National Institute on Aging

CONGRESSIONAL JUSTIFICATION
FY 2022

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)

FY 2022 Budget Table of Contents Page No.

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Director's Overview

Dr. Richard J. Hodes, Director

In 2020, approximately 56.4 million Americans were aged 65 and older. This number may rise above 82 million in 2040. This remarkable demographic shift is having and will continue to have profound social and economic impacts on our nation. 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 maintain healthy, independent, and productive lives throughout life.

Aging itself remains the most important risk factor for many devastating diseases and conditions, including Alzheimer's disease and related dementias (AD/ADRD), most types of cancer, many types of heart disease, osteoporosis and hip fracture, kidney failure, and diabetes. We are meeting the challenges presented by this demographic shift 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.
- 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; maintaining an active communications and outreach program; and conducting a vibrant intramural research program at NIA laboratories in Baltimore and Bethesda, Maryland. We also support robust training programs to train the next generation of researchers investigating aging. Fundamentally, we support science in service to society. We aim to address public health needs with great urgency, close the gap in health disparities, and capitalize on foundational investments to drive future research and innovation.

Answering the Call: Addressing COVID-19 and Aging Research

The coronavirus disease 2019 (COVID-19) pandemic represents a significant and evolving threat to public health, which has particularly devastating consequences for older adults. Older age represents a primary risk factor for both susceptibility to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection and adverse outcomes from COVID-19, with adults over the age of 65 exhibiting a 23-fold increase in risk of death relative to those under 65. At NIA, we have responded to the urgent need for research on aging and the novel coronavirus to understand and ameliorate the disproportionate impact of the pandemic on older adult populations.

As a first step in addressing the critical need for high-priority research on aging and COVID-19, we issued a special funding opportunity called a Notice of Special Interest (NOSI). Our NOSI is intended to support supplements to existing grant applications on COVID-19-related topics in the realm of neuroscience and AD/ADRD research, aging biology, behavioral and social research, and geriatrics and gerontology. In addition, we issued a funding opportunity for a multi-site COVID-19 clinical trial implementation grant on aging-related topics in at-risk older adult populations. We have also co-sponsored a variety of other National Institutes of Health (NIH) COVID-19-targeted funding opportunities such as those specific to the Rapid Acceleration of Diagnostics Underserved Populations (RADx-UP) initiative, which is designed to enable and enhance COVID-19 testing in underserved and vulnerable populations, e.g., racial and ethnic minority older adults, residents of nursing homes and assisted living facilities, and individuals with cognitive impairment or dementia.

Our COVID-19 response efforts have yielded an impressive acceleration in research on the novel coronavirus and aging. As of October 2020, we have funded 145 projects on COVID-19, using either our FY 2020 regular appropriations or COVID-19 supplemental appropriations made available through the Office of the Director. Several of these projects have already generated published findings.

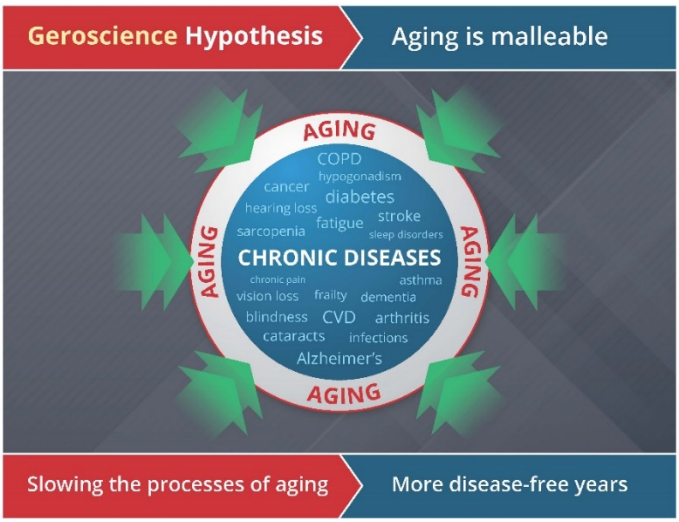
For example, NIA-funded investigators have reported that age-related changes can increase COVID-19 susceptibility and severity, including problems with regulation of immune function, widespread inflammation, advanced biological aging, and genetics-related changes.[1] NIA-funded researchers are also attending to the social, behavioral, and economic implications of the COVID-19 pandemic and mitigation strategies for the health and well-being of older Americans. This includes a better understanding of increases in COVID-19-associated discrimination and mental distress, particularly among racial and ethnic minorities, and challenges in providing care for vulnerable older adults, particularly those with cognitive impairment, disability, or multiple chronic conditions. These topics represent only a small sample of NIA-supported work currently underway to combat the COVID-19 pandemic, and additional research initiatives are in progress to address this unprecedented crisis.

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. Others result in declines in function of the senses and activities of daily life, and increased susceptibility to and frequency of 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" 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 the start and progression of age-related diseases and degenerative conditions.

[1] doi: 10.18632/aging.103344

Aging is the major risk factor for chronic diseases and frailty in people over the age of 55. Geroscience is an evolving field of study specifically aimed at understanding how genetic, molecular, and cellular mechanisms can lead to common chronic conditions and diseases in older adults. Researchers in the field 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 most chronic diseases and frailty, i.e., improving health at older ages. NIA's Translational Geroscience Network is transforming our approach to age-related disease and disability by targeting fundamental aging processes in the context of several age-related diseases. In addition, we support clinical trials of interventions for a range of disorders and conditions related to aging, including cardiovascular diseases, osteoporosis, arthritis, cancer, and pain.



Green arrows depict the potential for geroscience interventions to reduce the impact of chronic diseases by intervening in the aging process.

A particularly promising avenue of research related to geroscience involves cellular senescence, a process in which cells lose function, including the ability to divide and replicate, but continue to release molecules that damage neighboring cells. NIA-supported investigators found that when treated with senolytics, or compounds that selectively remove senescent cells, mice that had previously been injected with damaging senescent cells regained physical function. Senolytics have also extended the lifespan and healthspan in naturally aging mice.[2] In addition, investigators have found that clearing senescent cells from the brain preserves cognition in a mouse model of Alzheimer's disease.[3] Senolytic compounds have recently moved into early-stage human trials supported by NIA. With our involvement, the *Cellular Senescence* Network was approved in concept in FY 2020 as a Common Fund project by the NIH Council of Councils. The objective of this project is to identify and characterize how different types of senescent cells affect multiple tissues to impact human health, disease, and lifespan.

Additionally, we now know that behavioral and social factors interact with genetic, molecular, and cellular mechanisms to influence health at older ages. 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 time-points for interventions to reverse or redirect aging processes. Evidence suggests that addressing these

[2] doi: 10.1038/s41591-018-0092-9
[3] doi: 10.1038/s41593-019-0372-9

factors and their interplay will be critical to minimizing disease and achieving full potential and vitality as people age.

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

The brain plays a role in all aspects of thinking — remembering, planning, organizing, making decisions, and much more. These cognitive abilities affect how well we do everyday tasks and whether we can live independently. A better understanding of how the brain ages can provide important information on which to base strategies for maintaining and enhancing cognitive, emotional, sensory, and motor function. Human and animal studies supported by NIA suggest that adaptive or resilient processes (i.e., brain plasticity) may be needed for maintenance of brain structure and function during normal aging. Surprisingly, little is understood about how different areas of the brain connect and work together as a system, yet connectivity is critical to understanding, diagnosing, and treating certain neurological and psychiatric disorders. Problems in connectivity are now suspected in several disorders, including Alzheimer's disease. We will continue to work to elucidate the processes that occur during "normal" brain aging and to identify and find ways to activate the cellular processes that protect the brain from damage and promote its repair.

