

DEPARTMENT OF HEALTH AND HUMAN SERVICES

NATIONAL INSTITUTES OF HEALTH

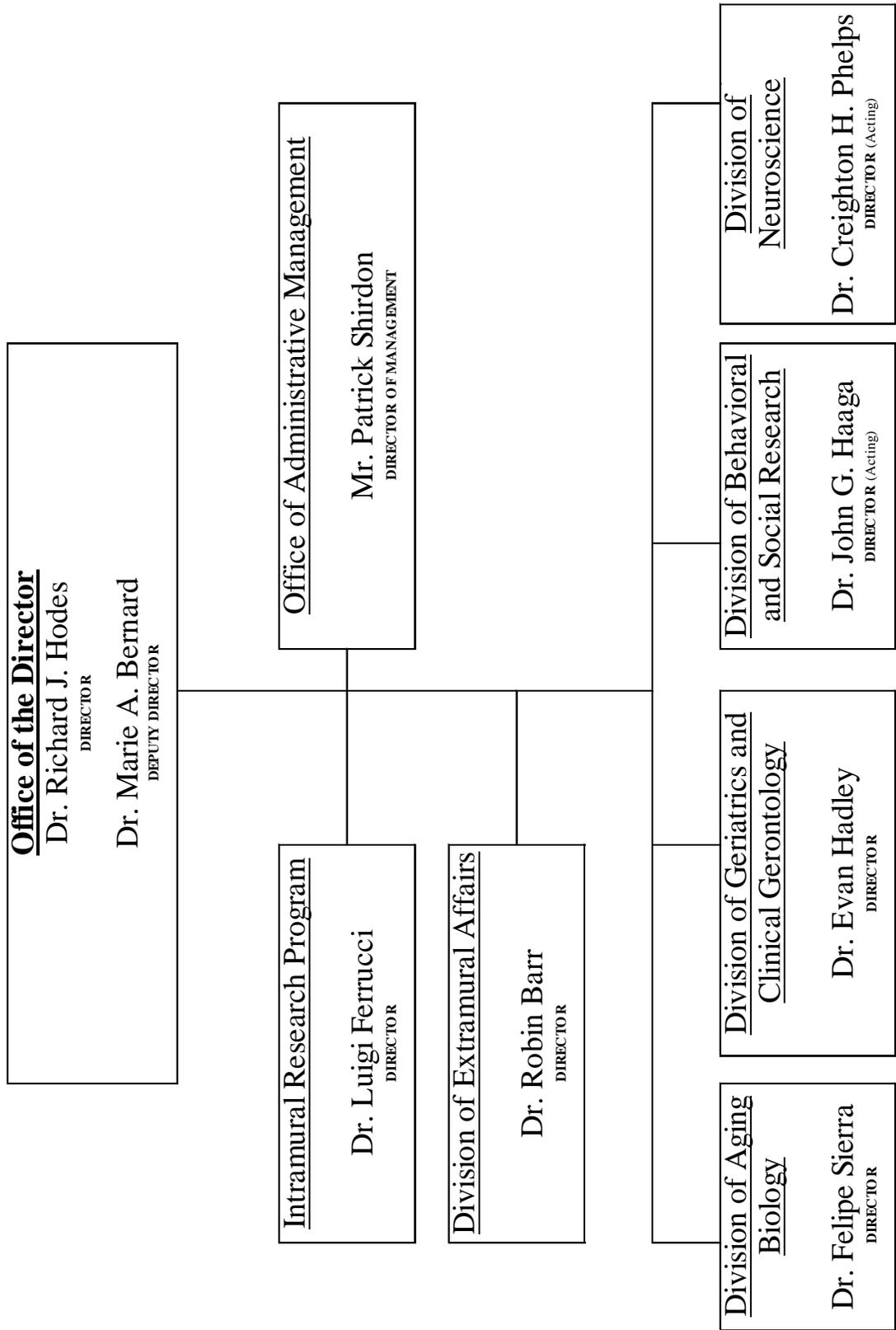
National Institute on Aging (NIA)

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NOTE: The FY 2016 Enacted funding amounts cited throughout this chapter reflect the effects of OAR HIV/AIDS Transfers.

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

Organizational Structure



NATIONAL INSTITUTES OF HEALTH

National Institute on Aging

For carrying out section 301 and title IV of the PHS Act with respect to aging,
[\$1,600,191,000]*\$1,265,133,000*.

NATIONAL INSTITUTES OF HEALTH
National Institute on Aging

Amounts Available for Obligation¹

(Dollars in Thousands)

| Source of Funding | FY 2015 Actual | FY 2016 Enacted | FY 2017 President's Budget |
|-------------------------------------|----------------|-----------------|----------------------------|
| Appropriation | \$1,199,468 | \$1,600,191 | \$1,598,246 |
| Mandatory Appropriation: (non-add) | | | |
| <i>Type 1 Diabetes</i> | (0) | (0) | (0) |
| <i>Other Mandatory financing</i> | (0) | (0) | (333,113) |
| Rescission | 0 | 0 | 0 |
| Sequestration | 0 | 0 | 0 |
| FY 2015 First Secretary's Transfer | 0 | 0 | 0 |
| FY 2015 Second Secretary's Transfer | 0 | 0 | 0 |
| Subtotal, adjusted appropriation | \$1,199,468 | \$1,600,191 | \$1,598,246 |
| OAR HIV/AIDS Transfers | -1,945 | -1,945 | 0 |
| National Children's Study Transfers | 0 | 0 | 0 |
| Subtotal, adjusted budget authority | \$1,197,523 | \$1,598,246 | \$1,598,246 |
| Unobligated balance, start of year | 0 | 0 | 0 |
| Unobligated balance, end of year | 0 | 0 | 0 |
| Subtotal, adjusted budget authority | \$1,197,523 | \$1,598,246 | \$1,598,246 |
| Unobligated balance lapsing | -64 | 0 | 0 |
| Total obligations | \$1,197,459 | \$1,598,246 | \$1,598,246 |

