

National Institute on Aging

CONGRESSIONAL JUSTIFICATION
FY 2023

Department of Health and Human Services
National Institutes of Health



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DEPARTMENT OF HEALTH AND HUMAN SERVICES

NATIONAL INSTITUTES OF HEALTH

National Institute on Aging (NIA)

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Director's Overview

In 2021, an estimated 57.8 million Americans were age 65 and older. This number could rise to nearly 81 million in 2040. The rising number of older Americans represents a demographic shift that will continue to have profound social, economic, and health impacts on our nation for many decades to come. The National Institute on Aging (NIA) leads the federal government in conducting and supporting research on aging and the health and well-being of older people. We seek to understand the nature of aging and the aging process, and diseases and conditions associated with growing older. Now more than ever, it is critical that we support research on factors throughout the life course that promote healthy aging and research that will enable Americans to be independent throughout their lives.



Dr. Richard J. Hodes,
Director

Aging itself remains the most important risk factor for many devastating diseases and conditions, including Alzheimer's disease and related dementias (AD/ADRD), most forms of cancer, many types of heart disease, osteoporosis and hip fracture, kidney failure, and diabetes. We are meeting the challenges presented by a growing percentage of older Americans through our ongoing mission to:

- Support and conduct genetic, biological, clinical, behavioral, social, and economic research on aging;
- Foster the development of research and clinician scientists in aging;
- Provide research resources; and
- Disseminate information about aging and advances in research to the public, health care professionals, and the scientific community, among a variety of audiences.

Since 1974, we have pursued this mission by funding extramural research at universities and medical centers across the United States and around the world; conducting a vibrant intramural research program at NIA laboratories in Baltimore and Bethesda, Maryland; and maintaining an active communications and outreach program. We also support robust programs designed to train the next generation of diverse researchers to investigate aging. Fundamentally, we support science to enhance human health. It is our broad, ongoing research investments that enabled us to pivot quickly to address critical needs associated with the COVID-19 pandemic. COVID-19 has disproportionately impacted older adults, especially racial and ethnic minorities and people living in care facilities. It also has had a devastating impact on people living with AD/ADRD and their families and caregivers. These impacts have underscored the importance of our efforts to drive research and innovation, with the goal of addressing urgent public health needs, as well as understanding and responding to health disparities related to aging.

Understanding the Dynamics of the Aging Process

Aging is associated with changes in dynamic biological, physiological, environmental, psychological, behavioral, and social processes. Some age-related changes are benign, such as graying hair, whereas others result in declines in function and increased susceptibility to disease, frailty, or disability. To develop new interventions for the prevention, early detection, diagnosis, and treatment of aging-related diseases, disorders, and disabilities, we must first understand their

causes and the factors that place people at increased risk. NIA-supported researchers are engaged in basic science studies to understand the processes of aging and the factors that determine who ages “well,” with resiliency, and who is susceptible to age-related disease and disability. Research is also ongoing to identify the interactions among genetic, environmental, lifestyle, behavioral, and social factors, and their influence on age-related diseases and degenerative conditions.

Aging is the major risk factor for chronic diseases and frailty in people over the age of 55. Researchers hypothesize that slowing the rate of aging will have a beneficial impact on the health of older adults by delaying the onset or reducing the severity of these conditions. As a result, we not only support clinical trials of interventions for a range of disorders and conditions related to aging, including cardiovascular diseases, osteoporosis, arthritis, cancer, and pain, but we are also focused on accelerating the development of treatments to address chronic conditions by intervening in the process of aging. One such NIA-supported project is the Translational Geroscience Network, which supports trials of interventions that target mechanisms of biological aging. Researchers in this network are conducting early trials of repurposed drugs for which preclinical or clinical data already exist (e.g., the diabetes drug metformin) in altering fundamental aging processes, among other activities.

A particularly promising avenue of research involves cellular senescence, a process in which cells lose normal function, including the ability to divide and replicate, but continue to release molecules that may damage neighboring cells. With our involvement, the *Cellular Senescence Network* (SenNet) was approved in FY 2020 as a Common Fund project by the NIH Council of Councils and launched in early 2021. Through this program, researchers seek to identify and characterize how different types of senescent cells affect multiple tissues to impact human health, disease, and lifespan. In addition, NIA-supported investigators have found that treatment with senolytics, compounds that selectively remove senescent cells, extended lifespan and healthspan in naturally aging mice.¹ Separately, investigators have also demonstrated that clearing senescent cells from the brain preserves cognition in a mouse model of Alzheimer’s disease.² In other aging-related research supported by NIA, senolytic compounds (drugs that destroy senescent cells) have moved into early-stage human trials, with researchers testing them for the prevention or alleviation of frailty, diabetic kidney disease, and idiopathic pulmonary fibrosis, a serious lung disease. This line of research also proved promising during the COVID-19 pandemic. NIA researchers found that senolytics decreased inflammation and improved survival rates of older mice infected with a beta-coronavirus that was closely related to the COVID-19 virus, suggesting that senolytics may boost protection of older adults from COVID-19. Clinical trials of a senolytic drug in hospitalized, older COVID-19 patients and older COVID-19 patients living in nursing homes are underway.

Additionally, we support behavioral science that is uncovering individual-level psychological, social, and behavioral factors throughout the life course that predict adaptive and healthy aging or confer risk for age-related decline. With many chronic conditions emerging in midlife, attention to the interplay of behavioral and social factors with biological processes during this life stage holds potential for identifying optimal times for interventions to reverse or slow aging

¹ doi: 10.1038/s41591-018-0092-9

² doi: 10.1038/s41593-019-0372-9

processes. Moreover, health disparities in midlife can have a dramatic effect on critical population trends. As one example, we funded a report from the National Academies of Sciences, Engineering, and Medicine (NASEM) that examined recent declines in U.S. life expectancy, particularly among non-Hispanic whites and Black/African Americans, driven by increased mortality among adults between 25-64 years of age.³ The report found significant disparities in life expectancy across several dimensions, including geography, race, and socioeconomic status. In addition, we are also interested in facilitating research designed to better understand place-based inequalities in midlife.

Improving the Health, Well-Being, and Independence of Adults as they Age

NIA is the lead federal agency for research on AD/ADRD, the fifth leading cause of death for adults 65 and older and a major contributor to loss of independence; our portfolio reflects this important responsibility. More than half of our awarded grant dollars are dedicated to research on various forms of dementia. These funds support a broad range of projects, including basic molecular and cellular studies of the aging brain; large scale clinical trials of interventions to prevent symptoms of AD/ADRD; development of a robust infrastructure for drug discovery; and AD/ADRD population studies in different geographic, racial/ethnic, and socioeconomic groups. Increases in federal appropriations for AD/ADRD research have enabled us to bring additional focus to this critical area and to enhance investments in key research areas necessary for a precision medicine approach to treatment and prevention, towards the goal of delivering to each individual the right treatments in the right place at the right time.

We have launched multiple programs over the past several years to provide researchers and industry with an infrastructure for developing medicines and other products, including the Alzheimer's Disease Sequencing Project, Accelerating Medicines Partnership[®] for Alzheimer's Disease (AMP[®] AD), the Alzheimer's Disease Neuroimaging Initiative (ADNI), and more. Many of these programs bring together scientists from academia and industry and from across many different disciplines. Working collaboratively, NIA-supported researchers employ an open-science/open-source approach at every step of the translational science process. They are discovering new and better targets for treatment, producing and analyzing comprehensive and shareable sets of molecular data, and developing high quality tools to move discoveries from the bench to the bedside. To date, AMP[®] AD researchers have identified more than 500 new potential AD/ADRD drug targets. Building on this success, we launched a second iteration of this program, AMP AD 2.0, in 2021 to further accelerate the discovery of new drug targets, biomarkers, and disease subtypes. For example, this new phase will analyze additional data and biosamples from populations most at risk for Alzheimer's, including Black and Latinx populations, in support of its ultimate goal to enable a precision medicine approach to the discovery of novel targets and biomarkers.

These resources and support have also helped small businesses make significant advances in care interventions, diagnostic tools, and therapies for AD/ADRD. Over the past 11 years, we have invested \$280 million through more than 600 grants to over 230 small businesses in 37 states. Thanks to NIA's small business grants, the first blood test – PrecivityAD – for a protein called amyloid, plaques of which in the brain are hallmarks of Alzheimer's, became commercially available in fall 2020. Other small businesses have used NIA support to identify promising new

³ www.nationalacademies.org/our-work/rising-midlife-mortality-rates-and-socioeconomic-disparities

therapeutics for AD/ADRD, one of which is now in phase two clinical trials.