We also support and conduct research that is helping to identify lifestyle factors and health behaviors that directly influence physical, cognitive, sensory, and emotional health and risk of disease as people age, such as research linking work and social engagement to cognition. Scientists are developing and refining recommendations for people of all ages regarding optimal diet, use of dietary supplements, mental stimulation, physical exercise, quality sleep, social engagement, stress reduction, and other practices to increase their likelihood of enjoying healthy old age. Still other researchers are looking for better ways to enhance the physical, mental, and social capacities of older adults and to expand opportunities for these individuals to achieve personal goals and continue to contribute to society in meaningful ways. As investigators more precisely identify the psychological, behavioral, and social processes that influence health and quality of life, we will be able to reinforce prevention efforts, enhance symptom management, and conserve function among older adults.

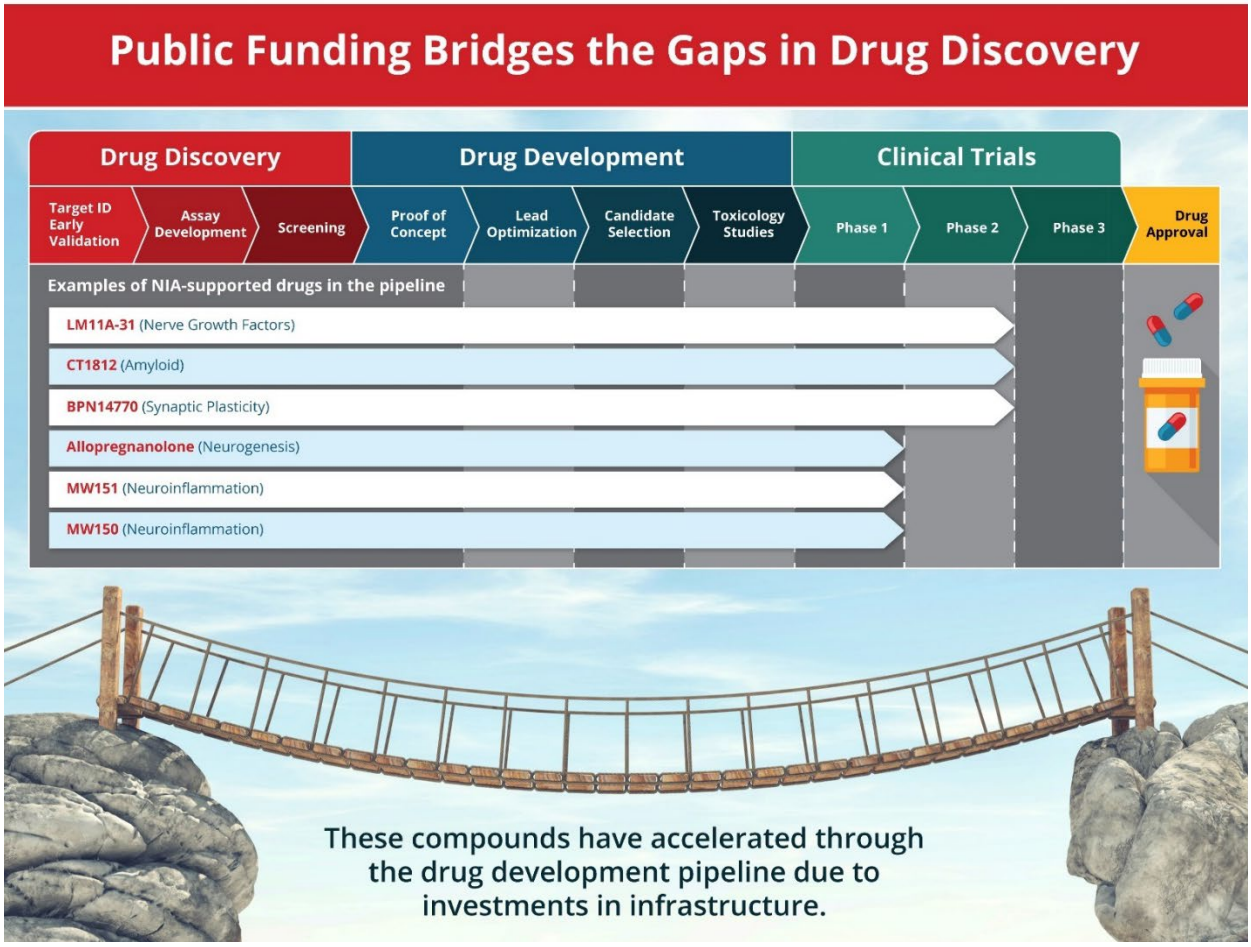
NIA is the lead federal agency for research on AD/ADRD, and our portfolio reflects this important responsibility. In fact, funding for AD/ADRD research has increased so rapidly over the past several years that today, more than half of our awarded grant dollars are dedicated to research on various forms 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 dementia from taking hold; development of a robust infrastructure for drug discovery; and demographic studies of AD/ADRD in different geographic, racial and ethnic, and socioeconomic populations. In order to provide efficacious care for persons living with dementia as well as support for their caregivers, we also fund research on dementia care targeting service access and service quality for persons with dementia, better models of care across care settings with particular interest in care coordination, as well as how regulatory and socio-economic incentives and constraints affect access, quality, and health outcomes for affected individuals.

However, none of this research will ultimately have an impact on public health without sustained efforts to enhance recruitment and retention of participants in our clinical research studies, particularly individuals from diverse backgrounds. To this end, we continue to fund collaborative teams to target gaps in methods and outcomes regarding the challenge of diversity in recruitment. To date, we have funded more than 60 projects submitted in response to a special initiative designed to encourage grant applications for projects that examine health disparities related to AD/ADRD, as well as strategies for recruitment and retention into clinical studies. This funding opportunity will remain active until November 2021, and planning for future initiatives is underway. Topics range from investigating racial and geographic disparities in the risk of AD/ADRD to exploring the effects of participation in long-term community-based trials on lifestyle and risk for Alzheimer's. We have also awarded a contract that will allow comprehensive management and tracking of clinical research, identify and support sites not able to meet recruitment goals, learn from top-performing sites, and provide transparency regarding recruitment efforts and successes. This contract investment 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.

Supporting the AD/ADRD Research Enterprise

A key part of our strategy for developing new treatments for AD/ADRD is to bolster the drug discovery and development pipeline. This strategy helps ensure scientists are addressing these multifaceted diseases through a wide range of approaches. The congressionally targeted increase in funding for AD/ADRD research has enabled us to capitalize on foundational work and enhance investments in key research areas necessary for a precision medicine approach to treatment and prevention. From cutting-edge disease mechanisms and genetics research to population studies and innovative drug and biomarker development programs, we continue to make crucial advancements toward delivering the right treatments to the right people at the right time. Additionally, we have launched several programs over the past six years to provide researchers with an infrastructure for developing their ideas for medicines and other products, including: the Alzheimer's Disease Sequencing Project, Accelerating Medicines Partnership for Alzheimer's Disease (AMP-AD), the Model Organism Development and Evaluation for Late-Onset Alzheimer's Disease (MODEL-AD) consortium, and the TaRget Enablement to Accelerate Therapy Development for Alzheimer's Disease (TREAT-AD) consortium. A hallmark of these programs is that each one brings together scientists from academia and industry who are working in many different disciplines, from epidemiology and genetics to data science and computational biology, molecular and cell biology, and medicinal chemistry and pharmacology. 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 translational research tools. To date, AMP-AD researchers have identified more than 500 new potential Alzheimer's drug targets.