¹ Excludes the following amounts for reimbursable activities carried out by this account:

FY 2015 - \$6,451 FY 2016 - \$6,451 FY 2017 - \$6,451

**NATIONAL INSTITUTES OF HEALTH
FY 2017 Congressional Justification
NIA**

Budget Mechanism - Total¹

(Dollars in Thousands)

| MECHANISM | FY 2015 Actual | | FY 2016 Enacted | | FY 2017 President's Budget ³ | | FY 2017 +/- FY 2016 | |
|---|----------------|---------------------|-----------------|--------------------|---|--------------------|---------------------|-------------------|
| | No. | Amount | No. | Amount | No. | Amount | No. | Amount |
| Research Projects: | | | | | | | | |
| Noncompeting | 899 | \$493,021 | 875 | \$549,615 | 1,105 | \$709,806 | 230 | \$160,190 |
| Administrative Supplements | (90) | 14,214 | (68) | 10,750 | (68) | 10,750 | | |
| Competing: | | | | | | | | |
| Renewal | 77 | 67,337 | 160 | 96,244 | 111 | 66,723 | -49 | -29,521 |
| New | 367 | 186,221 | 715 | 458,723 | 480 | 318,020 | -235 | -140,704 |
| Supplements | 8 | 17,664 | 17 | 9,999 | 12 | 6,932 | -5 | -3,067 |
| Subtotal, Competing | 452 | \$271,222 | 892 | \$564,967 | 603 | \$391,675 | -289 | -\$173,292 |
| Subtotal, RPGs | 1,351 | \$778,456 | 1,767 | \$1,125,333 | 1,708 | \$1,112,231 | -59 | -\$13,102 |
| SBIR/STTR | 76 | 32,383 | 117 | 49,749 | 122 | 52,122 | 5 | 2,373 |
| Research Project Grants | 1,427 | \$810,840 | 1,884 | \$1,175,082 | 1,830 | \$1,164,353 | -54 | -\$10,729 |
| Research Centers: | | | | | | | | |
| Specialized/Comprehensive | 82 | \$92,301 | 96 | \$107,693 | 96 | \$107,693 | | |
| Clinical Research | | | | | | | | |
| Biotechnology | | | | | | | | |
| Comparative Medicine | | 1,021 | | 531 | | 531 | | |
| Research Centers in Minority Institutions | | | | | | | | |
| Research Centers | 82 | \$93,321 | 96 | \$108,224 | 96 | \$108,224 | | |
| Other Research: | | | | | | | | |
| Research Careers | 212 | \$29,681 | 233 | \$32,681 | 219 | \$32,681 | -14 | |
| Cancer Education | | | | | | | | |
| Cooperative Clinical Research | | | | | | | | |
| Biomedical Research Support | | | | | | | | |
| Minority Biomedical Research Support | | | | | | | | |
| Other | 54 | 12,329 | 72 | 16,411 | 72 | 16,411 | | |
| Other Research | 266 | \$42,010 | 305 | \$49,092 | 291 | \$49,092 | -14 | |
| Total Research Grants | 1,775 | \$946,171 | 2,285 | \$1,332,398 | 2,217 | \$1,321,669 | -68 | -\$10,729 |
| Ruth L. Kirchstein Training Awards: | | | | | | | | |
| | FTIPs | | FTIPs | | FTIPs | | FTIPs | |
| Individual Awards | 134 | \$5,653 | 144 | \$7,041 | 141 | \$7,041 | -3 | |
| Institutional Awards | 408 | 19,375 | 416 | 20,797 | 408 | 20,797 | -8 | |
| Total Research Training | 542 | \$25,028 | 560 | \$27,838 | 549 | \$27,838 | -11 | |
| Research & Develop. Contracts <i>(SBIR/STTR) (non-add) ²</i> | 102 (4) | \$57,584 (1,779) | 111 | \$62,520 | 111 | \$67,520 | | \$5,000 |
| Intramural Research | 244 | \$124,096 | 244 | \$129,060 | 244 | \$132,932 | | \$3,872 |
| Res. Management & Support <i>Res. Management & Support (SBIR Admin) (non-add) ²</i> | 155 | 44,644 | 159 | 46,430 | 159 | 48,287 | | 1,857 |
| <i>Office of the Director - Appropriation ²</i> | | | | | | | | |
| Office of the Director - Other | | | | | | | | |
| ORIP/SEPA (non-add) ² | | | | | | | | |
| Common Fund (non-add) ² | | | | | | | | |
| Buildings and Facilities | | | | | | | | |
| Appropriation | | | | | | | | |
| Type 1 Diabetes | | | | | | | | |
| Program Evaluation Financing | | | | | | | | |
| Cancer Initiative Mandatory Financing | | | | | | | | |
| Other Mandatory Financing | | | | | | -333,113 | | -333,113 |
| Subtotal, Labor/HHS Budget Authority | | \$1,197,523 | | \$1,598,246 | | \$1,265,133 | | -\$333,113 |
| Interior Appropriation for Superfund Res. | | | | | | | | |
| Total, NIH Discretionary B.A. | | \$1,197,523 | | \$1,598,246 | | \$1,265,133 | | -\$333,113 |
| Type 1 Diabetes | | | | | | | | |
| Proposed Law Funding | | | | | | | | |
| Cancer Initiative Mandatory Financing | | | | | | | | |
| Other Mandatory Financing | | | | | | 333,113 | | 333,113 |
| Total, NIH Budget Authority | | \$1,197,523 | | \$1,598,246 | | \$1,598,246 | | |
| Program Evaluation Financing | | | | | | | | |
| Total, Program Level | | \$1,197,523 | | \$1,598,246 | | \$1,598,246 | | |

¹ All Subtotal and Total numbers may not add due to rounding.

² All numbers in italics and brackets are non-add.

³ Includes mandatory financing.

Major Changes in the Fiscal Year 2017 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 2017 President's Budget for NIA, which is the same level as the FY 2016 level, for a total of \$1,598 million.