Complementing our translational infrastructure is funding for new cross-disciplinary training programs. Through these efforts, we are supporting a new and more diverse generation of translational scientists with expertise in biology, data science, behavioral research, engineering, and drug development, who can participate in and lead team-science programs from target discovery to clinical trials. In addition, the NIA-funded Alzheimer's Clinical Trials Consortium (ACTC), a clinical trials infrastructure designed to accelerate and expand studies for therapies in AD/ADRD, continues to provide centralized resources and shared expertise to researchers nationwide to hasten the development of effective clinical interventions. In 2020, the ACTC launched a novel multidisciplinary clinical trial training program to help increase the pool of researchers with the proper training and expertise to conduct complex clinical trials. To date, two diverse cohorts, totaling 69 investigators, have completed the training.

To provide effective care for people living with dementia as well as support for their care partners, we also fund research targeting several areas: care and caregiving access and quality, improving models of care across different settings, and care coordination. Additionally, we support studies on how regulatory and socio-economic incentives and constraints affect access, quality, and health outcomes for affected individuals.

In early 2021, NASEM published a consensus study report assessing the evidence for care interventions for persons living with AD/ADRD. This report was the culmination of a collaborative process supported by the NIA, based on a systematic evidence review conducted by the Agency for Healthcare Research and Quality. The final report from this project identified a range of opportunities to improve the dementia care research base, such as including assessments of real-world effectiveness. We also held a National Research Summit on Care, Services, and Supports for Persons with Dementia and Their Caregivers in summer 2020 to discuss the current state of dementia care and care partner research and identify gaps and opportunities that warranted additional focus. To stimulate research that addresses these needs, NIA released five new care research implementation milestones in late 2021, and planning is underway for another iteration of this summit in 2023.



The breadth of AD/ADRD research conducted and supported

Further, we are supporting multiple initiatives to strengthen behavioral intervention research as well as real-world clinical trials of dementia care and caregiving interventions. Older adults can take part in these trials where they already live and receive care, which should facilitate intervention testing in more diverse older adult populations. Further, we have invested in multiple infrastructure projects aimed at improving the rigor of behavioral intervention development for dementia care and caregiver research, including the Roybal Centers for Translational Research on Dementia Care Provider Support and the NIA IMbedded Pragmatic AD/ADRD Clinical Trials (IMPACT) Collaboratory. Launched in 2019,

these projects were designed to catalyze widespread, system-level changes and establish a pipeline to fortify care and caregiving intervention research. As an example of the value of this type of infrastructure, the IMPACT Collaboratory (described below) used its established network of partner health care systems to help researchers quickly pivot and effectively respond to the COVID-19 pandemic and assess its acute impact on older adults, particularly those with dementia.

We also lead efforts focused on the prevention of age-related disease. Prevention can help people lead longer, healthier lives. For example, intensive management of blood pressure may reduce the risk for mild cognitive impairment and a growing literature supports a relationship between blood pressure control and AD/ADRD risk reduction. We support and conduct research to identify lifestyle factors and health behaviors that directly influence physical, cognitive, sensory, and emotional health and risk of disease as people age. NIA-funded studies are exploring lifestyle and behavioral interventions for people of all ages — such as cognitive training, a healthy diet, and exercise — as potential ways to increase their likelihood of aging well. As investigators more precisely identify the psychological, behavioral, and social processes that influence health and quality of life, we will be able to provide an evidence base for the development of public health initiatives to reinforce prevention efforts, enhance symptom management, and preserve function among older adults. To facilitate uptake of such efforts, we released new funding opportunities in early 2021 for research, including behavior change clinical trials on the psychology of motivation, value-based decision making, and social support to help investigators develop ways to help people choose and sustain healthy behaviors over many years.

Key to our efforts to treat and prevent diseases associated with aging are sustained initiatives to enhance recruitment and retention of participants in clinical research studies, particularly individuals from diverse backgrounds. In 2021, we launched OutreachPro, a web-based communication tool that enables health care professionals to more easily produce and brand tailored clinical trial recruitment materials and strategies. Designed to help reach multiple cultures as well as those who do not speak English, the tool enables the research community to access, adapt, and personalize materials that NIA has developed and tested — and will continue to create — for underrepresented communities. Additionally, we recently awarded a contract that will allow comprehensive management and tracking of clinical research recruitment, the identification of best practices from top-performing sites, and greater transparency regarding recruitment efforts and successes. This investment will also enable us to collect and communicate critical, timely information to ensure that NIA’s clinical trial sites are making appropriate progress toward reaching recruitment goals related to multiple underrepresented groups, and to take corrective action quickly for those that are not.

Enhancing recruitment and retention of participants from diverse backgrounds also requires understanding the health disparities faced by different groups of people. To date, we have funded more than 115 projects designed to examine health disparities related to AD/ADRD and strategies for recruitment and retention into clinical studies. Topics range from investigating racial and geographic disparities in AD/ADRD risk to exploring the effects of participation in long-term community-based trials on lifestyle and risk for these diseases. Funding opportunities to explore these questions remained active until November 2021, and planning for future initiatives is underway.

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Focus of NIA Research

The National Institute on Aging (NIA) leads the federal government in conducting and supporting research on aging and the health and well-being of older people. NIA is also the lead federal agency for research on Alzheimer's disease and related dementias (AD/ADRD). NIA supports a strong, diverse, and balanced research program, focusing on the genetics and biology of aging; basic and clinical studies aimed at reducing disease and disability, including AD/ADRD; age-related cognitive change; and investigations of the behavioral and social aspects of aging.

NIA Appropriations* FY 2016-2021 (Dollars, in Millions)



FY 2022 Continuing Resolution \$3,899

FY 2023 President's Budget \$4,011

*after transfers

Current Activities

- The NIA-funded Imbedded Pragmatic Alzheimer's disease and related dementias Clinical Trials (IMPACT) Collaboratory enables researchers to develop and test care interventions in real-world settings, as well as pivot to study the impact of evolving public health issues, such as the COVID-19 pandemic.
- NIA invests in the Clinical Research Operations & Management System, which will track, report, and manage clinical research enrollment data, study documents, activities, and portfolios in real-time across NIA clinical research projects. This will also enable critical, timely information for ensuring that NIA's clinical trial sites are making appropriate progress toward reaching recruitment goals related to multiple under-represented groups.
- NIA leads efforts into investigating existing drugs that the U.S. Food and Drug Administration (FDA) has already deemed safe for people with other conditions via the Drug Repurposing for Effective Alzheimer's Medicines (DREAM) study —some of these drugs could be repurposed to effectively prevent or treat AD/ADRD as well.



Richard J. Hodes, M.D., a leading researcher in the field of immunology, has served as NIA director since 1993. Under Dr. Hodes' stewardship, the NIA budget has grown to ~\$3.9 billion, reflecting increased public interest in aging research as America and the world grow older.

Facts and Figures

In fiscal year 2021,
NIA supported:

- **1,073** new RPG applications
- **1,401** RPG investigators
- **37** Alzheimer's Disease Research Centers
- **8** Nathan Shock Centers of Excellence
- **15** Edward R. Roybal Centers for Translational Research in the Behavioral and Social Sciences of Aging
- **15** Claude D. Pepper Older Americans Independence Centers
- **~ 350** AD/ADRD clinical trials
- **\$319.1M** of AD/ADRD research at other institutes and centers across NIH



Control of a key vascular risk factor, blood pressure, can reduce cognitive decline and age-related brain pathology.



Moderate calorie restriction in young and middle-aged adults significantly reduces heart and metabolic risk factors, including blood pressure, HDL cholesterol, and insulin sensitivity and slows biological aging.



Scientists have identified more than 50 genetic regions that may increase risk for Alzheimer's. Ten years ago, we only knew of 10 genes associated with Alzheimer's.



Changes in our gut microbiome — the collection of bacteria, viruses, and other microorganisms in the gastrointestinal tract — as we age may be connected to overall healthy aging. Older adults who had a greater variety of gut microbes used fewer medications and had better overall mobility than their peers.



The first commercial blood test for amyloid became available in 2020, thanks to years of NIA investment, including small business funding.



