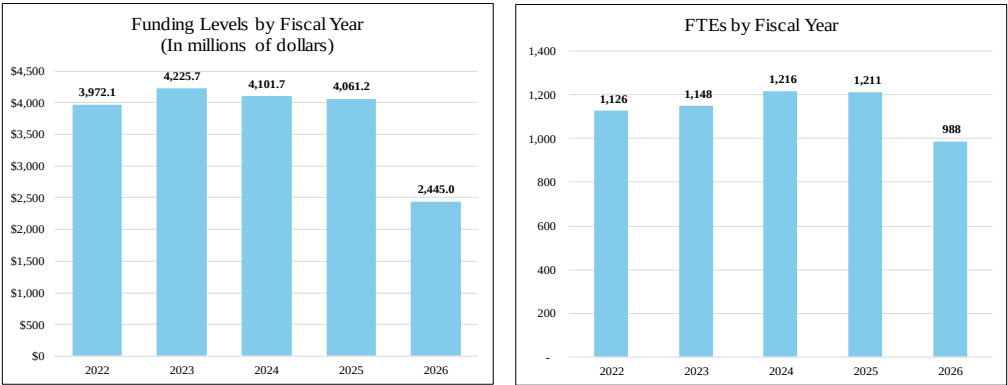
Summary of Changes

(Dollars in Thousands)

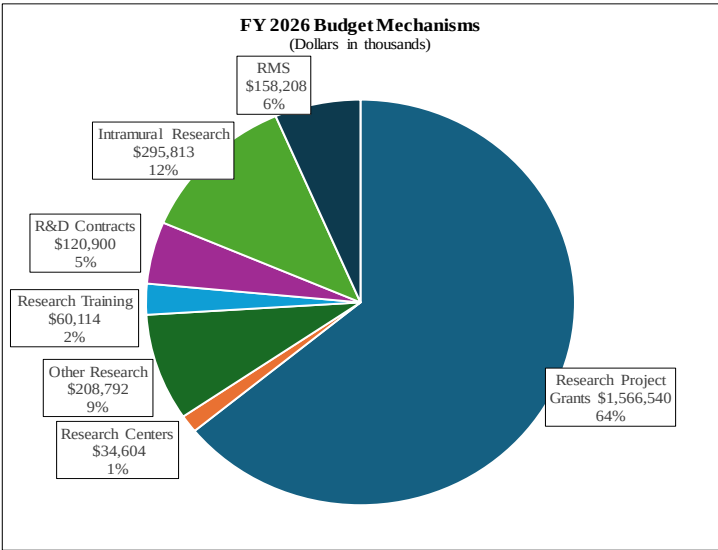
FY 2025 Full-Year CR	\$4,061,192
FY 2026 President's Budget	\$2,444,972
Net change	-\$1,616,220

CHANGES	FY 2025 Full-Year CR		FY 2026 President's Budget		Built-In Change from FY 2025 Full-Year CR	
	FTEs	Budget Authority	FTEs	Budget Authority	FTEs	Budget Authority
A. Built-in:						
<u>1. Intramural Research:</u>						
a. Annualization of FY 2025 pay and benefits increase		\$152,921		\$118,695		\$928
b. FY 2026 pay and benefits increase		\$152,921		\$118,695		\$355
c. Paid days adjustment		\$152,921		\$118,695		\$0
d. Differences attributable to change in FTE		\$152,921		\$118,695		-\$16,096
e. Payment for centrally furnished services		\$64,172		\$47,805		-\$16,367
f. Cost of laboratory supplies, materials, other expenses, and non-recurring costs		\$208,573		\$129,313		-\$9,361
Subtotal						-\$40,541
<u>2. Research Management and Support:</u>						
a. Annualization of FY 2025 pay and benefits increase		\$118,332		\$95,265		\$703
b. FY 2026 pay and benefits increase		\$118,332		\$95,265		\$268
c. Paid days adjustment		\$118,332		\$95,265		\$0
d. Differences attributable to change in FTE		\$118,332		\$95,265		-\$31,390
e. Payment for centrally furnished services		\$19,297		\$14,812		-\$4,484
f. Cost of laboratory supplies, materials, other expenses, and non-recurring costs		\$77,785		\$48,131		-\$2,259
Subtotal						-\$37,162
Subtotal, Built-in						-\$77,703
CHANGES	FY 2025 Full-Year CR		FY 2026 President's Budget		Program Change from FY 2025 Full-Year CR	
	No.	Amount	No.	Amount	No.	Amount
B. Program:						
<u>1. Research Project Grants:</u>						
a. Noncompeting	3684	\$2,084,086	2702	\$1,231,778	-982	-\$852,308
b. Competing	651	\$591,756	390	\$262,924	-261	-\$328,833
c. SBIR/STTR	162	\$120,141	115	\$71,838	-47	-\$48,303
Subtotal, RPGs						-\$1,229,444
2. Research Centers	51	\$66,414	30	\$34,604	-21	-\$31,810
3. Other Research	713	\$265,210	584	\$208,792	-129	-\$56,418
4. Research Training	1222	\$64,060	1168	\$60,114	-54	-\$3,946
5. Research and development contracts	147	\$228,444	70	\$120,900	-77	-\$107,544
Subtotal, Extramural						-\$1,429,161
6. Intramural Research	660	\$425,666	582	\$295,813	-78	-\$89,312
7. Research Management and Support	551	\$215,413	406	\$158,208	-145	-\$20,043
8. Construction	0	\$0	0	\$0	0	\$0
9. Buildings and Facilities	0	\$0	0	\$0	0	\$0
Subtotal, program changes						-\$1,538,517
Total built-in and program changes	1211	\$4,061,192	988	\$2,444,972	-223	-\$1,616,220