Non-Competing Research Project Grants (+\$160.19 million; total \$709.806 million):

NIA will continue to support its established commitment base for non-competing Research Project Grants (RPGs) awarding a total of 1,105 RPGs, an increase of 230 from FY 2016. This increase is based on an increased number of RPGs that NIA approved during previous fiscal years.

Competing Research Project Grants (-\$173.292 million; total \$391.675 million):

NIA will award a total of 603 RPGs, a decrease of 289 from FY 2016. NIA will continue to support its commitment base for competing Research Project Grants (RPGs). The decrease in competing RPGs is based on the transition of previously awarded RPGs into non-competing status.

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

Summary of Changes

(Dollars in Thousands)

| FY 2016 Enacted | | \$1,598,246 | | |
|--|---|------------------|---------------------|------------------|
| FY 2017 President's Budget | | \$1,598,246 | | |
| Net change | | \$0 | | |
| CHANGES | FY 2017 President's Budget ¹ | | Change from FY 2016 | |
| | FTEs | Budget Authority | FTEs | Budget Authority |
| <u>A. Built-in:</u> | | | | |
| <u>1. Intramural Research:</u> | | | | |
| a. Annualization of January 2016 pay increase & benefits | | \$44,951 | | \$483 |
| b. January FY 2017 pay increase & benefits | | 44,951 | | 600 |
| c. Two less days of pay | | 44,951 | | -283 |
| d. Differences attributable to change in FTE | | 44,951 | | 0 |
| e. Payment for centrally furnished services | | 11,500 | | 280 |
| f. Increased cost of laboratory supplies, materials, other expenses, and non-recurring costs | | 76,481 | | 3,137 |
| Subtotal | | | | \$4,218 |
| <u>2. Research Management and Support:</u> | | | | |
| a. Annualization of January 2016 pay increase & benefits | | \$24,647 | | \$312 |
| b. January FY 2017 pay increase & benefits | | 24,647 | | 370 |
| c. Two less days of pay | | 24,647 | | -189 |
| d. Differences attributable to change in FTE | | 24,647 | | 0 |
| e. Payment for centrally furnished services | | 514 | | 13 |
| f. Increased cost of laboratory supplies, materials, other expenses, and non-recurring costs | | 23,126 | | 1,592 |
| Subtotal | | | | \$2,098 |
| Subtotal, Built-in | | | | \$6,315 |

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

Summary of Changes - Continued

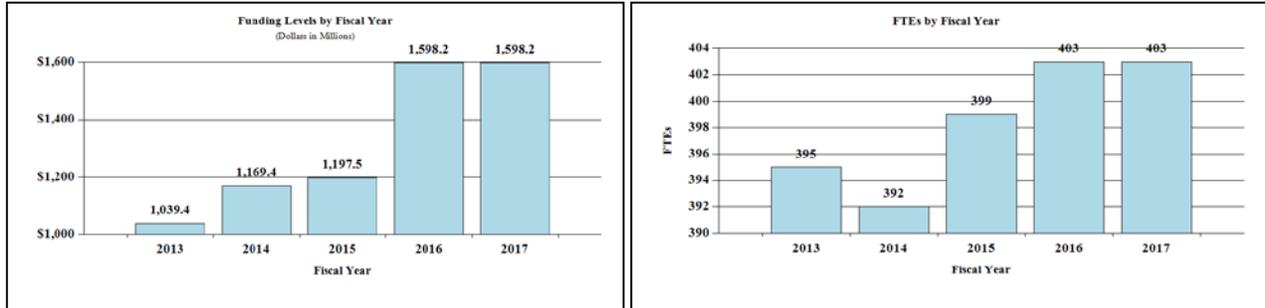
(Dollars in Thousands)

| CHANGES | FY 2017 President's Budget ¹ | | Change from FY 2016 | |
|---------------------------------------|---|-------------|---------------------|-----------|
| | No. | Amount | No. | Amount |
| B. Program: | | | | |
| 1. Research Project Grants: | | | | |
| a. Noncompeting | 1,105 | \$720,556 | 230 | \$160,190 |
| b. Competing | 603 | 391,675 | -289 | -173,292 |
| c. SBIR/STTR | 122 | 52,122 | 5 | 2,373 |
| Subtotal, RPGs | 1,830 | \$1,164,353 | -54 | -\$10,729 |
| 2. Research Centers | 96 | \$108,224 | 0 | \$0 |
| 3. Other Research | 291 | 49,092 | -14 | 0 |
| 4. Research Training | 549 | 27,838 | -11 | 0 |
| 5. Research and development contracts | 111 | 67,520 | 0 | 5,000 |
| Subtotal, Extramural | | \$1,417,027 | | -\$5,729 |
| 6. Intramural Research | <u>FTEs</u> 244 | \$132,932 | <u>FTEs</u> 0 | -\$346 |
| 7. Research Management and Support | 159 | 48,287 | 0 | -240 |
| 8. Construction | | 0 | | 0 |
| 9. Buildings and Facilities | | 0 | | 0 |
| Subtotal, Program | 403 | \$1,598,246 | 0 | -\$6,315 |
| Total changes | | | | \$0 |

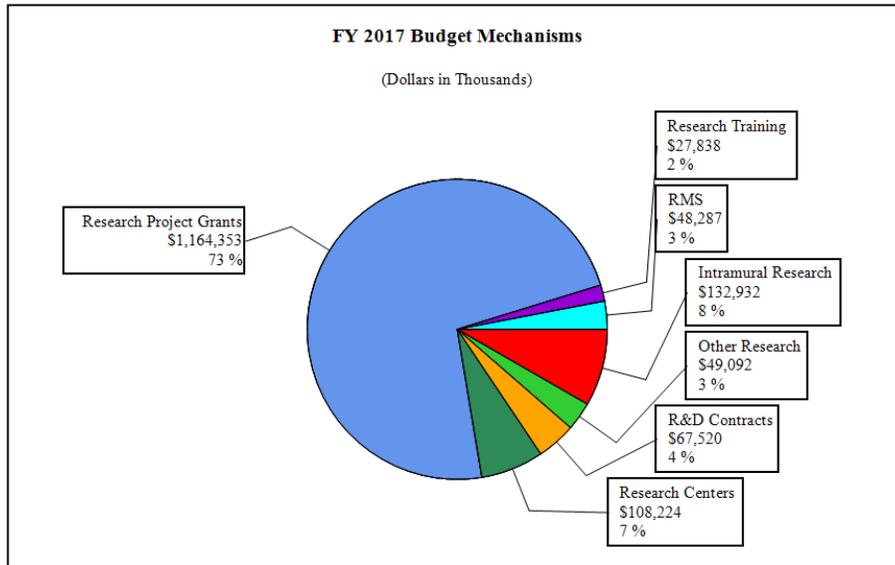
¹ Includes mandatory financing.