Age and dementia increase the risk and severity of COVID-19. However, a class of drugs called senolytics, which remove cells that have lost normal function, reduced COVID-19 mortality in old mice and may offer promise as a treatment for older COVID-19 patients.

Recent Research Accomplishments

High blood pressure, or hypertension, is common in adults older than 50 and is a leading risk factor for heart disease, stroke, and kidney failure, and a growing body of research suggests that it may increase risk for dementia later in life. In 2019, results from the Systolic Blood Pressure Intervention Trial—Memory and Cognition in Decreased Hypertension (SPRINT-MIND) were the first to show beneficial effects of intensive lowering of high blood pressure for reducing risk of mild cognitive impairment, a known precursor for dementia.

NIA investments in less invasive and less expensive biomarkers for AD/ADRD continue to generate advances. In 2020, the first blood test for amyloid became commercially available and the FDA approved the first PET tracer for tau imaging. NIA-supported researchers continue to explore novel blood biomarkers for various forms of amyloid, tau, and other promising targets.

Cellular senescence — a process in which cells lose normal function — is a possible contributing factor to many age-related conditions. NIA and the National Cancer Institute launched the Cellular Senescence Network (SenNet), a \$190 million NIH Common Fund initiative to coordinate the exploration, identification, and cataloging of differences in senescent cells throughout the body.

On the Horizon

The hallmarks of aging, such as genetic changes and breakdowns in communication between cells, have largely been studied in isolation. NIA investigators are working to understand interactions amongst these hallmarks as drivers of the aging process.

NIA continues to diversify the therapeutic pipeline for AD/ADRD, supporting the development of a variety of targets other than amyloid in recognition of the complex and heterogeneous nature of AD/ADRD.

In 2006, NIA launched the Alzheimer's Drug Development Program (ADDP) to address the unmet need for therapeutics and counteract the biopharma investment gap. The ADDP has funded 41 drug development projects to date, and NIA seeks to reissue the ADDP to build on the gains made in the first 15 years of the program.

Major Changes in the Fiscal Year 2023 President's Budget Request

Major changes by budget mechanism and/or budget activity detail are briefly described below. Note that there may be overlap between budget mechanisms and activity detail, and these highlights will not sum to the total change for the FY 2023 President's Budget request for NIA, which is \$4,011.4 million, an increase of \$112.2 million from the FY 2022 Continuing Resolution (CR) level. The FY 2023 President's Budget reflects the administration's fiscal policy goals for the federal government. Within that framework, NIA will pursue its highest research priorities through strategic investments and careful stewardship of appropriated funds.

Non-Competing Research Project Grants (+\$298.7 million; total \$2,152.2 million):

NIA will continue to support its established non-competing Research Project Grants (RPGs) awarding a total of 2,205 RPGs, an increase of 34 from FY 2022. This increase is the result of the increased number of competing RPGs that NIA awarded during previous fiscal years.

Competing Research Project Grants (-\$231.7 million; total \$625.7 million):

NIA will award a total of 940 competing RPGs, an increase of 21 from FY 2022. The decrease in competing RPG funds is based on the transition of previously awarded RPGs into non-competing status. NIA will be able to increase the number of awards while decreasing the funds available by reducing the average cost per RPG.

Intramural Research (+\$18.1 million; total \$232.1 million):

The Center for Alzheimer's and Related Dementias (CARD) is a collaborative initiative of NIA and the National Institute of Neurological Disorders and Stroke (NINDS) that supports basic, translational, and clinical research on Alzheimer's disease and related dementias. CARD's central mission is to initiate, stimulate, accelerate, and support research that will lead to the development of improved treatments and preventions for these diseases. The CARD basic science research facility opens in spring 2022. In addition to ongoing staffing up and equipping of this facility, there will be a continued increase in research execution and output over the next three years. CARD will recruit leaders in the field over the next period and enact significant additional research programs reflected by increased staffing, equipment, and research as the Center reaches its research potential. Critically within this period, CARD has prioritized the recruitment of a Director for Clinical Translation, who will translate the findings within CARD and from the broader scientific community into therapeutic strategies. The recruitment of this individual and the creation of the capacity to have a transformative impact in this space will require significant investment.

Research Management and Support (+\$10.7 million; total \$136.2 million):

NIA oversees 4,067 research grants, 811 full-time training positions, and 49 research and development contracts. Funding will be used to cover the expenses associated with providing for the effective, administrative, planning and evaluation, public information and communications, and scientific leadership of the institute.

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National Institute on Aging

Budget Mechanism *

(Dollars in Thousands)

Mechanism	FY 2021 Final		FY 2022 CR		FY 2023 President's Budget		FY 2023 +/- FY 2022	
	Number	Amount	Number	Amount	Number	Amount	Number	Amount
Research Projects:								
Noncompeting	1,955	\$1,669,097	2,171	\$1,853,488	2,205	\$2,152,200	34	\$298,712
Administrative Supplements	<i>(493)</i>	\$147,796	<i>(253)</i>	\$75,732	<i>(250)</i>	\$75,000	<i>(-3)</i>	<i>-\$732</i>
Competing:								
Renewal	54	\$92,091	46	\$78,891	47	\$57,573	1	<i>-\$21,318</i>
New	1,013	\$881,338	868	\$755,013	888	\$550,995	20	<i>-\$204,018</i>
Supplements	6	\$27,346	5	\$23,427	5	\$17,096	0	<i>-\$6,331</i>
Subtotal, Competing	1,073	\$1,000,775	919	\$857,331	940	\$625,664	21	<i>-\$231,667</i>
Subtotal, RPGs	3,028	\$2,817,668	3,090	\$2,786,551	3,145	\$2,852,864	55	\$66,313
SBIR/STTR	173	\$129,899	170	\$127,335	174	\$130,428	4	\$3,093
Research Project Grants	3,201	\$2,947,566	3,260	\$2,913,886	3,319	\$2,983,292	59	\$69,406
Research Centers								
Specialized/Comprehensive	129	\$258,765	120	\$240,017	128	\$245,864	8	\$5,847
Clinical Research	0	\$0	0	\$0	0	\$0	0	\$0
Biotechnology	0	\$1,114	0	\$0	0	\$0	0	\$0
Comparative Medicine	0	\$3,684	0	\$1,724	0	\$400	0	<i>-\$1,324</i>
Research Centers in Minority Institutions	0	\$0	0	\$0	0	\$0	0	\$0
Research Centers	129	\$263,563	120	\$241,741	128	\$246,264	8	\$4,523
Other Research:								
Research Careers	438	\$71,886	445	\$73,047	454	\$74,467	9	\$1,420
Cancer Education	0	\$0	0	\$0	0	\$0	0	\$0
Cooperative Clinical Research	0	\$243	0	\$0	0	\$0	0	\$0
Biomedical Research Support	0	\$0	0	\$0	0	\$0	0	\$0
Minority Biomedical Research Support	0	\$1,099	0	\$0	0	\$0	0	\$0
Other	148	\$109,994	163	\$122,579	166	\$124,908	3	\$2,329
Other Research	586	\$183,221	608	\$195,626	620	\$199,375	12	\$3,749
Total Research Grants	3,916	\$3,394,350	3,988	\$3,351,253	4,067	\$3,428,931	79	\$77,678
Ruth L Kirschstein Training Awards:	FTEPs		FTEPs		FTEPs		FTEPs	
Individual Awards	235	\$11,521	243	\$11,915	243	\$12,141	0	\$226
Institutional Awards	525	\$32,272	568	\$36,168	568	\$36,855	0	\$687
Total Research Training	760	\$43,793	811	\$48,083	811	\$48,996	0	\$913
Research & Develop. Contracts	51	\$140,947	49	\$160,387	49	\$165,199	0	\$4,812
<i>SBIR/STTR (non-add)</i>	<i>(0)</i>	<i>(\$1,154)</i>	<i>(0)</i>	<i>(\$2,188)</i>	<i>(0)</i>	<i>(\$2,188)</i>	<i>(0)</i>	<i>(\$0)</i>
Intramural Research	251	\$205,971	260	\$213,976	289	\$232,089	29	\$18,113
Res. Management & Support	232	\$103,158	260	\$125,528	311	\$136,198	51	\$10,670
<i>SBIR Admin. (non-add)</i>	<i>(0)</i>	<i>(\$1,505)</i>	<i>(0)</i>	<i>(\$2,164)</i>	<i>(0)</i>	<i>(\$2,164)</i>	<i>(0)</i>	<i>(\$0)</i>
Construction		\$0		\$0		\$0		\$0
Buildings and Facilities		\$0		\$0		\$0		\$0
Total, NIA	483	\$3,888,220	520	\$3,899,227	600	\$4,011,413	80	\$112,186

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

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NATIONAL INSTITUTE ON AGING

For carrying out section 301 and title IV of the PHS Act with respect to aging, \$4,011,413,000.