With this remarkable foundation in place, recent growth in federal funding for dementia research has enabled us to make additional investments to strengthen the current infrastructure with new, state-of-the-art resources. For example, we are enhancing and expanding the Alzheimer's Disease Research Centers (ADRCs) and the Alzheimer's Disease Neuroimaging Initiative (ADNI). NIA is particularly active in supporting new and better ways to promote data sharing and reproducibility, provide research resources, and foster public-private partnerships among a



broad range of experts and advocates. Already, investigators can more quickly and effectively work with vast amounts of genetic and molecular data to identify new therapeutic drug and nonpharmacological targets and parlay what they learn into the design and testing of potential therapies.

To accelerate the discovery of effective treatments that will become broadly available to the public, we have developed programs to make data, knowledge, and research tools widely available to all researchers. Complementing the new translational infrastructure is support for new cross-disciplinary training programs funded through NIA's Institutional Training Programs to Advance Translational Research on AD/ADRD. Through this program, we are supporting a new and more diverse generation of translational scientists with expertise in biology, data science, engineering, and drug development, who are able to participate 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 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 the Institute on Methods and Protocols for Advancement of Clinical Trials in AD/ADRD course designed to educate and promote diversity among research professionals and future researchers in the AD/ADRD field.

Overall Budget Policy: The FY 2022 President's Budget request for NIA is $4,035.6 million, an increase of $135.7 million or 3.5 percent compared with the FY 2021 Enacted level. This increase will allow NIA to increase research across all its program areas, with a portion of the increase targeted toward research into safer, non-addictive pain therapeutics that will reduce or eliminate the need for opioids.

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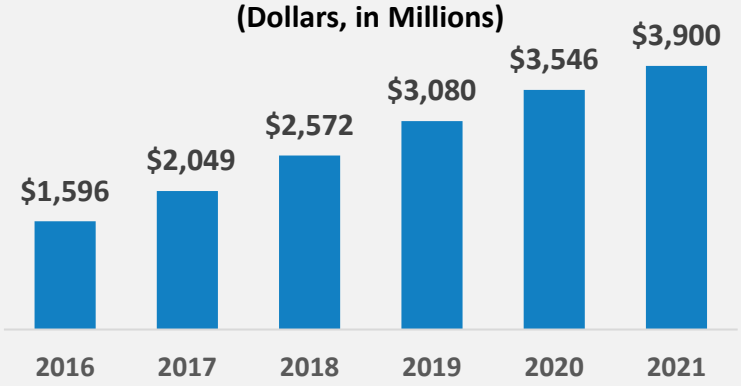
National Institute on Aging

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 President's Budget $4,035

Current Activities

- NIA funds a new effort called the Imbedded Pragmatic Alzheimer's disease and related dementias Clinical Trials (IMPACT) Collaboratory. Through this effort, researchers are developing and testing care interventions in real-world settings.
- NIA invests in the Alzheimer's Clinical Trials Consortium (ACTC) to accelerate and expand studies for therapies in AD/ADRD. The goal is to provide an optimized clinical trial infrastructure, utilizing centralized resources and shared expertise, to accelerate the development of interventions.
- NIA funds a multi-institutional Interventions Testing Program that uses animal models to investigate treatments with the potential to extend lifespan and delay disease and dysfunction.
- NIA supports the Grants for Early Medical/Surgical Specialists' Transition to Aging Research (GEMSSTAR) program. This program fosters the development of clinician-scientists whose clinical research leads to improved care and more effective treatment options for older patients.

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 approx. $3.9 billion, reflecting increased public interest in aging research as America and the world grow older.

NIA Facts and Figures

In Fiscal year 2020 NIA Supported:

- 1,073 new RPG applications
- 1,370 RPG investigators
- 230 Early-stage investigators
- 35 Alzheimer's Disease Research Centers
- 6 Nathan Shock Centers of Excellence in the Basic Biology of Aging
- 15 Edward R. Roybal Centers for Translational Research in the Behavioral and Social Sciences of Aging
- 14 Claude D. Pepper Older Americans Independence Centers
- ~270 AD/ADRD clinical trials
- $316M of AD/ADRD research at other ICs across NIH

National Institute on Aging

Recent Research Accomplishments

High blood pressure, or hypertension, is very common in people over age 50. It 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 (MCI), a known precursor for dementia. Intensive control was defined as reducing the systolic blood pressure below 120 millimeters of mercury (mmHg), rather than the standard goal of reducing it below 140 mmHg.

Clinical guidelines note the benefits of aspirin for preventing heart attacks and strokes in persons with vascular conditions such as coronary artery disease. There has been, however, past uncertainty about whether aspirin is beneficial for otherwise healthy older people without those conditions. In a large clinical trial to determine the risks and benefits of daily low-dose aspirin in healthy older adults without previous cardiovascular events, aspirin did *not* prolong healthy, independent living (free of dementia or persistent physical disability). Moreover, adverse events were experienced by the group receiving aspirin. This study shows the importance of assessing benefits and risks among healthy older persons.

On the Horizon

- NIA, in partnership with NINDS, and involving NCATS and the Clinical Center, is establishing a Center for Alzheimer's and Related Dementias (CARD) in the NIH Intramural Research Program. CARD will combine the power of NIH scientists with the work of researchers around the globe to create new opportunities in basic, translational, and clinical AD/ADRD research and training.
- NIA is finding new ways to use existing technology for early detection or monitoring of chronic health problems and as part of clinical trials. Technological advances may also assist in early detection and monitoring of AD/ADRD.
- CDC data show over half of Americans aged 65+ are living with two or more chronic conditions. NIA continues to prioritize research to identify and test interventions that will facilitate optimal management of multiple chronic conditions.

NIA Research Highlights

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.

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.

NIA awarded NIH's first EUREKA prize, Improving Care for People with AD/ADRD Using Technology (iCare-AD/ADRD).

Daily low-dose aspirin does not reduce the risk of dementia, mild cognitive impairment, or cognitive decline in healthy older adults who have not had previous cardiovascular events.

Repurposed drugs that eliminate senescent cells (cells that have lost function, but damage neighboring cells) reverse damage and extend lifespan and healthspan in rodents.

Specific blood biomarkers were almost 90% accurate at distinguishing people who later had Alzheimer's damage found in their brains after death.

Major Changes in the Fiscal Year 2022 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 2022 President's Budget request for NIA, which is $4,035.6 million, an increase of $135.7 million from the FY 2021 Enacted level. The FY 2022 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 (+$164.1 million; total $1,817.4 million):
NIA will continue to support its established non-competing Research Project Grants (RPGs) awarding a total of 2,186 RPGs, an increase of 210 from FY 2021. This increase is the result of the increased number of competing RPGs that NIA awarded during previous fiscal years.

Ruth L. Kirschstein Training Awards (+$5.5 million; total $49.4 million):
Support for the Ruth L. Kirschstein Training Awards will increase by $5.5 million to accommodate stipend increases, newly implemented childcare allowances, and increases to other training related expenses. NIA intends to solicit additional training applications to promote diversity in translational research for Alzheimer's disease and related dementias.

Research & Development Contracts (+$8.8 million; total $138.3 million):
NIA will continue to fund research and development contracts for Alzheimer's disease and related dementias as well as other projects throughout NIA and the NIH. This increase provides for increased costs in NIA's existing contracts.