Fiscal Year 2017 Budget Graphs

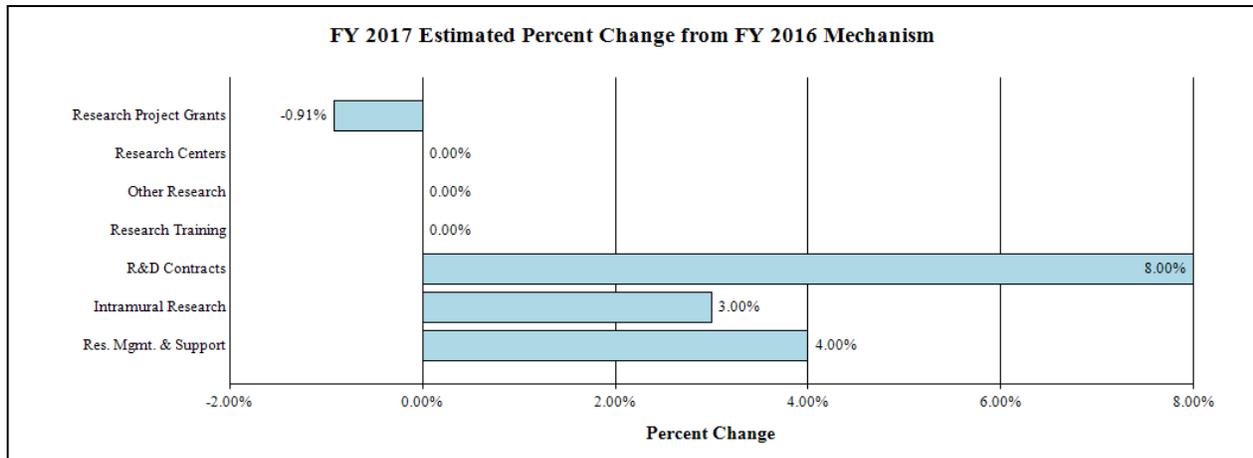
History of Budget Authority and FTEs:



Distribution by Mechanism:



Change by Selected Mechanism



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

Budget Authority by Activity¹
(Dollars in Thousands)

| | FY 2015 Actual | | FY 2016 Enacted | | FY 2017 President's Budget ² | | FY 2017 +/- FY2016 | |
|---|----------------|--------------------|-----------------|--------------------|---|--------------------|--------------------|-----------------|
| | <u>FTE</u> | <u>Amount</u> | <u>FTE</u> | <u>Amount</u> | <u>FTE</u> | <u>Amount</u> | <u>FTE</u> | <u>Amount</u> |
| <u>Extramural Research</u> | | | | | | | | |
| <u>Detail</u> | | | | | | | | |
| Aging Biology | | \$176,836 | | \$183,910 | | \$183,174 | | -\$736 |
| Behavioral & Social Research | | 202,307 | | 210,399 | | 209,558 | | -842 |
| Neuroscience | | 506,702 | | 879,792 | | 876,235 | | -3,557 |
| Geriatrics & Clinical Gerontology | | 142,938 | | 148,655 | | 148,060 | | -595 |
| Subtotal, Extramural | | \$1,028,783 | | \$1,422,756 | | \$1,417,027 | | -\$5,729 |
| <u>Intramural Research</u> | 244 | \$124,096 | 244 | \$129,060 | 244 | \$132,932 | 0 | \$3,872 |
| <u>Research Management & Support</u> | 155 | \$44,644 | 159 | \$46,430 | 159 | \$48,287 | 0 | \$1,857 |
| TOTAL | 399 | \$1,197,523 | 403 | \$1,598,246 | 403 | \$1,598,246 | 0 | \$0 |

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

² Includes mandatory financing.

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

Authorizing Legislation

| | PHS Act/ Other Citation | U.S. Code Citation | 2016 Amount Authorized | FY 2016 Enacted | 2017 Amount Authorized | FY 2017 President's Budget¹ |
|-------------------------------|------------------------------------|-------------------------------|-----------------------------------|------------------------|-----------------------------------|---|
| Research and Investigation | Section 301 | 42§241 | Indefinite | | Indefinite | |
| National Institute on Aging | Section 401(a) | 42§281 | Indefinite | \$1,598,246,000 | Indefinite | \$1,265,133,000 |
| Total Budget Authority | | | | \$1,598,246,000 | | \$1,265,133,000 |

¹Excludes mandatory financing.

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

Appropriations History

| Fiscal Year | Budget Estimate to Congress | House Allowance | Senate Allowance | Appropriation |
|--------------------|------------------------------------|------------------------|-------------------------|----------------------|
| 2007 | \$1,039,828,000 | \$1,039,828,000 | \$1,039,828,000 | \$1,039,828,000 |
| Rescission | | | | \$0 |
| 2008 | \$1,047,148,000 | \$1,062,833,000 | \$1,073,048,000 | \$1,047,260,000 |
| Rescission | | | | \$18,621,000 |
| 2009 | \$1,048,278,000 | \$1,084,321,000 | \$1,077,448,000 | \$1,080,796,000 |
| Rescission | | | | \$0 |
| 2010 | \$1,093,413,000 | \$1,119,404,000 | \$1,099,409,000 | \$1,110,229,000 |
| Rescission | | | | \$0 |
| 2011 | \$1,142,337,000 | | \$1,140,547,000 | \$1,110,229,000 |
| Rescission | | | | \$9,748,472 |
| 2012 | \$1,129,987,000 | \$1,129,987,000 | \$1,088,091,000 | \$1,105,530,000 |
| Rescission | | | | \$2,089,452 |
| 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 Includes mandatory financing.