NATIONAL INSTITUTES OF HEALTH
National Institute on Aging

Summary of Changes

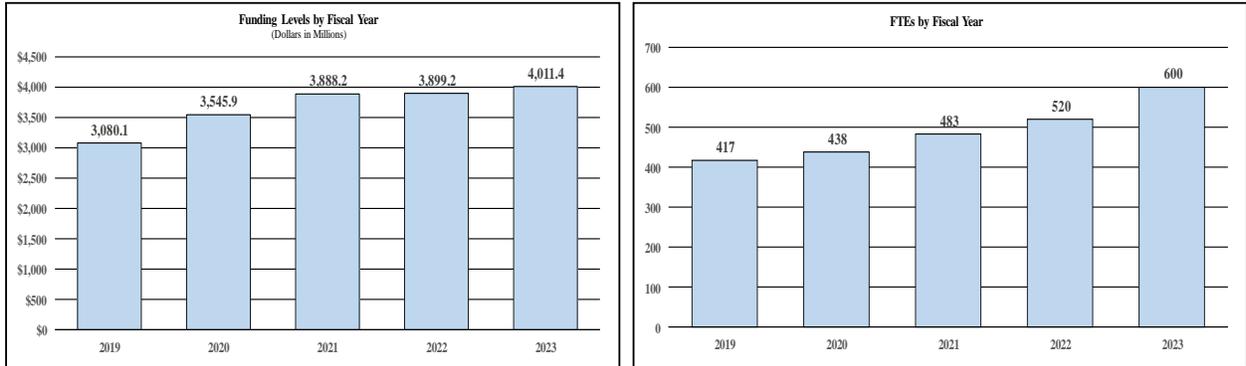
(Dollars in Thousands)

FY 2022 CR	\$3,899,227
FY 2023 President's Budget	\$4,011,413
Net change	\$112,186

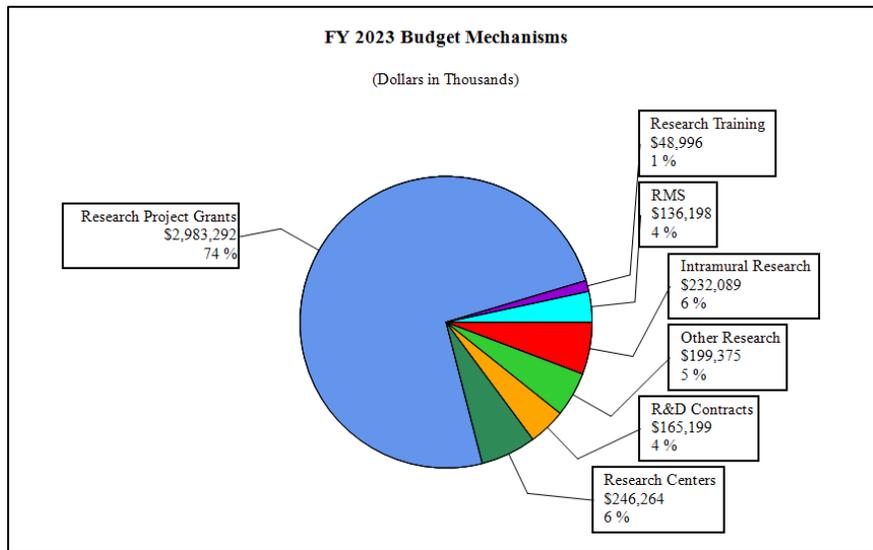
CHANGES	FY 2022 CR		FY 2023 President's Budget		Built-In Change from FY 2022 CR	
	FTEs	Budget Authority	FTEs	Budget Authority	FTEs	Budget Authority
A. Built-in:						
1. Intramural Research:						
a. Annualization of January 2022 pay increase & benefits		\$57,067		\$63,017		\$378
b. January FY 2023 pay increase & benefits		\$57,067		\$63,017		\$1,932
c. Paid days adjustment		\$57,067		\$63,017		-\$217
d. Differences attributable to change in FTE		\$57,067		\$63,017		\$6,365
e. Payment for centrally furnished services		\$29,001		\$29,581		\$580
f. Cost of laboratory supplies, materials, other expenses, and non-recurring costs		\$127,908		\$139,491		\$2,900
Subtotal						\$11,939
2. Research Management and Support:						
a. Annualization of January 2022 pay increase & benefits		\$47,722		\$56,553		\$316
b. January FY 2023 pay increase & benefits		\$47,722		\$56,553		\$1,614
c. Paid days adjustment		\$47,722		\$56,553		-\$181
d. Differences attributable to change in FTE		\$47,722		\$56,553		\$9,361
e. Payment for centrally furnished services		\$10,497		\$10,707		\$210
f. Cost of laboratory supplies, materials, other expenses, and non-recurring costs		\$67,309		\$68,938		\$1,111
Subtotal						\$12,430
Subtotal, Built-in						\$24,369
CHANGES	FY 2022 CR		FY 2023 President's Budget		Program Change from FY 2022 CR	
	No.	Amount	No.	Amount	No.	Amount
B. Program:						
1. Research Project Grants:						
a. Noncompeting	2,171	\$1,929,220	2,205	\$2,227,200	34	\$297,980
b. Competing	919	\$857,331	940	\$625,664	21	-\$231,667
c. SBIR/STTR	170	\$127,335	174	\$130,428	4	\$3,093
Subtotal, RPGs	3,260	\$2,913,886	3,319	\$2,983,292	59	\$69,406
2. Research Centers	120	\$241,741	128	\$246,264	8	\$4,523
3. Other Research	608	\$195,626	620	\$199,375	12	\$3,749
4. Research Training	811	\$48,083	811	\$48,996	0	\$913
5. Research and development contracts	49	\$160,387	49	\$165,199	0	\$4,812
Subtotal, Extramural		\$3,559,723		\$3,643,126		\$83,403
6. Intramural Research	260	\$213,976	289	\$232,089	29	\$6,174
7. Research Management and Support	260	\$125,528	311	\$136,198	51	-\$1,760
8. Construction		\$0		\$0		\$0
9. Buildings and Facilities		\$0		\$0		\$0
Subtotal, Program	520	\$3,899,227	600	\$4,011,413	80	\$87,817
Total built-in and program changes						\$112,186

Fiscal Year 2023 Budget Graphs

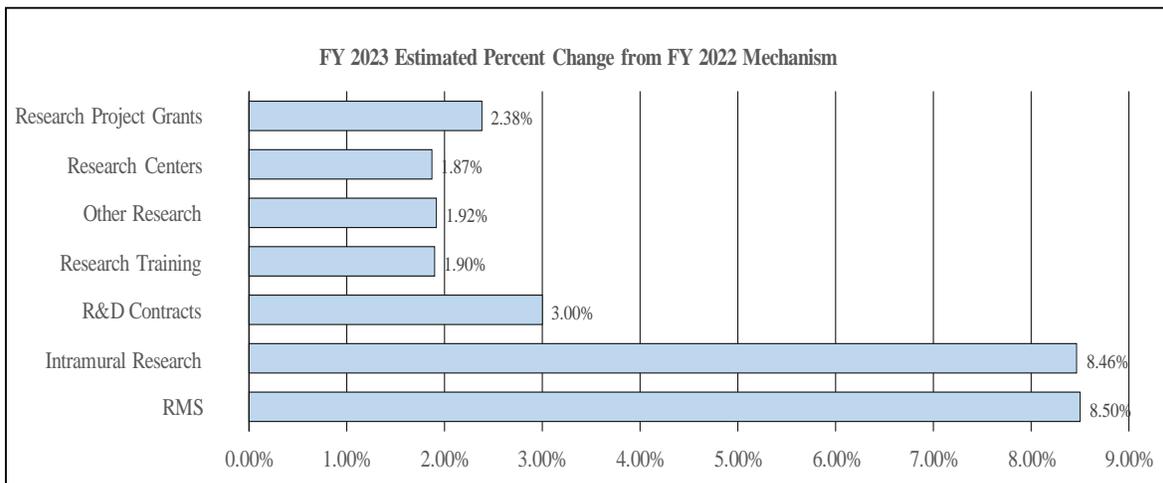
History of Budget Authority and FTEs:



Distribution by Mechanism:



Change by Selected Mechanisms:



**NATIONAL INSTITUTES OF HEALTH
National Institute on Aging**

Organizational Structure



NIA-16

**NATIONAL INSTITUTES OF HEALTH
National Institute on Aging**

Budget Authority by Activity¹
(Dollars in Thousands)

	FY 2021 Final		FY 2022 CR		FY 2023 President's Budget		FY 2023 +/- FY 2022 CR	
	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>
Extramural Research								
<u>Detail</u>								
Aging Biology		\$331,095		\$329,303		\$337,018		\$7,715
Behavioral & Social Research		586,909		583,733		597,409		13,676
Neuroscience		2,371,140		2,358,309		2,413,564		55,255
Geriatrics & Clinical Gerontology		289,947		288,378		295,135		6,757
Subtotal, Extramural		\$3,579,091		\$3,559,723		\$3,643,126		\$83,403
Intramural Research	251	\$205,971	260	\$213,976	289	\$232,089	29	\$18,113
Research Management & Support	232	\$103,158	260	\$125,528	311	\$136,198	51	\$10,670
TOTAL	483	\$3,888,220	520	\$3,899,227	600	\$4,011,413	80	\$112,186

Justification of Budget Request

National Institute on Aging

Authorizing Legislation: Section 301 and Title IV of the Public Health Service Act, as amended.

Budget Authority (BA):

	<u>FY 2021 Final</u>	<u>FY 2022 Continuing Resolution</u>	<u>FY 2023 President's Budget</u>	<u>FY 2023 +/- FY 2022</u>
BA	\$3,888,220,000	\$3,899,227,000	\$4,011,413,000	+\$112,186,000
FTE	483	520	600	+80

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

Overall Budget Policy: The FY 2023 President's Budget request for NIA is \$4,011.4 million, an increase of \$112.2 million or 2.9 percent compared to the FY 2022 CR level. This increase will allow NIA to increase research across all its program areas, with \$29.0 million of the increase targeted toward research into safer, non-addictive pain therapeutics that will reduce or eliminate the need for opioids.

Program Descriptions

Division of Aging Biology (DAB)

Aging is a primary risk factor for many diseases and conditions, as well as frailty. DAB supports research to determine the basic biochemical and genetic mechanisms underlying the processes of aging at the cell, tissue, and organ levels, and the ways these changes are communicated throughout the cells and tissues of the body. NIA-supported investigators study changes in molecular and cellular structures and functions that characterize normal aging in diverse laboratory organisms, spanning yeast to nonhuman primates, working to bring those insights into studies of human health. The division also supports research on mechanisms and interventions that may affect the rate of aging, including but not limited to the study of animal models of aging, and people living with variations in these biological mechanisms, such as centenarians and individuals with progeroid syndromes, who undergo premature physical aging. Importantly, DAB also supports programs on the basic biology of aging in disadvantaged and minoritized populations.

DAB also coordinates the groundbreaking NIH-wide GeroScience Interest Group (GSIG). To test the hypothesis that slowing the rate of aging-related biological changes will have a beneficial impact on multiple health outcomes, GSIG promotes studies into the interactions among the biology of aging and the biology of diseases and age-related loss of resilience. More than 20 NIH Institutes and Centers participate in the GSIG, developing a collaborative framework that

includes scientific societies, the pharmaceutical industry, and experts in emerging biotechnology to accelerate research into the basic mechanisms driving aging, which could lead to improved clinical interventions. Additionally, DAB supports studies on cellular senescence, which as

The Microbiome and Aging

Scientists have been exploring how the community in our digestive tract made up of microbes, including all the microorganisms, bacteria, viruses, protozoa, fungi, and their collective genetic material — known as the gut microbiome — affects our health.

Some of the substances released by the gut microbiome are beneficial to our body whereas others are harmful. Early research suggests that these substances can impact brain health. For example, a recent analysis of publicly available data from the NIA-funded Alzheimer’s Knowledge Portal of more than 2,000 brain samples provided evidence that microbial waste products, which can travel through the bloodstream and enter the brain, may play a role in Alzheimer’s.

However, the role of the gut microbiome in human health and disease is largely unknown. For this reason, investment in research on the microbiome is a high priority for NIA. In 2017, NIA held a workshop to discuss the status of the field and research opportunities in aging and the microbiome, and the gut microbiome was a key topic at the 2018 NIH AD Research Summit. NIA-supported research in this area is ongoing.

A particularly promising avenue of research involves profiling gut microbiomes across diverse cohorts to better understand and quantify the role of the microbiome in how disease manifests in different populations, health disparities, and differential responsiveness to treatment. For example, NIA-funded researchers connected early development of frailty to less overall diversity of the gut microbiome.

Another active area includes understanding biological changes in the gut microbiome as we age. NIA-supported investigators analyzed gut microbiome genetic sequences and discovered that older adults with a greater variety of gut microbes tended to be healthier than peers who had less diverse microbiomes, using fewer medications and having better overall mobility.

noted above has emerged as an important contributor to aging and age-related disease and is an attractive target for therapeutic development.

DAB also supports the Nathan Shock Centers of Excellence, which provide national leadership and research resources in the basic biology of aging. In FY 2020, in addition to the renewal of six previously funded Shock Centers, NIA awarded two new centers. DAB also supports selected resources for biology of aging research, including colonies of aging rodents, collections of cells derived from rodent, non-human primate, and human longitudinal studies of aging, and from individuals affected by premature aging disorders. All of these programs will remain active in FY 2023.

Budget Policy:

The FY 2023 President’s Budget request is \$337.0 million, an increase of \$7.7 million or 2.3 percent compared to the FY 2022 CR level.

Division of Behavioral and Social Research (DBSR)

DBSR supports research to elucidate the pathways by which social, psychological, economic, and behavioral factors throughout the life course affect health and health disparities at older ages, to identify the causal mechanisms that account for observed associations, and ultimately to target these mechanisms to modify individual behaviors and social contexts to promote health and prevent disease. DBSR’s portfolio is broad and spans topics ranging from understanding how genetic and genomic influences link social, psychological, and behavioral processes with health and well-being over the life course to sweeping demographic studies with a global

reach. DBSR also supports numerous transdisciplinary research networks designed to develop the infrastructure and research capacity to address these challenges.

DBSR recently transitioned the NIH-wide Science of Behavior Change program, previously supported by the NIH Common Fund, to support from NIA and multiple other NIH Institutes, Centers, and Offices. This change allows the program to capitalize on emerging basic science and the success of existing evidence-based interventions to accelerate investigation of common mechanisms of behavior change applicable across a broad range of health behaviors. DBSR leverages this investment to develop a growing research program in the mid- to late-life prevention of AD/ADRD.

Notably, DBSR supports the Health and Retirement Study (HRS), the nation's leading source of combined data on health and socioeconomic circumstances of Americans over age 50. Researchers have used HRS data to calculate life expectancy and disability trends and to estimate the costs, both to the individual and to society, of age-related diseases and conditions, including AD/ADRD. In 2018, the HRS implemented a Harmonized Cognitive Assessment Protocol to measure and understand AD/ADRD risk, designed to be comparable with similar assessments in HRS companion studies around the world, including those in Mexico, China, India, England, and Europe. This tool provides the research community with rich data to study the prevalence, predictors, outcomes, and future trends in cognitive functioning and AD/ADRD on a global scale.

DBSR supports other longitudinal studies focusing on trends in late life disability and caregiving and on the influences of behavioral, psychological, and social factors in early life and midlife on trajectories of biological and cognitive aging and age-related variations in health and well-being. The division also coordinates several active centers programs, all of which have recently expanded to include new AD/ADRD-related centers. The Centers on the Demography and Economics of Aging and the Edward R. Roybal Centers for Translational Research on Aging were renewed in the past several years, and the Resource Centers for Minority Aging Research (RCMARs) continue their program of mentoring and research in priority areas of social,

IMPACT Collaboratory and COVID-19

In 2019, NIA funded a new effort called the IMbedded Pragmatic Alzheimer's disease and related dementias Clinical Trials (IMPACT) Collaboratory, designed to meet the urgent public health need to deliver high quality, evidence-based care to people living with dementias and their caregivers.