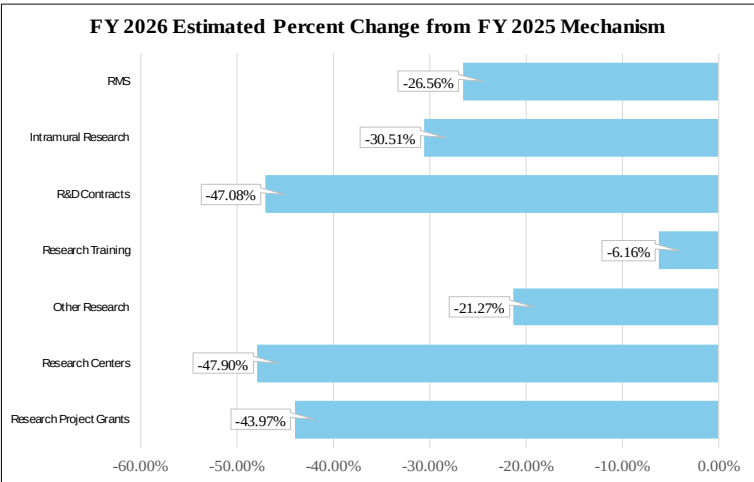
History of Budget Authority and FTEs:



Distribution by Mechanism:



Change by Selected Mechanisms:



[THIS PAGE INTENTIONALLY LEFT BLANK]

JUSTIFICATION OF BUDGET REQUEST

National Institute of Neuroscience and Brain Research

Budget Authority (BA):

	FY 2024 Final	FY 2025 Enacted	FY 2026 President's Budget	FY 2026 +/- FY 2025
General Fund BA	\$4,015,692,000	\$4,015,692,000	\$2,347,472,000	-\$1,668,220,000
Cures BA	<u>86,000,000</u>	<u>45,500,000</u>	<u>97,500,000</u>	<u>52,000,000</u>
Total BA	\$4,101,692,000	\$4,061,192,000	\$2,444,972,000	-\$1,616,220,000
FTE ¹	1,216	1,211	988	-223

Program funds are allocated as follows: Competitive Grants/Cooperative Agreements; Contracts; Direct Federal/Intramural and Other.

Overall Budget Policy: The FY 2026 President's Budget request for NINBR is \$2,445.0 million, a decrease of \$1,616.2 million or 40 percent compared to the FY 2025 Enacted level. The request includes \$97.5 million from the 21st Century Cures Act for the Brain Research Through Advancing Innovative Neurotechnologies (BRAIN) Initiative.

Program Descriptions and Accomplishments

NINBR is committed to translating research findings into practical applications for patients by developing new diagnostic tools and treatment approaches.

New Approaches to Preventing and Treating Childhood Tooth Decay

Tooth decay remains the most common chronic disease in children, affecting 46 percent of U.S. children, and can cause pain, infection, and tooth loss. In an NIH-funded study, researchers found that the oral microbiota in preschool-aged children became imbalanced 1 to 3 years before tooth decay developed.² While dental plaque and saliva commonly contain bacteria like *Prevotella* and *Leptotrichia*, which break down proteins, the team found that the increased presence of these bacteria was linked with later development of tooth decay. Another study found that children with severe caries had high levels of the decay-related oral fungus *Candida albicans*.³ Understanding the oral microbiota of children with tooth decay is the first step in advancing new prevention and treatment strategies. Other NIH-funded researchers developed a 10-question survey that identified 1-year-old children who had a higher risk of developing tooth decay by age 4.⁴ Designed to be completed by parents during routine medical checkups, the

¹ FY 2026 FTE levels reflect estimates and are subject to change.