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National Institute on Aging

Budget Mechanism - Total[1]

(Dollars in Thousands)

MECHANISM	FY 2020 Final		FY 2021 Enacted		FY 2022 President's Budget		FY 2022 +/- FY 2021 Enacted	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
Research Projects:								
Noncompeting	1,824	$1,404,513	1,976	$1,653,285	2,186	$1,817,420	210	$164,135
Administrative Supplements	*(598)*	218,427	*(508)*	186,247	*(317)*	115,964	*(-191)*	-70,283
Competing:								
Renewal	63	102,676	71	102,976	71	102,616	0	-360
New	1,002	856,159	1,133	858,656	1,128	855,659	-5	-2,997
Supplements	8	11,467	9	11,500	9	11,460	0	-40
Subtotal, Competing	1,073	$970,302	1,213	$973,132	1,208	$969,735	-5	-$3,397
Subtotal, RPGs	2,897	$2,593,242	3,189	$2,812,664	3,394	$2,903,119	205	$90,455
SBIR/STTR	141	121,365	149	128,641	154	133,001	5	4,360
Research Project Grants	3,038	$2,714,607	3,338	$2,941,305	3,548	$3,036,120	210	$94,815
Research Centers:								
Specialized/Comprehensive	124	$233,961	134	$253,484	141	$265,768	7	$12,284
Clinical Research	0	81	0	0	0	0	0	0
Biotechnology	0	971	0	1,114	0	0	0	-1,114
Comparative Medicine	0	3,047	0	3,437	0	1,402	0	-2,035
Research Centers in Minority Institutions	0	0	0	0	0	0	0	0
Research Centers	124	$238,059	134	$258,035	141	$267,170	7	$9,135
Other Research:								
Research Careers	375	$59,685	460	$73,143	476	$75,696	16	$2,553
Cancer Education	0	0	0	0	0	0	0	0
Cooperative Clinical Research	0	0	0	0	0	0	0	0
Biomedical Research Support	0	0	0	0	0	0	0	0
Minority Biomedical Research Support	0	0	0	0	0	0	0	0
Other	128	77,959	185	112,474	189	115,412	4	2,938
Other Research	503	$137,643	645	$185,617	665	$191,108	20	$5,491
Total Research Grants	3,665	$3,090,310	4,117	$3,384,957	4,354	$3,494,398	237	$109,441
Ruth L Kirschstein Training Awards:	FTTPs		FTTPs		FTTPs		FTTPs	
Individual Awards	189	$8,695	186	$10,329	244	$13,844	58	$3,515
Institutional Awards	487	26,710	526	33,664	515	35,603	-11	1,939
Total Research Training	676	$35,405	712	$43,993	759	$49,447	47	$5,454
Research & Develop. Contracts	54	$108,023	54	$129,477	54	$138,295	0	$8,818
(SBIR/STTR) (non-add)	*(0)*	*(1,041)*	*(0)*	*(1,154)*	*(0)*	*(1,188)*	*(0)*	*(34)*
Intramural Research	235	219,940	248	221,761	260	229,523	12	7,762
Res. Management & Support	203	92,192	230	119,738	260	123,928	30	4,190
SBIR Admin. (non-add)	*(0)*	*(1,626)*	*(0)*	*(1,997)*	*(0)*	*(2,037)*	*(0)*	*(40)*
Construction		0		0		0		0
Buildings and Facilities		0		0		0		0
Total, NIA	438	$3,545,869	478	$3,899,926	520	$4,035,591	42	$135,665

[1] All items in italics and brackets are non-add entries.

NATIONAL INSTITUTES OF HEALTH

National Institute on Aging

For carrying out section 301 and title IV of the PHS Act with respect to aging, [$3,899,227,000] *$4,035,591,000*.

NATIONAL INSTITUTES OF HEALTH
National Institute on Aging

Summary of Changes

(Dollars in Thousands)

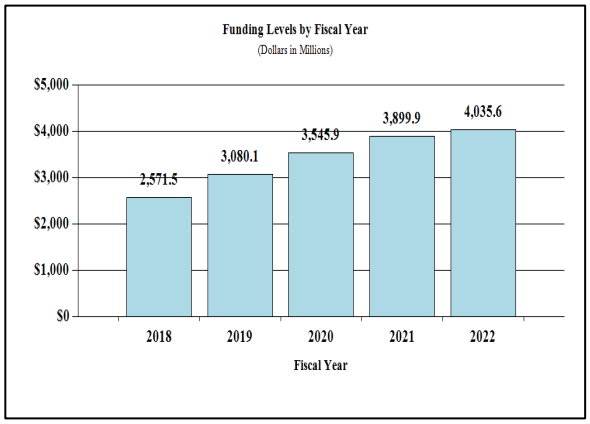
FY 2021 Enacted	$3,899,926
FY 2022 President's Budget	$4,035,591
Net change	$135,665

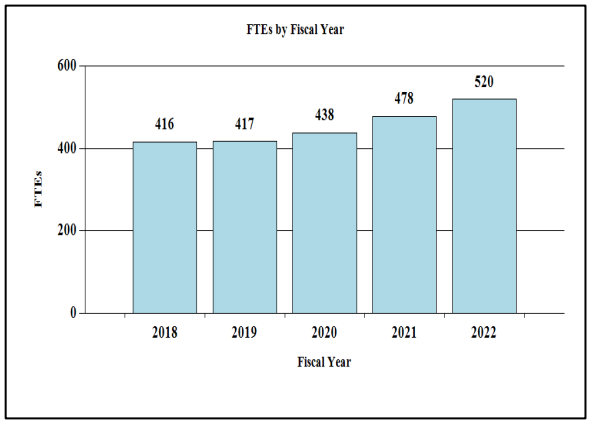
CHANGES	FY2021 Enacted		FY 2022 President's Budget		Built-In Change from FY 2021 Enacted	
	FTEs	Budget Authority	FTEs	Budget Authority	FTEs	Budget Authority
A. Built-in:						
1. Intramural Research:						
a. Annualization of January 2021 pay increase & benefits		$51,281		$53,501		$138
b. January FY 2022 pay increase & benefits		51,281		53,501		1,390
c. Paid days adjustment		51,281		53,501		0
d. Differences attributable to change in FTE		51,281		53,501		2,481
e. Payment for centrally furnished services		21,822		27,033		5,212
f. Cost of laboratory supplies, materials, other expenses, and non-recurring costs		148,658		148,989		4,028
Subtotal						$13,250
2. Research Management and Support:						
a. Annualization of January 2021 pay increase & benefits		$42,757		$48,693		$113
b. January FY 2022 pay increase & benefits		42,757		48,693		1,187
c. Paid days adjustment		42,757		48,693		0
d. Differences attributable to change in FTE		42,757		48,693		5,577
e. Payment for centrally furnished services		9,018		14,893		5,875
f. Cost of laboratory supplies, materials, other expenses, and non-recurring costs		67,963		60,342		-9,742
Subtotal						$3,010
Subtotal, Built-in						$16,260

CHANGES	FY2021 Enacted		FY 2022 President's Budget		Program Change from FY 2021 Enacted	
	No.	Amount	No.	Amount	No.	Amount
B. Program:						
1. Research Project Grants:						
a. Noncompeting	1,976	$1,839,532	2,186	$1,933,384	210	$93,852
b. Competing	1,213	973,132	1,208	969,735	-5	-3,397
c. SBIR/STTR	149	128,641	154	133,001	5	4,360
Subtotal, RPGs	3,338	$2,941,305	3,548	$3,036,120	210	$94,815
2. Research Centers	134	$258,035	141	$267,170	7	$9,135
3. Other Research	645	185,617	665	191,108	20	5,491
4. Research Training	712	43,993	759	49,447	47	5,454
5. Research and development contracts	54	129,477	54	138,295	0	8,818
Subtotal, Extramural		$3,558,427		$3,682,140		$123,713
	FTEs		FTEs		FTEs	
6. Intramural Research	248	$221,761	260	$229,523	12	-$5,488
7. Research Management and Support	230	119,738	260	123,928	30	1,180
8. Construction		0		0		0
9. Buildings and Facilities		0		0		0
Subtotal, Program	478	$3,899,926	520	$4,035,591	42	$119,405
Total built-in and program changes						$135,665