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 2015 Actual | FY 2016 Enacted | FY 2017 President's Budget | FY 2017 +/- FY 2016 |
|-----|-------------------|--------------------|----------------------------------|------------------------|
| BA | \$1,197,523,000 | \$1,598,246,000 | \$1,598,246,000 | \$0 |
| FTE | 399 | 403 | 403 | 0 |

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

Director's Overview

The mission of the National Institute on Aging (NIA) is to support and conduct genetic, biological, clinical, behavioral, social, and economic research related to the aging process, diseases and conditions associated with aging, and other special problems and needs of older Americans; foster the development of research and clinician-scientists for research on aging; and communicate information about aging and advances in research with the scientific community, health care providers, and the public. NIA is also the lead Federal agency for research on Alzheimer's disease (AD). NIA carries out its mission by supporting research at universities, research centers, and medical centers across the United States and around the world, as well as a vibrant intramural research program at laboratories in Baltimore and Bethesda, Maryland.

Now more than ever, NIA's work is urgent. The number of Americans aged 65 and older is growing at an unprecedented rate, and by 2030 there will be some 72 million Americans in this age group – more than double the number from 2000. The number of “oldest old” – people age 85 or older – is expected to more than triple between 2010 and 2050.¹ Age is a primary risk factor for many disabling diseases and conditions, and it is therefore imperative that we discover new and effective ways to make added years healthy and productive.

An understanding of aging processes at their most fundamental level is a necessary foundation for discovery of new preventive interventions and cures, and investment in research on the basic biology of aging is therefore a major priority for NIA. The establishment of the trans-NIH GeroScience Interest Group (GSIG) to facilitate discovery on the common risks and mechanisms behind age-related diseases and conditions has invigorated the field of basic geroscience, and

¹ Federal Interagency Forum on Aging-Related Statistics. Older Americans 2012: Key Indicators of Well-Being. Federal Interagency Forum on Aging-Related Statistics. Washington, DC: U.S. Government Printing Office. 2012. <http://www.agingstats.gov>.

recommendations from the 2013 GSIG Summit entitled “Advances in Geroscience: Impact on Healthspan and Chronic Disease” continue to energize researchers in this field.

Recognizing that up to half of premature deaths in the United States are due to behavioral and social factors, NIA also maintains an ongoing commitment to supporting basic behavioral and social research in aging.² The NIA-supported Health and Retirement Study remains the world’s premier multidisciplinary source of data on the health and well-being of older Americans, linking objective and subjective measures of health with information about retirement, economic status, family structure, personality, as well as health behaviors and service utilization. Funds from the American Recovery and Reinvestment Act facilitated expansion of the study, including genotyping DNA samples from participants, and in FY 2016 research will be ongoing to take advantage of the newly available genetic data to advance our understanding of how genetic, behavioral, and psychosocial factors affect health and well-being. NIA also remains an active participant in the trans-NIH Science of Behavior Change initiative and the Basic Behavioral and Social Science Opportunity Network.

The promise of personalized medicine – i.e., the ability to treat the right disease process with the right intervention at the right time – is closer than ever to being realized for many aging-related diseases and conditions. For example, approaches to systems biology identifying complex genetic and molecular networks, such as the Accelerating Medicines Partnership (AMP – see Program Portrait), will enable the identification of molecular signatures and networks underlying the various disease processes that lead to symptoms associated with AD. NIA also is partnering with the Patient-Centered Outcomes Research Institute (PCORI) on a major intervention study testing how to prevent injurious falls, a key cause of disability in older people. This study is testing an individually-tailored prevention strategy, including a “fall care manager,” in community health care systems. Another initiative supports research to identify behavioral interventions with high potential impact on health outcomes among individuals with multiple chronic health conditions, a common issue among older adults.

NIA’s comprehensive AD research program spans the spectrum of discovery, from basic neuroscience through translational research and clinical application. The National Alzheimer’s Plan, 2012 and 2015 Research Summits, and allocation of additional funds over the past several years have accelerated momentum in this field. Late in FY 2015, NIA released 10 Funding Opportunity Announcements (FOAs) incorporating themes and recommendations from the Research Summits. They fall into seven broad categories, and offer opportunities for investigators in virtually every aspect of AD research – including health disparities, caregiving, epidemiology, diagnosis and prediction, molecular and cellular mechanisms, brain aging, and clinical trials. FOAs have set-aside funds associated with them, and will be supported according to the availability of funds in FY 2016 and FY 2017.

NIA’s efforts in AD research have been bolstered by the advent of new technologies to generate and analyze enormous data sets. These new technologies have been particularly effective in identifying risk and protective genes for AD. For example, researchers can now access genome sequence data from the Alzheimer’s Disease Sequencing Project (ADSP), a collaboration

² Schroeder SA. Shattuck Lecture: We Can Do Better – Improving the Health of the American People. *New Engl J Med* 357: 1221-1228, 2007.

between NIA and the National Human Genome Research Institute to facilitate identification of risk and protective genes. The opening of the AMP-AD Knowledge Portal – a new data sharing and analysis resource developed under AMP – (see Program Portrait) and release of the first wave of data will enable sharing and analyses of large and complex biomedical datasets. Researchers believe this approach will ramp up the development of predictive models of AD and enable the selection of novel targets that drive the changes in molecular networks leading to the clinical signs and symptoms of the disease.

Finally, NIA takes seriously its responsibility to carefully steward its resources in the interest of the American people. The Institute supports several innovative programs dedicated to training the next generation of aging researchers. These include the Paul Beeson Career Development Awards in Aging Research for outstanding clinician-scientists and the Butler-Williams Scholars Program, a “boot camp” to prepare emerging investigators in aging research to compete successfully for grant funding. NIA also employs an in-depth process each year to update and refine plans and priorities based on advances in biomedical science. NIA recently updated its strategic directions document to reflect the continuing evolution of our overall priorities.³

Overall Budget Policy:

The FY 2017 President’s Budget request is \$1,598.246 million, equal to the FY 2016 Enacted Level.