² pmc.ncbi.nlm.nih.gov/articles/PMC10288166/

³ pmc.ncbi.nlm.nih.gov/articles/PMC5065202/

⁴ pmc.ncbi.nlm.nih.gov/articles/PMC10477774/

survey is a quick, inexpensive way to identify children who need dental care before tooth decay develops.

In addition, early results from an NIH-supported clinical trial on the safety and effectiveness of silver diamine fluoride (SDF)—a liquid compound that can be easily swabbed onto caries—showed that SDF was better than a placebo in halting severe tooth decay in 1- to 5-year-olds.⁵ SDF could provide a less invasive and less expensive alternative to traditional tooth fillings for children.

Dental Oral and Craniofacial Tissue Regeneration Consortium (DOCTRC)

DOCTRC aims to accelerate the development of promising treatments to regenerate tissues of the head and face. The program provides infrastructure and resources to shepherd potential treatments from cell and animal studies into human clinical trials, commercialization, and clinical use.

A recent DOCTRC study exemplifies the success of this approach. The scientists are studying the potential of a drug called deferroxamine (DFO) to improve wound healing in skin that has undergone radiation therapy for cancers, including head and neck cancer. Radiation therapy can damage soft tissues, leading to poor wound healing and severe scarring. The animal studies, a prerequisite for advancing to human trials, showed that DFO delivered via a skin patch improved healing, enhanced blood flow, and reduced the stiffness of wounds in radiation-exposed skin.⁶ The researchers now have the green light from the Food and Drug Administration (FDA) to proceed with a human trial.⁷

Currently, 95 percent of active DOCTRC projects have secured patents or are in the process of doing so, and 65 percent have engaged with the FDA, seeking approval to study experimental drugs or devices in humans.⁸ Building on DOCTRC's success, NINBR is planning to launch in FY 2026 the Accelerating Product Excellence (APEX) in Innovation and for Clinical Adoption program to develop diagnostics and treatments beyond tissue regeneration.

Meeting the Challenge of Neurodegenerative Diseases

Neurodegenerative diseases, including Alzheimer's disease (AD) and AD-related dementias (ADRD), amyotrophic lateral sclerosis (ALS), and Parkinson's disease (PD), have devastating consequences for people and their families, and the associated economic costs are staggering.

Basic Neuroscience

Gaps in understanding nervous system development and function are a major hindrance to progress toward more effective treatments for neurological disorders. Basic research to fill these gaps provides a foundation for applied research, and advances from basic research can lead to broadly relevant insights. For example, a new discovery about how an essential nutrient is transported to the brain may suggest novel approaches to delivering therapies for a range of

⁵ pmc.ncbi.nlm.nih.gov/articles/PMC10921985/

⁶ pmc.ncbi.nlm.nih.gov/articles/PMC9205074/

⁷ c-doctor.org/first-successful-c-doctor-ind-filing/

⁸ doctrc.org/

conditions across the blood-brain barrier. Such basic research does not receive sustained private sector support and is therefore a critical component of the NINBR mission.

The NIH BRAIN Initiative—supported by NINBR, the National Institute on Behavioral Health, and other NIH Institutes and Offices—has fueled innovations that allow researchers to map individual cell types across the brain, monitor millions of neurons at once, and observe and stimulate the human brain with increasing precision. These remarkable innovations are leading to exciting therapeutic advances today and lay the groundwork for accelerating discovery toward new cures for the one in three Americans living with neurologic, neuropsychiatric and substance use disorders.

Biomarkers and Cognitive Assessments

NINBR will work closely with the National Institute on Aging (NIA) to coordinate and support research on AD and ADRD, which include frontotemporal degeneration, Lewy body dementia, multiple etiology dementias, and vascular contributions to cognitive impairment and dementia. NIH-funded research on disease mechanisms has identified biomarkers to aid early detection and treatment along with a growing number of potential targets for new disease-modifying therapies. In addition, the Consortium for the Detection of Cognitive Impairment, Including Dementia (DetectCID), developed a rapid cognitive assessment tool for use in a primary care setting that tripled the odds of receiving dementia-related care within 90 days.