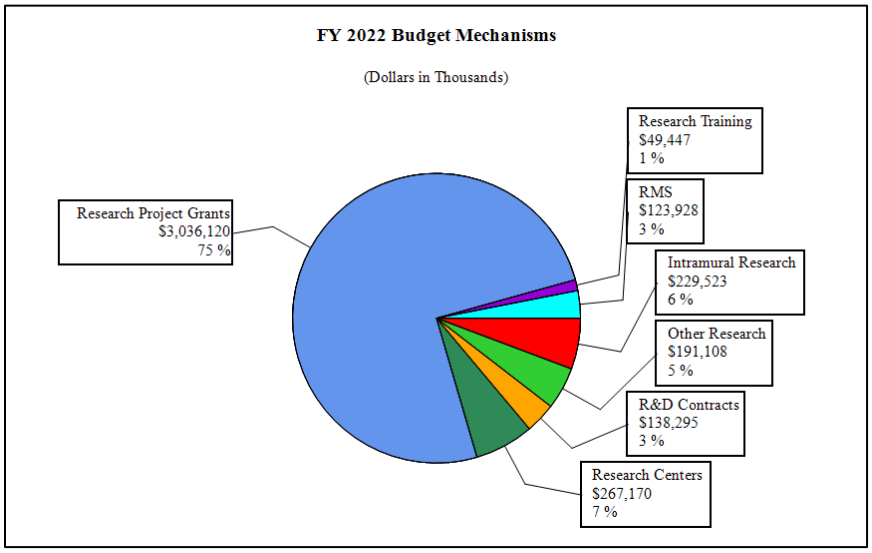
Fiscal Year 2022 Budget Graphs

History of Budget Authority and FTEs:

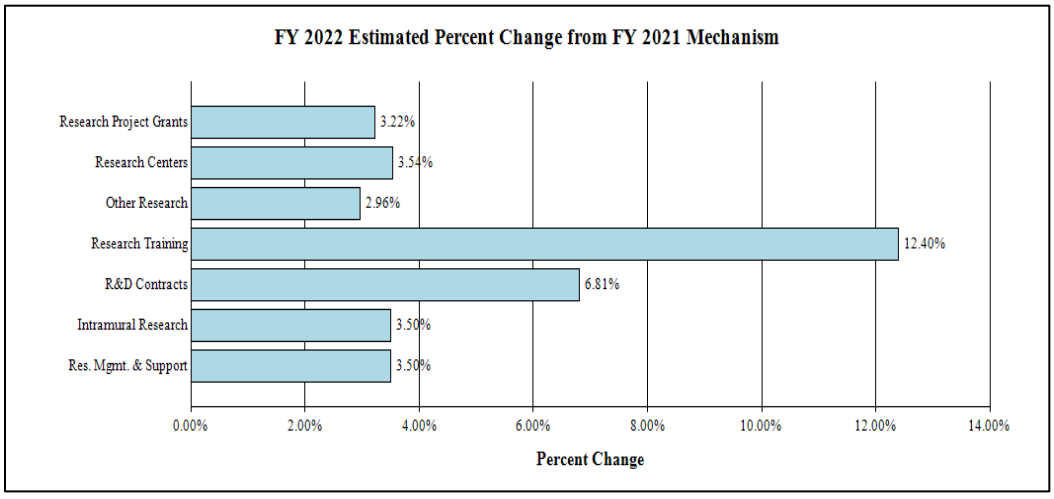




Distribution by Mechanism:

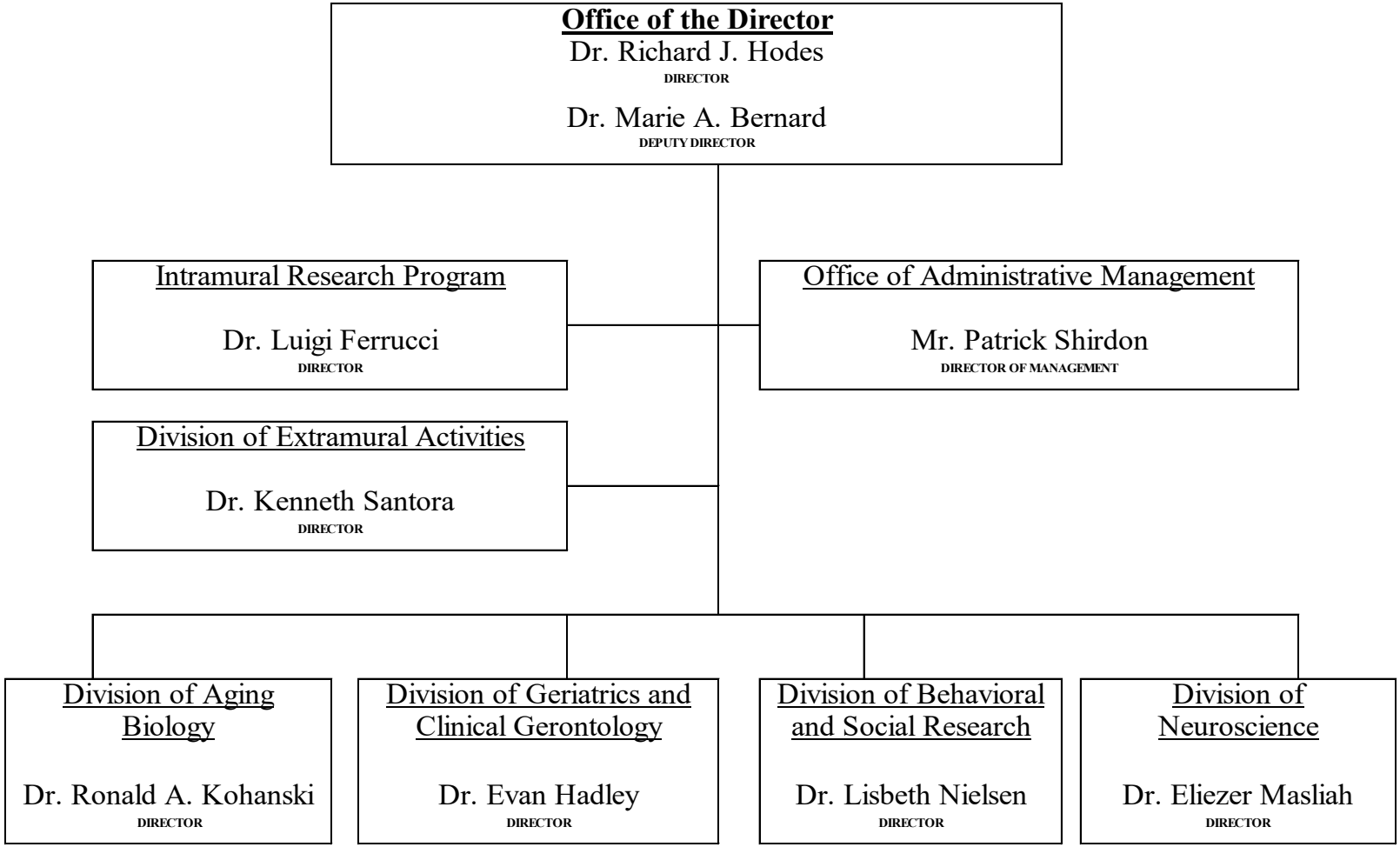


Change by Selected Mechanism:



NATIONAL INSTITUTES OF HEALTH
National Institute on Aging

Organizational Structure



NATIONAL INSTITUTES OF HEALTH
National Institute on Aging

Budget Authority by Activity[1]

(Dollars in Thousands)