To achieve its goals, the IMPACT Collaboratory partners with health care and long-term care systems. As the COVID-19 pandemic unfolded, the collaboratory was able to use this infrastructure to help researchers quickly pivot and effectively respond to the coronavirus pandemic by supporting the development and conduct of studies to assess the pandemic's acute impact on older adults, particularly people living with dementia.

In addition, through two supplemental awards, researchers are supporting the development of data sharing and reporting systems to monitor the effects of COVID-19 vaccines administered to frail older adults, including people living with dementia. These initiatives provide near real-time insight into the use, effects, and outcomes of COVID-19 vaccines among this population, and the reporting systems were also used by the Centers for Disease Control and Prevention for monitoring purposes. One key finding using data from nearly 300 nursing homes was that contrary to early reports from Europe suggesting that COVID-19 vaccines may be associated with increased mortality in frail older adults, mortality rates of vaccinated nursing home residents were lower than those of unvaccinated residents. This was especially important given that residents of nursing homes were excluded from COVID-19 vaccine trials, limiting the data available on vaccine efficacy and side effects for this population.

Additional NIA supplements to the IMPACT Collaboratory are helping to improve both serological and molecular testing for COVID-19 as well as enhancing infection control strategies in long-term care facilities.

behavioral, and economic research on the processes of aging at the individual and societal levels. All of these programs will remain active in FY 2023.

DBSR also supports a range of research endeavors on AD/ADRD. For example, recent studies have helped elucidate possible early signs associated with dementia. More specifically, researchers found that people with dementia miss credit card payments as early as 6 years before diagnosis and, in a separate study, showed that they experience increased pain as many as 16 years prior to diagnosis. DBSR also leads the NIA effort in dementia care and caregiving research.

DBSR supports a suite of research focused on the behavioral, social, and economic health impacts of COVID-19. As one example, COVID-19 magnified concerns about social isolation and loneliness among vulnerable older adults. DBSR issued several funding opportunities to understand how the COVID-19 pandemic and associated mitigation efforts to reduce transmission impact the health and well-being of midlife and older adult populations.

Budget Policy:

The FY 2023 President's Budget request is \$597.4 million, an increase of \$13.7 million or 2.3 percent compared to the FY 2022 CR level.

Division of Geriatrics and Clinical Gerontology (DGCG)

DGCG promotes clinical and translational research on health and disease in older adults, as well as research on aging over the human life span. This includes support of clinical trials on the effectiveness of interventions in clinical settings, translational research for the development of new interventions for age-related conditions, prevention and treatment of multiple chronic conditions in older individuals, and studies that help to promote evidence-based geriatric care that inform policies affecting this group. In addition, DGCG provides critical research resources to the scientific community, including the AgingResearchBioBank, a unique platform for sharing data and biospecimens, and an online Clinical Research Investigators Toolbox for NIH-supported researchers and staff involved in clinical research.

NIA-supported research encompasses a range of age-related diseases and conditions, including AD/ADRD. For example, in 2019, DGCG funded a phase four drug study called Pragmatic Evaluation of Events and Benefits of Lipid-Lowering in Older Adults, in which researchers are examining the overall benefits and risks of the commercially available cholesterol-lowering drug atorvastatin in 20,000 adults aged 75 or older without cardiovascular disease. The trial, which is expected to be completed in July 2026, will help determine whether the drug can help prevent dementia and disability in this age group, as well as prevent heart attacks and cardiovascular-related deaths, without increasing adverse health outcomes.

Another DGCG initiative set for FY 2022 will support the development of a collaborative research and resource network to address research gaps in optimizing emergency care of older adults with AD/ADRD. The focus will be on those who may be particularly vulnerable in emergency care settings to misdiagnosis, inappropriate tests or treatments, inability to provide informed consent to treatment, and unsafe discharge — including underrepresented populations.

DGCG also supports studies on the safety of long-term use of anticholinergic medications. Prescribed to treat overactive bladder and other conditions, these drugs may also increase the risk of developing AD/ADR. There is emerging support in the clinical community for reducing, when it is safe to do so, the number of medications that older adults take – a strategy that would apply to anticholinergics as well. Accordingly, the division funds research on safe and effective alternative treatments for overactive bladder, including a novel, non-invasive nerve stimulation device for in-home treatment; and mindfulness and non-invasive brain stimulation to reduce symptoms of urgency incontinence in women.

In addition, DGCG promotes research on complex geriatric syndromes such as falls, frailty, and various types of disability; determinants of rates of progression of age-related changes that affect disease risk; and complications of multiple chronic conditions. DGCG funding opportunity announcements have solicited applications on palliative care, aging in older persons with HIV/AIDS, and possible effects of the commonly prescribed diabetes drug metformin on the aging process.

DGCG also invests in studies on persons and families who maintain health into very old age to identify factors that contribute to long “healthspan.” These studies have identified genetic and other factors that may provide a basis for new interventions to promote long, healthy life. For example, NIA-funded researchers recently found that living in a disadvantaged neighborhood is associated with lower life expectancy and a greater portion of remaining life with a disability, even after adjusting for race, ethnicity, education, and income.

Additionally, DGCG supports the Claude D. Pepper Older Americans Independence Centers Program, which promotes research to identify effective methods to maintain or restore independence in older adults. Funding for this important program was renewed in FY 2018, and the centers will be active in FY 2023. Currently, there are 15 Pepper Centers conducting a wide range of research to improve the health of older adults. For example, Pepper Center-affiliated researchers recently conducted a clinical trial of a tailored cardiac rehabilitation program for people hospitalized with heart failure. This unique intervention improved physical function, depression, and overall quality of life relative to usual cardiac rehabilitation care.

Budget Policy:

The FY 2023 President’s Budget request is \$295.1 million, an increase of \$6.8 million or 2.3 percent compared to the FY 2022 CR level.

Division of Neuroscience (DN)

DN supports basic, clinical, and epidemiological research and training to further our understanding of both normal and pathological age-related changes to the nervous system and the influence of these changes on cognition and behavior. DN also supports basic and clinical research aimed at maintaining or improving sleep, sensory and motor function with age, and studies exploring alterations in blood flow in the brain as a possible contributor to gait dysfunction and falls. A primary focus is research on AD/ADR, in support of the goal articulated in the National Plan to Address AD/ADR of effectively treating or preventing these diseases by 2025. In the context of this research, the division supports studies to understand the

Plasma Biomarkers for AD/ADRD

Biomarkers are measurable indicators of normal biological processes, disease progression, or responses to therapeutic interventions. By enabling researchers and physicians to see critical aspects of disease biology and response to treatment more precisely in individuals with a neurodegenerative condition, biomarkers – together with development of more targeted therapies – can help deliver to individuals the right care in the right place at the right time.

NIA leads significant efforts to expand the development of less invasive and less expensive biomarkers for use in clinical and other settings. NIA-supported researchers continue to work to develop blood tests to detect protein clumps in the brain, including amyloid and two forms of tau (ptau181 and ptau217) to help diagnose Alzheimer's. Recent work indicates that neurofilament light chain, a component of a neuron's "skeleton," may be a promising blood biomarker that indicates neurodegeneration and could be useful for the detection of several neurodegenerative diseases.

NIA support has led to the development of the first blood test for detecting amyloid. Created by C₂N Diagnostics, this test has been available in most states since fall 2020. Physicians can send blood samples to C₂N's laboratory to analyze blood for amyloid. While this test does not technically diagnose Alzheimer's, it can help doctors evaluate their patients with cognitive disorders. Its development has been supported by several NIA grants, including those from its Small Business Innovation Research program.

molecular, cellular, and genetic underpinnings of AD/ADRD; biomarker discovery and validation; epidemiological studies to establish prevalence and incidence estimates and identify risk and resilience factors; and drug discovery, development, and testing. DN also supports the work of researchers investigating the important relationship between Alzheimer's and Down syndrome (DS). Individuals living with DS are at significantly increased risk for AD and are an important population with which to partner, as researchers extend clinical applications and testing in this area of research.

In recent years, NIA has received generous federal support targeted to AD/ADRD research and these funds have facilitated significant progress in the field. Ongoing and recent research initiatives have focused on the development of new biomarkers for AD/ADRD, the investigation of sex differences in AD/ADRD, understanding senescence in brain aging and AD/ADRD, defining the vulnerability and adaptability of brain cells and neural connectivity in aging and AD/ADRD, clarifying the relationship between delirium and AD/ADRD, exploring the role of infectious agents in AD, and understanding common mechanisms and interactions among neurodegenerative diseases, among many other topics.