Program Descriptions and Accomplishments

Biology of Aging Program: The primary goal of NIA’s Biology of Aging Program is to improve our understanding of the basic biological mechanisms underlying the process of aging, which is the major risk factor for many chronic diseases affecting Americans. Basic biochemical, genetic, and physiological studies are carried out primarily in animal models, including both mammals and non-mammalian organisms (e.g., flies, worms, yeast). The program also coordinates the NIH Geroscience Interest Group (GSIG), a collaborative effort that was established in 2012 to accelerate and coordinate efforts to promote discoveries on the common risks and mechanisms behind age-related diseases and conditions. Ongoing initiatives that will remain active during FY 2017 include work to develop short-term surrogate tests that provide a comprehensive measure of resilience in animal models of aging. Greater resilience has been hypothesized to correlate with longevity and better health span, but scientists lack the appropriate methodology to test this in animal models. The program is also participating in a new trans-NIA initiative to support translational research at the individual and community levels. The highly productive Interventions Testing Program to identify compounds that extend median and/or maximal life span in a mouse model is now in its second decade and will continue, along with a similar program to identify such compounds in the context of extensive genetic heterogeneity using the worm model *Caenorhabditis*. The program also coordinates the Nathan Shock Centers of Excellence in the Basic Biology of Aging.

Budget Policy:

The FY 2017 President’s Budget request is \$183.174 million, a decrease of \$0.736 million or 0.4 percent compared to the FY 2016 Enacted level.

³ <https://www.nia.nih.gov/about/strategic-directions-2016>

Behavioral and Social Research Program: NIA's Behavioral and Social Research Program supports research to understand and improve the processes of aging at the individual and population levels. Research areas include: 1) the behavioral, psychological, and social changes individuals experience over the adult lifespan; 2) participation of older people in the economy, families, and communities; 3) the development of interventions to improve the health, cognition, and well-being of older adults; and 4) the societal impact of population aging, including the effects of associated changes in labor force participation and socioeconomic circumstances on health. The program also supports: 1) development of publicly available, cross-nationally comparable datasets to facilitate research on the sources of international variations in health outcomes; 2) studies that integrate biology, including genetics, with social and behavioral science to elucidate the pathways by which social, psychological, economic, and behavioral factors affect health in middle age and late life; 3) longitudinal studies measuring behavioral and social variables that are relevant to health and change over the lifespan; 4) interventions to ameliorate the impact of disadvantage and reduce health disparities at older ages; and 5) interventions to improve well-being and maximize active life and health expectancy. The program coordinates the long-running Health and Retirement Study (HRS), the Nation's leading source of combined data on health and socioeconomic circumstances of Americans over age 50. It also supports other longitudinal studies focusing on trends in late life disability (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 program also coordinates the Centers on the Demography and Economics of Aging; the Edward R. Roybal Centers for Translational Research on Aging; and the Resource Centers for Minority Aging Research.

Major program activities that will be active in FY 2017 include initiatives to stimulate research on mid-life adults that can inform efforts to optimize health and well-being, prevent illness and disability in later years, and potentially reverse the negative impact of early life adversity on later life health. HRS will add respondents representing the Late Baby Boom cohort, expand collection of objective health measures, and conduct a nationally-representative study of cognitive impairment and dementia that will provide a basis for international comparisons. The program will also increase research focus on AD epidemiology, health disparities, and caregiving.

Budget Policy:

The FY 2017 President's Budget request is \$209.558 million, a decrease of \$0.842 million or 0.4 percent compared to the FY 2016 Enacted level.

Geriatrics and Clinical Gerontology Program – Reducing Disease and Disability among Older People: As we age, our risk for many types of disease and/or disability increases dramatically. NIA's Geriatrics and Clinical Gerontology Program supports research on health, disease, and disability in the aged (other than neurodegeneration, which is the focus of NIA's Neuroscience Program). Areas of focus include age-related physical changes and their relationship to health outcomes, the maintenance of health and the development of disease, and specific age-related risk factors for disease.

A current research focus, which will continue into FY 2017, is the study of how early life factors can influence health and disease as we age. The program also coordinates the Claude D. Pepper Older Americans Independence Centers Program, the goal of which is to increase scientific knowledge leading to better ways to maintain or restore independence in older persons. In addition, the program plans and administers clinical trials for a number of age-related conditions; for example, program-supported investigators are collaborating with PCORI on a clinical trial to test individually-tailored interventions to prevent fall-related injuries. Projects will also be active under an ongoing initiative to identify behavioral interventions with high potential impact to improve patient-level health outcomes for individuals with three or more chronic health conditions.

Budget Policy:

The FY 2017 President's Budget request is \$148.060 million, a decrease of \$0.595 million or 0.4 percent compared to the FY 2016 Enacted level.

Neuroscience Program – Understanding, Treating, and Preventing Cognitive Decline and

AD: NIA's Neuroscience Program supports a broad spectrum of research and training aimed at better understanding age-related normal and pathological changes in the structure and function of the aging nervous system and how such changes affect behavior. The program's basic mission is to expand knowledge on the aging nervous system to allow improvement in the quality of life of older people. Ongoing activities include basic and clinical studies of normal brain aging, as well as AD and other neurodegenerative diseases of aging. These include molecular and cellular studies, animal models, genetics, drug discovery and development, diagnosis, clinical course, clinical trials for treatment and prevention of AD and other neurodegenerative diseases, as well as for maintaining or improving cognitive health, sensory and motor function, and epidemiological studies to identify risk factors and establish prevalence and incidence estimates. NIA also supports a national network of AD centers to translate research advances into improved diagnosis and care of AD patients, as well as implementing a broad array of studies aimed at improving our understanding of this disease.