Rare Diseases

Research on rare diseases of the nervous system meets a critical need and often yields insights into understanding or treating more common conditions. NINBR leads NIH support for the Undiagnosed Diseases Network (UDN), with 22 new and continuing Diagnostic Centers of Excellence poised to expand geographic coverage and access for groups that experience health disparities. The UDN is exploring the use of AI to enhance diagnostic capabilities, as well as strategies that consider environmental, metabolic, immunologic, or other contributors to disease. NINBR initiatives also promote clinical trial readiness for rare neurological and neuromuscular diseases, and as a major partner in the NIH's Rare Diseases Clinical Research Network, NINBR funds the network's coordinating center and consortia on dystonia, lysosomal disorders, mitochondrial diseases, neuropathies, and other disease groups.

Precision Therapies for Neurological Disorders and the Ultra-Rare Gene-Based Therapy (URGenT) Network

NIH is promoting progress in gene-based approaches, including gene therapies, gene editing, and antisense oligonucleotide (ASO) therapies designed to directly modify disease mechanisms in affected cells and tissues, with a goal to achieve benefits without unintended, off-target side effects. NIH research contributed to the first and now growing number of FDA-approved gene-based therapies for neurological disorders, including spinal muscular atrophy, muscular dystrophy, and amyotrophic lateral sclerosis (ALS), and others are in development. The URGenT program supports the development of state-of-the-art gene-based therapies for ultra-rare neurological and neuro-muscular diseases, which affect no more than 1 in 50,000 people. Over 30 million people in the United States have a rare or ultra-rare disease. Around 45 percent of rare diseases involve the nervous system. Many of these diseases are life-threatening and have

no FDA-approved treatments. Because an estimated 85 percent of rare and ultra-rare diseases are single gene disorders, they are excellent candidates for gene-based therapies.

URGenT provides funding and resources to advance such therapies from late-stage preclinical testing to clinical trials, and it aims to promote best practices to make gene-based therapy development more efficient and accessible. The first projects supported by URGenT focus on therapies for prion disease, ALS, aspartylglucosaminuria, and Menkes disease. These projects are pursuing a variety of approaches, including gene delivery using adeno-associated viral vectors (AAV gene therapy) as well as ASO and small interfering RNA (siRNA) designed to modify gene expression.

In 2024, NIH expanded URGenT to include funding and infrastructure for clinical trials to test new gene-based therapies, leveraging NIH's NeuroNEXT clinical network. This expansion allows NIH to support promising treatments as they progress to first-in-human and confirmatory clinical trials, with a goal to speed therapy development.

NeuroNEXT has established a Gene Therapy Consortium that will provide support and advice for URGenT clinical trials proposed for and conducted within the network. Consortium members have expertise in gene-based and gene-targeted therapies, ultra-rare and rare diseases, industry aspects, and clinical trial planning and execution, with emphasis on first-in-human or first-in-disease trials, small trials, and adaptive trial designs.

Collaborative Opportunities for Multidisciplinary, Bold, and Innovative Neuroscience (COMBINE)

The COMBINE program supports interdisciplinary research teams to achieve transformative goals within the NINBR mission that could not be met by individual or parallel efforts. COMBINE promotes features that help to ensure a successful team-science effort, including well-managed team interactions, and clear timelines and benchmarks.

In FY 2024, NIH announced the first six projects funded through COMBINE, supporting team science that spans basic, translational, and neurological disease topics using approaches that cross multiple species, scales, and disciplines. These projects are:

- Comprehensively analyzing the mechanisms of lysosomal storage disorders that affect the nervous system;
- Determining how abnormalities in RNA splicing contribute to diseases like ALS, Frontotemporal Dementia, and other disorders;
- Applying single-cell transcriptomics and proteomics to spinal cord injury to identify compounds that promote repair;
- Understanding the effects of brain glucose deficiency to inform treatments for glucose transporter I deficiency and other conditions;
- Discovering gene variants and mechanisms that protect against neurodegenerative diseases; and
- Re-examining dogma about the roles of nerve cell branches called dendrites in neuronal function.

Addressing Chronic Pain

Chronic pain affects more than 50 million U.S. adults, and over 17 million live with chronic pain that interferes with their daily lives.⁹ A lack of safe and effective treatments to manage pain is an urgent public health problem. In collaboration with NIH partners, NINBR leads pain management research programs within the Helping to End Addiction Long-term® Initiative, or NIH HEAL Initiative®. These programs are advancing the discovery and development of new, non-addictive alternatives to opioids to treat acute and chronic pain conditions, supporting early-phase clinical trials for non-addictive analgesics, and reducing health disparities in pain management for rural and underserved communities. Advances in understanding neural circuits that drive pain perception are converging with new technologies for therapeutic nervous system stimulation. For example, spinal cord and brain stimulation devices are easing pain and improving quality of life in people with amputations, severe musculoskeletal pain, and other chronic pain conditions.