NIA currently supports a national network of 37 AD Research Centers (ADRCs) that work to translate research discoveries into diagnostics and drug treatment interventions, as well as executing a wide range of studies to enhance understanding of AD/ADRD. In FY 2021, NIA expanded the network to include two new ADRCs, in North Carolina and Texas. This builds on the recent addition of four "Exploratory" ADRCs in FY 2020. These new centers are enhancing research initiatives with underrepresented populations, such as Black/African Americans, Native Americans, and those in rural communities. The four exploratory centers also expand the network's reach into new geographic areas, including Alabama, Nevada, New Mexico, and Tennessee.

DN has also supported several initiatives related to COVID-19. Acute COVID-19 infection can have dramatic effects on the brain, a situation exacerbated in people with preexisting neurological conditions.⁴ DN support of a project utilizing electronic health record data enabled

⁴ [covid19.nih.gov/news-and-stories/severe-covid-19-brain](https://www.covid19.nih.gov/news-and-stories/severe-covid-19-brain)

researchers to use this robust resource to ascertain that a diagnosis of dementia represents an important risk factor for mortality in COVID-19 patients. Most recently, as more cases of “long COVID” accumulated, DN issued a funding opportunity to better understand the effects of COVID-19 on the brain in aging, including the long-term neurological and neurocognitive impacts of COVID-19 infection.

Budget Policy:

The FY 2023 President’s Budget request is \$2,413.6 million, an increase of \$55.3 million or 2.3 percent compared to the FY 2022 CR level.

Intramural Research Program (IRP)

Through its IRP, NIA supports basic, behavioral, clinical, epidemiological, and translational research with the goal of understanding the physiological changes and adaptability of the human body in response to age and stress. Knowledge about the biology of aging and chronic disease is necessary to develop effective interventions that reduce the burden of disease and disability in the older population. IRP investigators use this understanding to characterize the impact of age-related diseases and help create novel therapeutics and interventions for these conditions. IRP is comprised of seven scientific laboratories; the Translational Gerontology Branch; and the Center for Alzheimer's and Related Dementias (CARD), a new intramural facility described in more detail below. While these different units each focus on specific areas of research, they work synergistically on many common projects with the goal of expanding our knowledge of the aging process and age-related disease.

IRP investigators conduct research in three focus areas: aging biology, neuroscience, and translational gerontology. Specific areas of interest include epidemiological research, behavioral research, genetics and genomics, clinical and translational research, and neuroscience and neurogenetics. Age-associated diseases that are priority areas of research include AD/ADRD, Parkinson’s disease, diabetes, cardiovascular diseases, stroke, osteoporosis and osteoarthritis, autoimmune diseases such as multiple sclerosis and lupus, and cancers.

IRP’s longitudinal cohort studies have contributed greatly to progress in aging research over multiple decades. Prominent studies include the trailblazing Baltimore Longitudinal Study of Aging, which explores the determinants and measures of healthy biological aging over time and is the nation’s longest running scientific study of human aging; the Healthy Aging in Neighborhoods of Diversity across the Life Span study, which researches the impact of racial and socioeconomic diversity on health disparities and healthy aging; and the Genetic and Epigenetic Signatures of Translational Aging Laboratory Testing study, which is aimed at discovering biomarkers, their connections to aging, and the development of physical and cognitive disability.

In 2020, NIA launched CARD in partnership with the National Institute of Neurological Disorders and Stroke. CARD will be housed in newly constructed headquarters on the NIH main campus in Bethesda, Maryland, and several of its research initiatives are already underway. The center was designed to combine the power of NIH intramural science with the work of researchers around the globe to push boldly ahead in basic, translational, and clinical AD/ADRD research. For example, CARD researchers will conduct rapid screening of new ideas and

approaches to quickly implement approved projects. CARD will also leverage its location on the NIH campus to facilitate close collaboration between NIH intramural researchers and academic and industry scientists. More than half of CARD staff will be comprised of visiting investigators, who will rotate into CARD with new perspectives and ideas to complement the deep AD/ADRD expertise held by permanent CARD staff.

IRP also supports training programs for students and recent graduates that provide young and diverse scientists with opportunities to learn skills in basic and clinical aging research in the biomedical and behavioral sciences. This may help address the nation's unmet need for researchers and clinician-scientists to focus on aging research.

Budget Policy:

The FY 2023 President's Budget request is \$232.1 million, an increase of \$18.1 million or 8.5 percent compared to the FY 2022 CR level.

Research Management and Support

NIA Research Management Support (RMS) activities provide administrative, budgetary, logistical, and scientific support in the review, award, and monitoring of research grants and research and development contracts. RMS functions also encompass communications, strategic planning, coordination, and evaluation of the Institute's programs, regulatory compliance, international coordination, and liaison with other Federal agencies, Congress, and the public. Recent initiatives include the management and tracking system for clinical research recruitment discussed in the Director's Overview, and IT modernization programs that help NIA be more efficient with grants administration given the institute's tremendous growth, such as projects to automate business processes that were previously completed manually across NIA.

Budget Policy:

The FY 2023 President's Budget request is \$136.2 million, an increase of \$10.7 million or 8.5 percent compared to the FY 2022 CR level.

**NATIONAL INSTITUTES OF HEALTH
National Institute on Aging**

Appropriations History

Fiscal Year	Budget Estimate to Congress	House Allowance	Senate Allowance	Appropriation
2014	\$1,193,370,000		\$1,185,439,000	\$1,171,038,000
Rescission				\$0
2015	\$1,170,880,000			\$1,199,468,000
Rescission				\$0
2016	\$1,267,078,000	\$1,518,421,000	\$1,548,494,000	\$1,600,191,000
Rescission				\$0
2017 ¹	\$1,598,246,000	\$1,982,102,000	\$2,067,138,000	\$2,048,610,000
Rescission				\$0
2018	\$1,303,541,000	\$2,458,733,000	\$2,535,539,000	\$2,574,091,000
Rescission				\$0
2019	\$1,988,200,000	\$3,005,831,000	\$3,084,809,000	\$3,083,410,000
Rescission				\$0
2020	\$2,654,144,000	\$3,356,107,000	\$3,606,040,000	\$3,543,673,000
Rescission				\$0
2021	\$3,225,782,000	\$3,609,150,000	\$4,015,333,000	\$3,899,227,000
Rescission				\$0
2022	\$4,035,591,000	\$4,258,049,000	\$4,180,838,000	\$3,899,227,000
Rescission				\$0
2023	\$4,011,413,000			

¹ Budget Estimate to Congress includes mandatory financing.

**NATIONAL INSTITUTES OF HEALTH
National Institute on Aging**

Authorizing Legislation

	PHS Act/ Other Citation	U.S. Code Citation	2022 Amount Authorized	FY 2022 CR	2023 Amount Authorized	FY 2023 President's Budget
Research and Investigation	Section 301	42§241	Indefinite	\$3,899,227,000	Indefinite	\$4,011,413,000
National Institute on Aging	Section 401(a)	42§281	Indefinite		Indefinite	
Total, Budget Authority				\$3,899,227,000		\$4,011,413,000

NATIONAL INSTITUTES OF HEALTH
National Institute on Aging

Amounts Available for Obligation ¹
(Dollars in Thousands)

Source of Funding	FY 2021 Final	FY 2022 CR	FY 2023 President's Budget
Appropriation	\$3,899,227	\$3,899,227	\$4,011,413
Secretary's Transfer	-\$11,706	\$0	\$0
OAR HIV/AIDS Transfers	\$699	\$0	\$0
Subtotal, adjusted budget authority	\$3,888,220	\$3,899,227	\$4,011,413
Unobligated balance, start of year	\$0	\$0	\$0
Unobligated balance, end of year (carryover)	\$0	\$0	\$0
Subtotal, adjusted budget authority	\$3,888,220	\$3,899,227	\$4,011,413
Unobligated balance lapsing	-\$30	\$0	\$0
Total obligations	\$3,888,190	\$3,899,227	\$4,011,413

¹ Excludes the following amounts (in thousands) for reimbursable activities carried out by this account:
FY 2021 - \$8,653 FY 2022 - \$20,000 FY 2023 - \$20,000

NATIONAL INSTITUTES OF HEALTH
National Institute on Aging

Budget Authority by Object Class¹
(Dollars in Thousands)