	FY 2020 Final		FY 2021 Enacted		FY 2022 President's Budget		FY 2022 +/- FY 2021 Enacted	
Extramural Research	**FTE**	**Amount**	**FTE**	**Amount**	**FTE**	**Amount**	**FTE**	**Amount**
Detail								
Aging Biology		$341,748		$376,062		$389,136		$13,074
Behavioral & Social Research		519,251		571,387		591,252		19,865
Neuroscience		2,072,598		2,280,702		2,359,994		79,292
Geriatrics & Clinical Gerontology		300,140		330,276		341,758		11,482
Subtotal, Extramural		**$3,233,737**		**$3,558,427**		**$3,682,140**		**$123,713**
Intramural Research	**235**	**$219,940**	**248**	**$221,761**	**260**	**$229,523**	**12**	**$7,762**
Research Management & Support	**203**	**$92,192**	**230**	**$119,738**	**260**	**$123,928**	**30**	**$4,190**
TOTAL	**438**	**$3,545,869**	**478**	**$3,899,926**	**520**	**$4,035,591**	**42**	**$135,665**

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):

	FY 2020 Final	FY 2021 Enacted	FY 2022 President's Budget	FY 2022 +/- FY 2021
BA	$3,545,869,000	$3,899,926,000	$4,035,591,000	+$135,665,000
FTE	438	478	520	42

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

Program Descriptions

Division of Aging Biology

Aging is a primary risk factor for many diseases and frailties. The NIA Division of Aging Biology (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 among cells and tissues of the body. DAB-supported investigators study the changes in molecular and cellular structures and functions that characterize normal aging in diverse laboratory organisms, spanning yeast to nonhuman primates, and where the opportunities arise, in humans. The division also supports research on the mechanisms and interventions that increase or decrease the rate of aging, including in natural human variants such as people with progeroid syndromes, who display signs of premature physical aging, and centenarians (or their laboratory equivalents). Importantly, DAB is initiating programs into the basic biology of aging in disadvantaged and minority populations.

DAB also coordinates the groundbreaking trans-NIH GeroScience Interest Group (GSIG). Using the hypothesis that slowing the rate of aging-related biological changes will have a beneficial impact on many health outcomes, GSIG promotes studies into the interactions among the biology of aging and the biology of diseases and age-related loss of resilience. Most NIH Institutes and Centers participate in the GSIG, engaging in outreach to scientific societies, the pharmaceutical industry, and experts in emerging biotechnology. The GSIG has held three summits — the most recent of which was in November 2019 — to generate scientific ideas and momentum in the field.

DAB-supported researchers have made important discoveries in exercise, dietary regimens, and other interventions that affect aging in laboratory animals, with potential for translation into

practical ways of improving health in humans. DAB supports the Intervention Testing Program (in mice) and the *Caenorhabditis* Intervention Testing Program (in roundworms). Through both programs, scientists test the effectiveness and reproducibility of interventions — including foods, hormones, and pharmaceuticals — on extending lifespan and enhancing functions at older ages. To date, 43 compounds have been tested, 7 with a positive effect on at least one sex. Both programs foster collaborations to identify the mechanisms by which these compounds extend life and improve health. NIA-supported investigators are now studying some of these interventions (and others, as scientifically appropriate) in models of AD/ADRD to determine their effects on the diseases' pathogenesis and progression.

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 these programs will remain active in FY 2022.

Budget Policy:
The FY 2022 President's Budget request is $389.1 million, an increase of $13.1 million or 3.5 percent compared to the FY 2021 Enacted level.

Division of Behavioral and Social Research

The NIA Division of Behavioral and Social Research (DBSR) supports research at all levels - from basic to translational - designed to elucidate the pathways by which social, psychological, economic, and behavioral factors throughout the life course affect health at older ages, identify the causal mechanisms that account for observed associations, and ultimately 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 the genetics of age-related behavior change 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 renewed funding for the trans-NIH Science of Behavior Change program, working with other NIH Institutes, Centers, and Offices to capitalize on emerging basic science and the success of existing evidence-based behavior change interventions to accelerate investigation of common mechanisms of behavior change applicable across a broad range of health behaviors.

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. In

AD/ADRD Care and Caregiving

In recent years, the DBSR portfolio has increased its focus on dementia care research, especially health and long-term care services, research on support for caregivers, and epidemiology and prevention of AD/ADRD. NIA is committed to enabling better outcomes for people with Alzheimer's and related dementias, as well as for their caregivers. The first National Research Summit on Care, Services, and Supports for Persons with Dementia and Their Caregivers led by DBSR in partnership with the U.S. Department of Health and Human Services was held in 2017; the second took place virtually in Summer 2020. NIA-supported efforts have led to improved quality of care and quality of life for those living with these conditions, and the development of resources designed to help ease burdens on care providers. Efforts to encourage broad sharing of data and resources include raising awareness about evidence-based social and behavioral interventions.

In 2019, NIA expanded its network of Edward R. Roybal Centers for Translational Research on Aging to focus on the development of behavioral interventions for dementia care providers. The Roybal network, which was established in 1993, is designed to translate findings from basic behavioral and social research into evidence-based interventions and programs that can be shared and implemented in the community. The four new centers, collectively called the Roybal Centers for Translational Research on Dementia Care Provider Support, will develop and pilot test dementia-related interventions and their related materials for feasibility, acceptability, and efficacy.

Also in 2019, NIA funded a new effort called the IMbedded Pragmatic Alzheimer's disease and related dementias Clinical Trials (IMPACT) Collaboratory to meet the urgent public health need to deliver high quality, evidence-based care to people living with dementias and their caregivers. Through this effort, researchers are developing and testing care interventions in real world settings such as hospitals, assisted living facilities, nursing homes, and adult day care centers. In general, a "pragmatic clinical trial" means participants are enrolled as part of a real-world setting rather than selected from a broader community based on narrowly defined criteria. Additionally, the costs of dementia care and the challenges families face as caregivers continue to be a priority area of research.

A recent analysis of Medicare and Medicaid data shows that the costs of health care for people with dementia are much higher than for those without dementia, and the burden of those higher costs falls disproportionately on people with dementia and their families.

2018, the HRS implemented a Harmonized Cognitive Assessment Protocol to measure and understand dementia risk, designed to be comparable with similar assessments in international HRS comparator studies around the world. This tool provides the research community with rich data to study the prevalence, predictors, outcomes and future trends in cognitive functioning and dementia on a global scale. DBSR supports other longitudinal studies focusing on trends in late life disability and caregiving (National Health and Aging Trends Study) and on the influences of behavioral, psychological, and social factors in midlife on age-related variations in health and well-being (Midlife in the United States Study). The division also coordinates several active centers programs. Centers on the Demography and Economics of Aging were renewed in FY 2020, with the addition of new Centers on Demography and Economics of Alzheimer's Disease and Related Dementias. The Edward R. Roybal Centers for Translational Research on Aging were renewed and expanded in FY 2019 (see program portrait on AD/ADRD Care and Caregiving), and the Resource Centers for Minority Aging Research (RCMARs) continue their program of mentoring and research in priority areas of social, behavioral, and economic research on the processes of aging at the individual and societal levels.

Budget Policy:
The FY 2022 President's Budget request is $591.3 million, an increase of $19.9 million or 3.5 percent compared to the FY 2021 Enacted level.

Division of Geriatrics and Clinical Gerontology

The Division of Geriatrics and Clinical Gerontology (DGCG) promotes clinical and translational research on health and disease in older adults, as well as research on aging over

the human life span. In particular, DGCG supports 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.

DGCG-supported research encompasses a range of age-related diseases and conditions, including AD/ADRD. For example, in 2019 DGCG funded a Phase 4 drug study called Pragmatic Evaluation of Events and Benefits of Lipid-Lowering in Older Adults (PREVENTABLE). Through this Phase 4 trial, researchers are examining the overall benefits and risks of the commercially available cholesterol-lowering drug atorvastatin in 20,000 adults age 75 or older without cardiovascular disease. The trial will help determine whether the drug can help prevent dementia and disability in this age group, as well as prevent heart attacks and other cardiovascular-related deaths, without increasing adverse health outcomes.