Gene Therapies to Treat Eye Disease

Eyes are an ideal target for gene therapy: they are accessible to surgery and relatively isolated from the immune system of the rest of the body. NIH is funding a pipeline of gene therapies to treat genetic forms of childhood blindness as well as resources to propel the field. In the first-in-human BRILLIANCE trial, scientists used gene editing technology called CRISPR to fix the mutation in *CEP290*, a gene that causes Leber Congenital Amaurosis (LCA), an inherited disease. This proof-of-concept demonstrated that CRISPR is safe in humans and improved vision in 79 percent of trial participants. This past year, a very exciting Phase I/II gene replacement therapy trial in adults and children corrected mutations in the *GUCY2D* gene, which causes 20 percent of LCA cases: it reported an average 100-fold improvement in vision that has lasted at least a year. Two of the nine patients experienced 10,000-fold improvement, which enabled these previously blind individuals to navigate outside at night by the light of a bonfire. NIH funded researchers have also been working to improve delivery of gene therapies by developing lipid nanoparticles. These particles, called Thio-lipids, can make their way to the eyes or lungs to deliver their cargo, without accumulating in the liver like other nanoparticles. Since 2006, the eyeGENE® registry and data repository has facilitated clinical trials and research into the causes and mechanisms of rare inherited eye diseases. Last year, NIH launched eyeGENE® stage three to expand data collection and enrollment, focusing on conditions under-represented in current databases by using electronic consent, mailing saliva DNA kits, and bringing portable imaging devices to patient conferences.

Artificial Intelligence

Research supported by NIH has generated a wealth of biomedical data, which, combined with advances in computing power and technology, provides a unique opportunity to use AI and machine learning (ML) to cultivate knowledge and improve treatments.

Many diseases, from neurological diseases to heart disease to psychiatric stress, leave biomarkers in the eyes. Because the eye is transparent, NIH research has led to some of the most sophisticated non-invasive imaging tools that trace blood flow in tiny capillaries, create 3-D cross sections of neural layers in the retina, and look at individual living cells in microscopic

⁹ [cdc.gov/mmwr/volumes/72/wr/mm7215a1.htm](https://www.cdc.gov/mmwr/volumes/72/wr/mm7215a1.htm)

detail. These data across hundreds of thousands of patient visits form the raw material to train AI algorithms to diagnose disease. AI tools can see patterns in these images that eye doctors cannot. Algorithms predict the future with remarkable accuracy, for example predicting the likelihood of developing eye disease in five years that can then be prevented with treatment. NEI research led to IDx—the first autonomous AI tool in any field of medicine approved by the FDA in 2018 to detect diabetic retinopathy. AI has also been used to predict glaucoma progression; vision can often be saved through surgery or drugs when caught in time.

Imaging Tools for Vision Research

Because the eye is transparent, researchers have developed advanced imaging tools to capture non-invasive images of the retina within seconds. These images are the raw material providing mega-pixel by pixel-level detailed information for analysis by AI algorithms. Therefore, vision research has been a leader in developing and incorporating AI algorithms into clinical care. For example, NIH-funded scientists developed the first FDA-approved autonomous AI algorithm in any field of medicine, for diabetic retinopathy screening, in 2018. The NIH's Common Fund Bridge2AI initiative is generating flagship AI-ready datasets. One center, led by a team of NIH funded ophthalmologists, is collecting data from a population of 4,000 participants with varying stages of type 2 diabetes to understand chronic disease progression and recovery; they released their first dataset in May 2024.

Retinopathy of prematurity (ROP) is a cause of childhood blindness affecting severely premature, low birthweight babies. A new AI technology was able to use ocular imaging to detect 100 percent of severe ROP accurately and independently. This AI could someday expand screening, and lead to timely, sight-saving treatment.

The burgeoning field of Oculomics integrates ocular information from cellular and molecular data and structural and functional imaging to assess health and disease. The new Common Fund Oculomics Venture Initiative aims to support development and application of novel, noninvasive eye imaging technologies, ML algorithms, and other tools to identify highly sensitive and specific biomarkers for diseases that affect the entire body. Oculomics can have a significant impact on early detection of diseases before the onset of symptoms, and can help clinicians with early disease intervention, risk assessment, tracking disease progression, and supportive therapeutics. Ocular imaging technologies provide a unique opportunity for measurements of diabetes, hypertension, stroke, and coronary, inflammatory, metabolic, and renal diseases.