	FY 2022 CR	FY 2023 President's Budget	FY 2023 +/- FY 2022 CR
Total compensable workyears:			
Full-time equivalent	520	600	80
Full-time equivalent of overtime and holiday hours	0	0	0
Average ES salary	\$205	\$214	\$9
Average GM/GS grade	12.4	12.4	0.1
Average GM/GS salary	\$120	\$126	\$6
Average salary, Commissioned Corps (42 U.S.C. 207)	\$108	\$113	\$5
Average salary of ungraded positions	\$172	\$179	\$8
OBJECT CLASSES	FY 2022 CR	FY 2023 President's Budget	FY 2023 +/- FY 2022
Personnel Compensation			
11.1 Full-Time Permanent	48,216	55,845	7,629
11.3 Other Than Full-Time Permanent	18,252	20,366	2,114
11.5 Other Personnel Compensation	2,612	3,005	393
11.7 Military Personnel	84	87	3
11.8 Special Personnel Services Payments	9,754	10,779	1,025
11.9 Subtotal Personnel Compensation	\$78,919	\$90,083	\$11,164
12.1 Civilian Personnel Benefits	25,753	29,357	3,604
12.2 Military Personnel Benefits	118	130	12
13.0 Benefits to Former Personnel	0	0	0
Subtotal Pay Costs	\$104,789	\$119,570	\$14,781
21.0 Travel & Transportation of Persons	1,443	1,620	176
22.0 Transportation of Things	557	569	12
23.1 Rental Payments to GSA	55	56	1
23.2 Rental Payments to Others	0	0	0
23.3 Communications, Utilities & Misc. Charges	431	440	9
24.0 Printing & Reproduction	0	0	0
25.1 Consulting Services	52,792	53,874	1,082
25.2 Other Services	63,191	68,710	5,520
25.3 Purchase of Goods and Services from Government Accounts	201,304	205,694	4,389
25.4 Operation & Maintenance of Facilities	2,655	2,655	1
25.5 R&D Contracts	34,401	35,653	1,252
25.6 Medical Care	11,833	12,318	485
25.7 Operation & Maintenance of Equipment	4,353	4,449	96
25.8 Subsistence & Support of Persons	0	0	0
25.0 Subtotal Other Contractual Services	\$370,529	\$383,354	\$12,825
26.0 Supplies & Materials	15,352	17,605	2,253
31.0 Equipment	23,908	27,445	3,537
32.0 Land and Structures	0	0	0
33.0 Investments & Loans	0	0	0
41.0 Grants, Subsidies & Contributions	3,382,162	3,460,753	78,591
42.0 Insurance Claims & Indemnities	0	0	0
43.0 Interest & Dividends	0	0	0
44.0 Refunds	0	0	0
Subtotal Non-Pay Costs	\$3,794,438	\$3,891,843	\$97,405
Total Budget Authority by Object Class	\$3,899,227	\$4,011,413	\$112,186

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

NATIONAL INSTITUTES OF HEALTH

National Institute on Aging

Salaries and Expenses

(Dollars in Thousands)

Object Classes	FY 2022 CR	FY 2023 President's Budget	FY 2023 +/- FY 2022
<u>Personnel Compensation</u>			
Full-Time Permanent (11.1)	\$48,216	\$55,845	\$7,629
Other Than Full-Time Permanent (11.3)	\$18,252	\$20,366	\$2,114
Other Personnel Compensation (11.5)	\$2,612	\$3,005	\$393
Military Personnel (11.7)	\$84	\$87	\$3
Special Personnel Services Payments (11.8)	\$9,754	\$10,779	\$1,025
Subtotal, Personnel Compensation (11.9)	\$78,919	\$90,083	\$11,164
Civilian Personnel Benefits (12.1)	\$25,753	\$29,357	\$3,604
Military Personnel Benefits (12.2)	\$118	\$130	\$12
Benefits to Former Personnel (13.0)	\$0	\$0	\$0
Subtotal Pay Costs	\$104,789	\$119,570	\$14,781
Travel & Transportation of Persons (21.0)	\$1,443	\$1,620	\$176
Transportation of Things (22.0)	\$557	\$569	\$12
Rental Payments to Others (23.2)	\$0	\$0	\$0
Communications, Utilities & Misc. Charges (23.3)	\$431	\$440	\$9
Printing & Reproduction (24.0)	\$0	\$0	\$0
<u>Other Contractual Services</u>			
Consultant Services (25.1)	\$52,792	\$53,874	\$1,082
Other Services (25.2)	\$63,191	\$68,710	\$5,520
Purchase of Goods and Services from Government Accounts (25.3)	\$103,337	\$105,409	\$2,071
Operation & Maintenance of Facilities (25.4)	\$2,655	\$2,655	\$1
Operation & Maintenance of Equipment (25.7)	\$4,353	\$4,449	\$96
Subsistence & Support of Persons (25.8)	\$0	\$0	\$0
Subtotal Other Contractual Services	\$226,328	\$235,097	\$8,770
Supplies & Materials (26.0)	\$15,352	\$17,605	\$2,253
Subtotal Non-Pay Costs	\$244,111	\$255,332	\$11,221
Total Administrative Costs	\$348,900	\$374,902	\$26,001

**NATIONAL INSTITUTES OF HEALTH
National Institute on Aging**

Detail of Full-Time Equivalent Employment (FTE)

OFFICE/DIVISION	FY 2021 Final			FY 2022 CR			FY 2023 President's Budget		
	Civilian	Military	Total	Civilian	Military	Total	Civilian	Military	Total
Division of Aging Biology									
Direct:	16	-	16	17	-	17	18	-	18
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	16	-	16	17	-	17	18	-	18
Division of Behavioral & Social Research									
Direct:	23	-	23	28	-	28	39	-	39
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	23	-	23	28	-	28	39	-	39
Division of Extramural Affairs									
Direct:	59	-	59	64	-	64	72	-	72
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	59	-	59	64	-	64	72	-	72
Division of Geriatrics & Clinical Gerontology									
Direct:	16	-	16	17	-	17	18	-	18
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	16	-	16	17	-	17	18	-	18
Division of Neuroscience									
Direct:	43	-	43	52	-	52	72	-	72
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	43	-	43	52	-	52	72	-	72
Intramural Research Program									
Direct:	250	1	251	259	1	260	288	1	289
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	250	1	251	259	1	260	288	1	289
Office of Administrative Management									
Direct:	47	-	47	51	-	51	58	-	58
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	47	-	47	51	-	51	58	-	58
Office of the Director									
Direct:	28	-	28	31	-	31	34	-	34
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	28	-	28	31	-	31	34	-	34
Total	482	1	483	519	1	520	599	1	600
Includes FTEs whose payroll obligations are supported by the NIH Common Fund.									
FTEs supported by funds from Cooperative Research and Development Agreements.	0	0	0	0	0	0	0	0	0
FISCAL YEAR	Average GS Grade								
2019	12.2								
2020	12.3								
2021	12.3								
2022	12.4								
2023	12.4								

**NATIONAL INSTITUTES OF HEALTH
National Institute on Aging**

Detail of Positions¹

GRADE	FY 2021 Final	FY 2022 CR	FY 2023 President's Budget
Total, ES Positions	1	1	1
Total, ES Salary	199,300	204,681	214,096
General Schedule			
GM/GS-15	59	64	73
GM/GS-14	77	83	95
GM/GS-13	99	107	130
GS-12	64	69	75
GS-11	29	31	36
GS-10	0	0	0
GS-9	37	40	42
GS-8	4	4	5
GS-7	10	11	12
GS-6	4	4	6
GS-5	3	3	5
GS-4	6	6	6
GS-3	0	0	0
GS-2	0	0	0
GS-1	0	0	0
Subtotal	392	422	485
Commissioned Corps (42 U.S.C. 207)			
Assistant Surgeon General	0	0	0
Director Grade	1	1	1
Senior Grade	0	0	0
Full Grade	0	0	0
Senior Assistant Grade	0	0	0
Assistant Grade	0	0	0
Subtotal	1	1	1
Ungraded	121	130	150
Total permanent positions	390	422	485
Total positions, end of year	515	554	637
Total full-time equivalent (FTE) employment, end of year	483	520	600
Average ES salary	199,300	204,681	214,096
Average GM/GS grade	12.3	12.4	12.4
Average GM/GS salary	117,315	120,482	126,025

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