Another DGCG-administered initiative set for FY 2022 will support the development of a collaborative research and resource network to address research gaps toward optimizing recognition and 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.

DGCG also supports research on multifactorial 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 ailments. Recent DGCG funding opportunity announcements (FOAs) 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. Studies supported through these FOAs will be active in FY 2022.

DGCG invests in studies on persons and families who maintain health into very old age, to find 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.

DGCG also supports the Claude D. Pepper Older Americans Independence Centers Program, which supports 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 2022. As part of its renewal, this program was expanded to include up to three additional Centers. Currently there are 14 fully funded Pepper Centers. In addition, this division provides critical research resources to the scientific community, including the Aging Research BioBank, a unique platform for sharing data and biospecimens, and a web-based "toolbox" for NIH-supported investigators and staff involved in clinical research.

Budget Policy:

The FY 2022 President's Budget request is $341.8 million, an increase of $11.5 million or 3.5 percent compared to the FY 2021 Enacted level.

AD/ADRD Clinical Trials

Thanks to the substantial investment in AD/ADRD research over the past several years, NIA has increased drug discovery significantly. The pipeline for developing novel drug candidates for Alzheimer's treatment and prevention is diverse and expanding. Over the past decade, NIA has invested in a robust translational research program to develop and diversify therapeutic targets and candidate drugs for dementia. In FY 2020 alone, NIA supported more than 30 studies testing novel therapeutic candidates against a dozen non-amyloid/non-tau targets at different stages of drug development; a number of these studies are supported by NIA 's small-business programs. In FY 2019, there were 29 therapeutic agents in various stages of clinical development that were non-amyloid/tau focused. Additionally, five anti-amyloid agents are in clinical testing. NIA currently supports approximately 230 clinical trials on Alzheimer's and related dementias, from pilot studies to large-scale trials, on a wide range of interventions for diagnosis, treatment, prevention, care, and caregiving. While amyloid continues to be a target of clinical investigation, 33 of the 48 pharmacological trials supported by NIA are investigating other targets. More than drugs are being tested: Several trials are examining nonpharmacological interventions, including diet, exercise, and cognitive training and interventions to improve care for person with dementia. More than 100 current trials test nonpharmacological interventions, while more than 60 others are aimed at care and caregiving for people living with dementia.

With the increased number of treatment, prevention, and care studies comes the urgent need to recruit and enroll dozens to thousands of participants. AD/ADRD research studies especially need participants who better represent the diversity of the U.S. population. To address the imperative for diverse participation in clinical studies, NIA is investing in a range of methods, resources, and research to help investigators with recruitment and retention of participants from a wide range of ethnic and racial backgrounds.

Division of Neuroscience

NIA's Division of Neuroscience (DN) supports basic, clinical, and epidemiologic 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/ADRD, in support of the goal articulated in the National Plan to Address AD/ADRD, of effectively treating or preventing these diseases by 2025. The division supports studies to understand AD/ADRD's molecular, cellular, and genetic underpinnings; 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 interaction between Alzheimer's and Down syndrome.

In recent years, NIA has received generous support targeted to AD/ADRD and these funds have facilitated significant progress in the field. Ongoing and recent research initiatives include developing new biomarkers for AD/ADRD, investigation of sex differences in AD/ADRD, understanding senescence in brain aging and AD/ADRD, clarifying the relationship between delirium and AD/ADRD, and common mechanisms and interactions among neurodegenerative diseases.

NIA supports a national network of 35 AD Research Centers (ADRCs) that work to translate research discoveries into AD diagnostics and drug treatment interventions, as well as executing a wide range of studies to enhance understanding of AD/ADRD. These centers are funded via a competitive review

process. In FY 2020, the centers program expanded with the launch of four "Exploratory ADRCs." These new centers will further incentivize innovative ideas and opportunities in AD/ADRD research and support institutions as they initiate collaborative activities to develop and implement infrastructure appropriate for the larger ADRC program.

Budget Policy:

The FY 2022 President's Budget request is $2,360.0 million, an increase of $79.3 million or 3.5 percent compared to the FY 2021 Enacted level.

Intramural Research Program

Through its Intramural Research Program (IRP), NIA supports basic, behavioral, clinical, epidemiologic, 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 new effective interventions that reduce the burden of disease and disability in the older population, and IRP investigators use this understanding to clarify the pathophysiology of age-related diseases and help create new therapeutics and interventions for these conditions. While IRP's eight laboratories and one center each focuses on specific areas of research, they share the common goal of expanding our knowledge of the aging process and age-related disease and collaborate in these efforts.

IRP investigators conduct research in three main focus areas: aging biology, neuroscience, and translational gerontology. Specific areas of interest include 1) epidemiologic research; 2) behavioral research; 3) genetics and genomics; 4) clinical and translational research; and 5) 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.

In 2019, NIA launched the collaborative intramural Center for Alzheimer's and Related Dementias (CARD) in partnership with the National Institute of Neurological Disorders and Stroke, and also including the National Center for Advancing Translational Sciences, and the NIH Clinical Center. CARD will be housed in the newly constructed headquarters on the NIH main campus in Bethesda, Maryland. The center will 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.

Additionally, IRP's longitudinal cohort studies have contributed greatly to aging research. Prominent studies include the trailblazing Baltimore Longitudinal Study of Aging (BLSA), 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 (HANDLS) 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 (GESTALT) study, which is aimed at discovering biomarkers and their connections to aging.

IRP also supports training programs for students and recent graduates that give young scientists the opportunity to learn skills in basic and clinical aging research in the biomedical and behavioral sciences. This may help combat the nation's unmet need for researchers and clinician-scientists to focus on aging-related research issues.

Budget Policy:

The FY 2022 President's Budget request is $229.5 million, an increase of $7.8 million or 3.5 percent compared to the FY 2021 Enacted 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. In FY 2020, the Institute monitored 3,665 research grants as well as 676 full-time training positions and 54 research and support contracts.

Budget Policy:

The FY 2022 President's Budget request is $123.9 million, a increase of $4.2 million or 3.5 percent compared to the FY 2021 Enacted level.

NATIONAL INSTITUTES OF HEALTH
National Institute on Aging

Appropriations History

Fiscal Year	Budget Estimate to Congress	House Allowance	Senate Allowance	Appropriation
2013	$1,102,650,000		$1,124,265,000	$1,103,440,548
Rescission				$2,206,881
Sequestration				($55,385,128)
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			

[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	2021 Amount	FY 2021 Enacted	2022 Amount	FY 2022 President's Budget
Research and Investigation	Section 301	42§241	Indefinite	$3,899,926,000	Indefinite	$4,035,591,000
National Institute on Aging	Section 401(a)	42§281	Indefinite		Indefinite	
Total, Budget Authority				$3,899,926,000		$4,035,591,000

NATIONAL INSTITUTES OF HEALTH
National Institute on Aging

Amounts Available for Obligation[1]

(Dollars in Thousands)

Source of Funding	FY 2020 Final	FY 2021 Enacted	FY 2022 President's Budget
Appropriation	$3,543,673	$3,899,227	$4,035,591
Secretary's Transfer	0	0	0
OAR HIV/AIDS Transfers	2,196	699	0
Subtotal, adjusted budget authority	$3,545,869	$3,899,926	$4,035,591
Unobligated balance, start of year	0	0	0
Unobligated balance, end of year	0	0	0
Subtotal, adjusted budget authority	$3,545,869	$3,899,926	$4,035,591
Unobligated balance lapsing	-55	0	0
Total obligations	$3,545,814	$3,899,926	$4,035,591