Predictive Modeling for Temporomandibular Joint Osteoarthritis (TMJ OA) Disease Progression

Osteoarthritis (OA) is the most common degenerative disease affecting the temporomandibular (jaw) joint (TMJ).¹⁰ TMJ OA can lead to chronic jaw joint pain, jaw dysfunction, headaches, sleep disturbances, and lower back pain. While joint replacement and various other treatment options exist for TMJ OA, there is currently no intervention that reverses the structural damage to the joint. Being able to identify which patients are at a higher risk of disease progression could significantly enhance clinicians' decision-making and management of TMJ OA. With this need in mind, an NIH-funded study identified a comprehensive set of clinical, quantitative imaging,

¹⁰ pubmed.ncbi.nlm.nih.gov/36613615/

and biological biomarkers that precisely predict the disease progression of TMJ OA. The research team used these parameters to develop a new predictive model that might help clinicians develop more effective, personalized therapeutic strategies, with the potential to dramatically improve a patient's quality of life.¹¹

Data Sharing and Data Use

NINBR is committed to strengthening efforts to generate, integrate, and analyze data useful for neuroscience and brain research.

FaceBase Program

In 2009, NIH launched the FaceBase program to create a public repository of craniofacial research data that spans the full translational spectrum.¹² The goal was to enable and accelerate data-driven efforts in knowledge discovery and the translation of knowledge into health and health care solutions. FaceBase has evolved to meet the growing need for data reuse in research, with broad multidimensional data coverage across different stages, locations, and levels of biological organization—from the molecular to the organism level—and includes a variety of model organisms and clinical data on diseases and conditions.¹³ FaceBase has released more than 1,000 data sets; leads the field in the implementation of self-curation; and is poised to expand outreach, training, and educational resources through continued NIH support. The increased scope and scale of FaceBase will advance the impact of craniofacial research on improving human health.

Data-driven Model for Skull Development

Craniosynostosis is a serious condition in which children's skull bones fuse too early, limiting space for the growing brain. It affects roughly 1 out of 2,100 live births. To understand skull growth in children with the condition, NIH-supported scientists developed a data-driven computational model of the normal growth of skull bones in children. To develop the model, the researchers used a specialized type of X-ray called computed tomography to collect cross-sectional images of more than 2,000 children between birth and 10 years of age.¹⁴ The study quantified skull growth using real image observations and statistical reference points. Scientists then evaluated the accuracy of the model by predicting cranial growth for 51 healthy participants and 10 patients with craniosynostosis. This predictive model may aid in patient-centered treatments, informing the optimal surgical timing for patients with craniosynostosis and leading to better individual outcomes. When combined with additional data, the methods used in this study could also be applied to study the coordinated development of the skull and brain.

Bringing Vision and Dental Health to Communities

Research for Low Vision and Blindness Accessibility Tools

NIH launched a new initiative, Research for Low Vision and Blindness Accessibility Tools, to stimulate translational efforts in developing and implementing accessibility devices or interventions for individuals with visual impairment. Applicants are required to have

¹¹ pubmed.ncbi.nlm.nih.gov/38346188/

¹² facebase.org/about/history/

¹³ go.nih.gov/LSdNgXi

¹⁴ ncbi.nlm.nih.gov/pmc/articles/PMC10667230/

multidisciplinary and collaborative teams that include individuals with lived experience in all stages of the project. The overall goal is to push the boundaries of innovation in technology development to address accessibility needs of individuals with visual impairment and create resources that will be made available to the community. The projects will be "translation science" driven with quantifiable milestones and timelines identified, potentially refined, and evaluated on an ongoing basis. The proposed research will be divided into two phases with a milestone driven phase demonstrating initial feasibility of the technology or tool, followed by further validation, feasibility, and/or effectiveness studies if merited by completion of milestones. The research plans are expected to address and translate to real-world challenges, to include user-centered and universal-design milestones, and to provide a clearly articulated dissemination plan that addresses timeframe, expanded access, affordability, and process for evaluating success.