Program Portrait: Accelerating Medicines Partnership (AMP) – Alzheimer’s Disease

FY 2016 Level: \$17.4 million

FY 2017 Level: \$14.9 million

Difference: -\$2.5 million

Development of effective new medicines for complex diseases is a long, costly process, and one that fails all too often. Because targeting drugs more precisely at the molecular level may reduce the number of late-stage failures and increase the efficiency of the drug development process, the NIH collaborated with the Foundation for NIH and 10 pharmaceutical company partners to create AMP. AMP was established in 2014 with the primary goals of identification and characterization of biomarkers and targets for intervention. All AMP data will be made publicly available, and NIH and industry will share evenly in the \$230 million cost over five years for the first projects: AD, type 2 diabetes, and the autoimmune disorders rheumatoid arthritis and systemic lupus erythematosus.

For AD, AMP resources are being used to incorporate an expanded set of biomarkers into three ongoing trials designed to delay or prevent disease and determine their utility in tracking disease progression and/or responsiveness to treatment. The three trials are the Dominantly Inherited Alzheimer’ Network Trials Unit Trial (DIAN-TU), which will assess the safety, tolerability, and biomarker efficacy of two experimental drugs, gantenerumab and solanezumab, in people who are genetically at high risk for familial Alzheimer’s; the Alzheimer’s Prevention Initiative APOE4 trial, testing two anti-amyloid drugs, an active vaccine and a beta-secretase inhibitor, in cognitively normal older volunteers who are at increased risk of developing late-onset Alzheimer’s; and the Anti-Amyloid Treatment in Asymptomatic AD (A4) trial to assess the efficacy of the drug solanezumab in clinically normal older people with neuroimaging biomarker evidence of brain amyloid. NIA anticipates that these trials will be complete between 2017 and 2020.

AMP resources also support large-scale systems biology analyses aimed at integrating multidimensional human “omic” data from about 2,500 brains at all stages of AD with clinical and pathological data, to discover, select, and characterize novel therapeutic targets for AD and begin building a better predictive model of the disease. These efforts are carried out by the AMP-AD Target Discovery and Preclinical Validation Consortium, a group of six multi-institutional academic teams. The teams integrate the analyses of large-scale molecular data from human brain samples with cutting-edge network modeling approaches and experimental validation in a variety of cell-based and animal models. Data from this initiative are shared rapidly and widely via the AMP-AD Knowledge Portal; the Knowledge Portal has been launched, and the first wave of data was released in March 2015.

As the lead Federal agency for research on AD, NIA leads implementation of research goals of the National Plan to Address Alzheimer’s Disease. Recent initiatives have boosted support for AD research, including an additional \$100 million in FY 2014 and \$25 million in FY 2015 for the disease. The International Alzheimer’s Disease Research Portfolio (IADRP), a publicly available database to capture the full spectrum of current AD research investments and resources throughout the world, will facilitate coordination of these efforts. Finally, NIA coordinated development of NIH’s first professional judgment budget for AD. As mandated in the FY 2015 Appropriations Act, this document – which covers FY 2017 – provides an estimate of the funds above the FY 2016 President’s Budget that will enable NIA to fully pursue scientific opportunities leading to a cure.⁴

⁴ <https://www.nia.nih.gov/alzheimers/bypass-budget-fy2017>

Program Portrait: Health Disparities Research at the National Institute on Aging

FY 2016 Level: \$132.8 million

FY 2017 Level: \$132.8 million

Difference: \$0.0 million

Disparities in nearly every indicator of health, well-being, and quality of life persist among racial, ethnic, sex, gender, disability, and socioeconomic groups in the United States. These disparities in health are often most acutely experienced by the older population since they are at the highest risk for most diseases and disability.

Efforts to address health disparities related to aging have been strengthened and energized by NIA's development of a new tool. The NIA Health Disparities Research Framework provides a landscape at multiple levels of analysis for stimulating interdisciplinary research approaches, evaluating research productivity, and identifying opportunities for innovative health disparities research related to aging. The Framework was published in the journal *Ethnicity and Disease* in July 2015. Also in 2015, NIA released FOAs to: 1) stimulate interdisciplinary health disparities research related to aging that considers the role that stress, stress response, and stress resilience play in differential health outcomes in priority health disparity populations; and 2) motivate studies that examine biological, behavioral, sociocultural, and biological factors that influence population-level health disparities in AD and related disorders; studies awarded under these FOAs will be active in FY 2017.

Another major NIA-supported research project is the HANDLS study, a 20-year project within the NIA IRP to examine the influences of race and socioeconomic status on the development of age-related health disparities among socioeconomically diverse African Americans and whites in Baltimore. In addition, AD centers program's Satellite Diagnostic and Treatment Centers have successfully recruited racial and ethnic minorities to prevention and treatment clinical trials, and the Health and Retirement Study used funding from the American Recovery and Reinvestment Act to increase minority participation. In 2015, NIA also awarded supplemental funding to nine ongoing grants to address issues related to health disparities and health equity.

Training and career development initiatives include the Butler-Williams Scholars Program for emerging scientists to receive in-depth training on research design and program development in aging, including issues relevant to health disparities research related to aging, as well as seven Resource Centers for Minority Aging Research, whose mission is to increase the number and diversity of researchers focused on the health of racial and ethnic minority elders. Finally, NIA's communications and outreach programs include materials tailored to health disparities populations, including Spanish-language versions of most Age Pages and a Spanish version of the NIA web site.

Budget Policy:

The FY 2017 President's Budget request is \$876.235 million, a decrease of \$3.557 million or 0.4 percent compared to the FY 2016 Enacted level.

Intramural Research at NIA: Investigators with NIA's Intramural Research Program (IRP) conduct research in the areas of basic, behavioral, clinical, epidemiologic, and translational research. High priority research endeavors and areas of specific focus include: 1) Molecular and Cellular Biology, including caloric restriction, cell cycle control, signal transduction, DNA damage and repair, physiology, and medicinal chemistry; 2) Neuroscience, including neurodegenerative diseases, with particular emphasis on early diagnosis, drug design and development, and neuronal cell apoptosis; 3) Genetics and Genomics, particularly genetic and epigenetic determinants of aging as an integrated part of human development; 4) Behavioral Research, including personality, cognition, and psychophysiology; 5) Clinical and Translational Research in cardiology, immunology, neurology, and endocrinology; and 6) Epidemiology, including studies of frailty, cognition, body composition, disability, and molecular biomarkers of aging.