[1] Excludes the following amounts (in thousands) for reimbursable activities carried out by this account:
FY 2020 - $7,866 FY 2021 - $20,000 FY 2022 - $20,000

NATIONAL INSTITUTES OF HEALTH
National Institute on Aging

Budget Authority by Object Class[1]

(Dollars in Thousands)

		FY 2021 Enacted	FY 2022 President's Budget	FY 2022 +/- FY 2021 Enacted
Total compensable workyears:				
	Full-time equivalent	478	520	42
	Full-time equivalent of overtime and holiday hours	0	0	0
	Average ES salary	$199	$201	$2
	Average GM/GS grade	12.3	12.4	0.0
	Average GM/GS salary	$115	$118	$3
	Average salary, Commissioned Corps (42 U.S.C. 207)	$106	$109	$3
	Average salary of ungraded positions	$171	$180	$9
	OBJECT CLASSES	**FY 2021 Enacted**	**FY 2022 President's Budget**	**FY 2022 +/- FY 2021**
	Personnel Compensation			
11.1	Full-Time Permanent	43,426	48,420	4,994
11.3	Other Than Full-Time Permanent	16,421	16,795	374
11.5	Other Personnel Compensation	1,611	1,648	37
11.7	Military Personnel	359	369	10
11.8	Special Personnel Services Payments	9,281	9,492	211
11.9	**Subtotal Personnel Compensation**	**$71,098**	**$76,724**	**$5,625**
12.1	Civilian Personnel Benefits	22,626	25,147	2,522
12.2	Military Personnel Benefits	314	323	9
13.0	Benefits to Former Personnel	0	0	0
	Subtotal Pay Costs	**$94,038**	**$102,194**	**$8,156**
21.0	Travel & Transportation of Persons	593	604	11
22.0	Transportation of Things	334	340	6
23.1	Rental Payments to GSA	223	227	4
23.2	Rental Payments to Others	9	9	0
23.3	Communications, Utilities & Misc. Charges	5,546	5,670	125
24.0	Printing & Reproduction	0	0	0
25.1	Consulting Services	45,782	57,137	11,355
25.2	Other Services	47,541	45,926	-1,615
25.3	Purchase of goods and services from government accounts	191,123	200,324	9,201
25.4	Operation & Maintenance of Facilities	3,675	3,677	2
25.5	R&D Contracts	26,700	27,180	481
25.6	Medical Care	9,607	9,963	355
25.7	Operation & Maintenance of Equipment	3,650	3,716	65
25.8	Subsistence & Support of Persons	0	0	0
25.0	**Subtotal Other Contractual Services**	**$328,078**	**$347,922**	**$19,845**
26.0	Supplies & Materials	15,322	15,598	276
31.0	Equipment	17,329	17,641	312
32.0	Land and Structures	46,985	36,568	-10,417
33.0	Investments & Loans	0	0	0
41.0	Grants, Subsidies & Contributions	3,391,468	3,508,817	117,348
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	**$3,805,888**	**$3,933,397**	**$127,509**
	Total Budget Authority by Object Class	**$3,899,926**	**$4,035,591**	**$135,665**

[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 2021 Enacted	FY 2022 President's Budget	FY 2022 +/- FY 2021
Personnel Compensation			
Full-Time Permanent (11.1)	$43,426	$48,420	$4,994
Other Than Full-Time Permanent (11.3)	16,421	16,795	374
Other Personnel Compensation (11.5)	1,611	1,648	37
Military Personnel (11.7)	359	369	10
Special Personnel Services Payments (11.8)	9,281	9,492	211
Subtotal Personnel Compensation (11.9)	**$71,098**	**$76,724**	**$5,625**
Civilian Personnel Benefits (12.1)	$22,626	$25,147	$2,522
Military Personnel Benefits (12.2)	314	323	9
Benefits to Former Personnel (13.0)	0	0	0
Subtotal Pay Costs	**$94,038**	**$102,194**	**$8,156**
Travel & Transportation of Persons (21.0)	$593	$604	$11
Transportation of Things (22.0)	334	340	6
Rental Payments to Others (23.2)	9	9	0
Communications, Utilities & Misc. Charges (23.3)	5,546	5,670	125
Printing & Reproduction (24.0)	0	0	0
Other Contractual Services:			
Consultant Services (25.1)	45,782	57,137	11,355
Other Services (25.2)	47,541	45,926	-1,615
Purchases from government accounts (25.3)	93,135	98,927	5,792
Operation & Maintenance of Facilities (25.4)	3,675	3,677	2
Operation & Maintenance of Equipment (25.7)	3,650	3,716	65
Subsistence & Support of Persons (25.8)	0	0	0
Subtotal Other Contractual Services	**$193,783**	**$209,383**	**$15,600**
Supplies & Materials (26.0)	$15,322	$15,598	$276
Subtotal Non-Pay Costs	**$215,587**	**$231,604**	**$16,017**
Total Administrative Costs	**$309,625**	**$333,798**	**$24,173**

NATIONAL INSTITUTES OF HEALTH
National Institute on Aging

Detail of Full-Time Equivalent Employment (FTE)

OFFICE/DIVISION	FY 2020 Final			FY 2021 Enacted			FY 2022 President's Budget		
	Civilian	Military	Total	Civilian	Military	Total	Civilian	Military	Total
Division of Aging Biology									
Direct:	15	-	15	18	-	18	21	-	21
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	15	-	15	18	-	18	21	-	21
Division of Behavioral & Social Research									
Direct:	19	-	19	25	-	25	30	-	30
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	19	-	19	25	-	25	30	-	30
Division of Extramural Affairs									
Direct:	49	-	49	52	-	52	55	-	55
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	49	-	49	52	-	52	55	-	55
Division of Geriatrics & Clinical Gerontology									
Direct:	15	-	15	17	-	17	20	-	20
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	15	-	15	17	-	17	20	-	20
Division of Neuroscience									
Direct:	37	-	37	46	-	46	56	-	56
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	37	-	37	46	-	46	56	-	56
Intramural Research Program									
Direct:	233	2	235	247	1	248	259	1	260
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	233	2	235	247	1	248	259	1	260
Office of Administrative Management									
Direct:	43	-	43	45	-	45	49	-	49
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	43	-	43	45	-	45	49	-	49
Office of the Director									
Direct:	25	-	25	27	-	27	29	-	29
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	25	-	25	27	-	27	29	-	29
Total	436	2	438	477	1	478	519	1	520
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
2018	12.1
2019	12.2
2020	12.3
2021	12.3
2022	12.4

NATIONAL INSTITUTES OF HEALTH
National Institute on Aging

Detail of Positions[1]

GRADE	FY 2020 Final	FY 2021 Enacted	FY 2022 President's Budget
Total, ES Positions	1	1	1
Total, ES Salary	197,300	199,300	201,300
General Schedule			
GM/GS-15	54	60	65
GM/GS-14	61	75	80
GM/GS-13	96	100	120
GS-12	62	65	70
GS-11	31	43	50
GS-10	0	0	0
GS-9	34	34	34
GS-8	3	3	3
GS-7	19	19	19
GS-6	2	2	2
GS-5	3	3	3
GS-4	2	2	2
GS-3	0	0	0
GS-2	0	0	0
GS-1	0	0	0
Subtotal	367	406	448
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	113	115	117
Total permanent positions	366	406	448
Total positions, end of year	482	523	567
Total full-time equivalent (FTE) employment, end of year	438	478	520
Average ES salary	197,300	199,300	201,300
Average GM/GS grade	12.3	12.3	12.4
Average GM/GS salary	114,694	115,477	118,102