Reaching Communities at the Point of Care for Oral Health

For more than 20 years, NIH has supported clinical studies of immediate practical value through the National Dental Practice-Based Research Network (PBRN).¹⁵ To date, more than 62,000 patients have been enrolled in practice-based research studies nationwide. The National Dental PBRN has built a community of more than 7,500 dentists, hygienists, and other dental professionals committed to advancing knowledge and discovering ways to improve dental practice at the point of care. One study from the National Dental PBRN is helping inform recommendations for treating TMDs. The recommendations note the need for dental professionals to obtain comprehensive training in the assessment and management of TMDs and to have access to continuing education courses that follow evidence-based guidelines.¹⁶ In 2024, NIH launched the Practice-Based Research Integrating Multidisciplinary Experiences in Dental Schools (PRIMED) initiative to support practice-based research in dental schools.¹⁷ PRIMED will stimulate additional clinical research pursuits and provide opportunities for patients seen in these dental school clinics to be involved in research. Additionally, the TMD Collaborative for Improving Patient-Centered Translational Research (TMD IMPACT) will launch an implementation phase to help improve clinical care for TMDs.

Another area of focus is the use of multilevel interventions, which can be implemented at the individual, health care provider, clinic, system, and/or community levels. NIH supports research studies designed to leverage primary care settings to improve the prevention and treatment of oral diseases. In one study, researchers are using a risk-based approach to identify children at increased risk for tooth decay to guide the delivery of prevention services.¹⁸ A clinical trial tested the effectiveness of oral health interventions for Medicaid-enrolled young children (ages 3 to 6 years) in pediatric primary care practices. The trial showed that when pediatric primary care providers spoke to parents about dental care for their children during well-child visits, more children received dental care and had less untreated tooth decay.¹⁹ Further, to help address oral

¹⁵ nationaldentalpbrn.org/

¹⁶ pubmed.ncbi.nlm.nih.gov/37975783/

¹⁷ nidcr.nih.gov/grants-funding/research-funded-by-nidcr-extramural/primed

¹⁸ pubmed.ncbi.nlm.nih.gov/38548263/

¹⁹ pubmed.ncbi.nlm.nih.gov/38980678/

diseases among adults ages 55 or older enrolled in Medicaid, one NIH-supported research study is testing multilevel interventions in primary care settings such as medical offices.²⁰

²⁰ reporter.nih.gov/project-details/11036190

APPROPRIATIONS HISTORY

**NATIONAL INSTITUTES OF HEALTH
National Institute on Neuroscience and Brain Research**

Appropriations History ^{1,2}

Fiscal Year	Budget Estimate to Congress ¹	House Allowance	Senate Allowance	Appropriation
2017	\$2,816,574,000	\$2,912,203,000	\$2,974,676,000	\$2,942,023,000
Rescission				\$0
2018	\$2,226,594,000	\$3,029,255,000	\$3,102,956,000	\$3,408,201,000
Rescission				\$0
2019	\$2,962,767,000	\$3,463,402,000	\$3,534,559,000	\$3,532,730,000
Rescission				\$0
2020	\$3,109,168,000	\$3,705,386,000	\$3,817,413,000	\$3,746,206,000
Rescission				\$0
2021	\$3,428,672,000	\$3,777,822,000	\$3,869,614,000	\$3,833,974,000
Rescission				\$0
2022	\$4,158,032,000	\$4,195,654,000	\$4,159,684,000	\$3,976,519,000
Rescission				\$0
2023	\$4,134,589,000	\$4,250,827,000	\$4,183,387,000	\$4,230,637,000
Rescission				\$0
2024	\$4,241,692,000	\$4,091,637,000	\$4,266,637,000	\$4,106,637,000
Rescission				\$0
2025	\$4,254,340,000		\$4,414,137,000	\$4,066,137,000
Rescission				\$0
2026	\$2,444,972,000			

¹ Budget Estimate to Congress includes mandatory financing.

² Includes funds derived by transfer from the NIH Innovation Account under the 21st Century Cures Act.

BUDGET AUTHORITY BY OBJECT CLASS

**NATIONAL INSTITUTES OF HEALTH
National Institute on Neuroscience and Brain Research
Budget Authority by Object Class ¹**

(Dollars in Thousands)

	FY 2025 Full-Year CR	FY 2026 President's Budget	FY 2026 +/- FY 2025
Total compensable workyears:			
Full-time equivalent	1,211	988	-223
Full-time equivalent of overtime and holiday hours	0	0	0
Average ES salary	\$221	\$216	-\$5
Average GM/GS grade	12.8	12.7	-0.1
Average GM/GS salary	\$142	\$143	\$1
Average salary, Commissioned Corps (42 U.S.C. 207)	\$140	\$143	\$3
Average salary of ungraded positions	\$192	\$172	-\$20
OBJECT CLASSES	FY 2025 CR	FY 2026 President's Budget	FY 2026 +/- FY 2025
11.1 Personnel Compensation			
Full-Time Permanent	\$103,905	\$85,683	-\$18,222
11.3 Other Than Full-Time Permanent	\$59,491	\$46,357	-\$13,134
11.5 Other Personnel Compensation	\$6,786	\$4,242	-\$2,543
11.7 Military Personnel	\$325	\$338	\$13
11.8 Special Personnel Services Payments	\$26,795	\$18,856	-\$7,939
11.9 Subtotal Personnel Compensation	\$197,302	\$155,476	-\$41,826
12.1 Civilian Personnel Benefits	\$66,945	\$56,178	-\$10,767
12.2 Military Personnel Benefits	\$54	\$57	\$2
13.0 Benefits to Former Personnel	\$6,952	\$2,249	-\$4,704
Subtotal Pay Costs	\$271,253	\$213,959	-\$57,294
21.0 Travel & Transportation of Persons	\$5,508	\$2,699	-\$2,809
22.0 Transportation of Things	\$442	\$361	-\$81
23.1 Rental Payments to GSA	\$66	\$36	-\$30
23.2 Rental Payments to Others	\$30	\$28	-\$2
23.3 Communications, Utilities & Misc. Charges	\$194	\$149	-\$46
24.0 Printing & Reproduction	\$68	\$46	-\$22
25.1 Consulting Services	\$98,669	\$69,355	-\$29,314
25.2 Other Services	\$109,838	\$37,704	-\$72,134
25.3 Purchase of Goods and Services from Government Accounts	\$290,928	\$198,516	-\$92,412
25.4 Operation & Maintenance of Facilities	\$626	\$408	-\$217
25.5 R&D Contracts	\$44,148	\$28,528	-\$15,620
25.6 Medical Care	\$2,031	\$1,813	-\$219
25.7 Operation & Maintenance of Equipment	\$14,945	\$6,214	-\$8,731
25.8 Subsistence & Support of Persons	\$0	\$0	\$0
25.0 Subtotal Other Contractual Services	\$561,185	\$342,538	-\$218,647
26.0 Supplies & Materials	\$17,974	\$11,370	-\$6,604
31.0 Equipment	\$7,603	\$3,424	-\$4,178
32.0 Land and Structures	\$463	\$254	-\$209
33.0 Investments & Loans	\$0	\$0	\$0
41.0 Grants, Subsidies & Contributions	\$3,195,927	\$1,870,050	-\$1,325,877
42.0 Insurance Claims & Indemnities	\$420	\$0	-\$420
43.0 Interest & Dividends	\$59	\$57	-\$2
44.0 Refunds	\$0	\$0	\$0
94.0 Financial Transfers	\$0	\$0	\$0
Subtotal Non-Pay Costs	\$3,789,939	\$2,231,013	-\$1,558,926
Total Budget Authority by Object Class	\$4,061,192	\$2,444,972	-\$1,616,220

¹ Includes FTEs whose payroll obligations are supported by the NIH Common Fund.

DETAIL OF POSITIONS

**NATIONAL INSTITUTES OF HEALTH
National Institute on Neuroscience and Brain Research**

Detail of Positions ¹

GRADE	FY 2024 Final	FY 2025 Full-Year CR	FY 2026 President's Budget
Total, ES Positions	2	2	1
Total, ES Salary	\$435,210	\$441,801	\$216,101
General Schedule			
GM/GS-15	137	137	120
GM/GS-14	195	205	164
GM/GS-13	270	260	194
GS-12	127	131	107
GS-11	67	68	53
GS-10	3	3	2
GS-9	41	42	29
GS-8	3	5	4
GS-7	13	10	8
GS-6	2	2	1
GS-5	3	2	2
GS-4	4	4	3
GS-3	2	2	2
GS-2	2	2	2
GS-1	1	1	1
Subtotal	870	874	692
Commissioned Corps (42 U.S.C. 207)			
Assistant Surgeon General	0	0	0
Director Grade	1	1	1
Senior Grade	0	1	1
Full Grade	0	0	0
Senior Assistant Grade	0	0	0
Assistant Grade	0	0	0
Junior Assistant	0	0	0
Subtotal	1	2	2
Ungraded	389	388	315
Total permanent positions	1,088	1,094	861
Total positions, end of year	1,262	1,266	1,010
Total full-time equivalent (FTE) employment, end of year	1,216	1,211	988
Average ES salary	\$217,605	\$220,901	\$216,101
Average GM/GS grade	12.7	12.8	12.7
Average GM/GS salary	\$138,434	\$141,695	\$143,077

¹ Includes FTEs whose payroll obligations are supported by the NIH Common Fund.