The clinical research effort focuses on the translation of basic research findings, prevention and therapeutic clinical trials focused on age-associated diseases, modulation of treatment efficacy and toxicity in older patients, and establishment of and maintenance of diverse longitudinal cohorts for aging research. Many studies focus on common age-related diseases such as AD, Parkinson's disease, stroke, atherosclerosis, and diabetes. Others, such as the groundbreaking Baltimore Longitudinal Study of Aging, explore the determinants of healthy aging and attempt to define the physiological measures of biological aging. Work is also continuing on the Healthy Aging in Neighborhoods of Diversity across the Life Span (HANDLS) study, which is examining the influences of race and socioeconomic status on the development of age-related health disparities among socioeconomically diverse African Americans and whites living in Baltimore. In 2015, the NIA IRP initiated the Genetic and Epigenetic Signatures of Translational Aging Laboratory Testing (GESTALT) Study, in which investigators will assess the relationship of blood biomarkers to physiological measures that typically change with aging, including measures of body composition, hormones and inflammatory markers, and neurological function.

Budget Policy:

The FY 2017 President's Budget request is \$132.932 million, an increase of \$3.872 million or 2.9 percent compared to the FY 2016 level. Additional funds will be used to partially offset personnel costs and IT infrastructure improvements.

Research Management and Support (RMS): NIA RMS activities provide administrative, budgetary, logistical, and scientific support in the review, award, and monitoring of research grants, training awards and research and development contracts. RMS functions also encompass strategic planning, coordination, and evaluation of the Institute's programs, regulatory compliance, international coordination, and liaison with other Federal agencies, Congress, and the public. The Institute currently oversees more than 1,926 research project grants and centers, as well as 549 full-time training positions and 111 research and support contracts.

Budget Policy:

The FY 2017 President's Budget request is \$48.287 million, an increase of \$1.857 million, or 3.8 percent above the FY 2016 level. Additional funds will be used to partially offset personnel costs and IT infrastructure improvements.

NATIONAL INSTITUTES OF HEALTH

National Institute on Aging

Budget Authority by Object Class¹

(Dollars in Thousands)

| | FY 2016 Enacted | FY 2017 President's Budget² | FY 2017 +/- FY 2016 |
|--|------------------------|---|----------------------------|
| Total compensable workyears: | | | |
| Full-time employment | 403 | 403 | 0 |
| Full-time equivalent of overtime and holiday hours | 0 | 0 | 0 |
| Average ES salary | \$172 | \$175 | \$3 |
| Average GM/GS grade | 11.8 | 11.8 | 0.0 |
| Average GM/GS salary | \$99 | \$100 | \$2 |
| Average salary, grade established by act of July 1, 1944 (42 U.S.C. 207) | \$127 | \$129 | \$2 |
| Average salary of ungraded positions | \$177 | \$180 | \$3 |
| OBJECT CLASSES | FY 2016 Enacted | FY 2017 President's Budget² | FY 2017 +/- FY 2016 |
| Personnel Compensation | | | |
| 11.1 Full-Time Permanent | \$29,962 | \$30,190 | \$228 |
| 11.3 Other Than Full-Time Permanent | 14,214 | 14,322 | 108 |
| 11.5 Other Personnel Compensation | 892 | 899 | 7 |
| 11.7 Military Personnel | 411 | 414 | 3 |
| 11.8 Special Personnel Services Payments | 8,140 | 8,202 | 62 |
| 11.9 Subtotal Personnel Compensation | \$53,620 | \$54,028 | \$408 |
| 12.1 Civilian Personnel Benefits | \$14,963 | \$15,259 | \$296 |
| 12.2 Military Personnel Benefits | 309 | 311 | 2 |
| 13.0 Benefits to Former Personnel | 0 | 0 | 0 |
| Subtotal Pay Costs | \$68,891 | \$69,598 | \$707 |
| 21.0 Travel & Transportation of Persons | \$964 | \$982 | \$17 |
| 22.0 Transportation of Things | 141 | 144 | 3 |
| 23.1 Rental Payments to GSA | 0 | 0 | 0 |
| 23.2 Rental Payments to Others | 3 | 3 | 0 |
| 23.3 Communications, Utilities & Misc. Charges | 920 | 937 | 17 |
| 24.0 Printing & Reproduction | 0 | 0 | 0 |
| 25.1 Consulting Services | \$652 | \$664 | \$12 |
| 25.2 Other Services | 21,968 | 22,364 | 395 |
| 25.3 Purchase of goods and services from government accounts | 103,812 | 116,335 | 12,523 |
| 25.4 Operation & Maintenance of Facilities | \$2,682 | \$2,731 | \$48 |
| 25.5 R&D Contracts | 34,914 | 31,041 | -3,873 |
| 25.6 Medical Care | 957 | 983 | 26 |
| 25.7 Operation & Maintenance of Equipment | 2,807 | 2,858 | 51 |
| 25.8 Subsistence & Support of Persons | 0 | 0 | 0 |
| 25.0 Subtotal Other Contractual Services | \$167,793 | \$176,975 | \$9,182 |
| 26.0 Supplies & Materials | \$8,937 | \$9,094 | \$158 |
| 31.0 Equipment | 5,359 | 5,456 | 96 |
| 32.0 Land and Structures | 0 | 0 | 0 |
| 33.0 Investments & Loans | 0 | 0 | 0 |
| 41.0 Grants, Subsidies & Contributions | 1,345,236 | 1,335,057 | -10,179 |
| 42.0 Insurance Claims & Indemnities | 0 | 0 | 0 |
| 43.0 Interest & Dividends | 1 | 1 | 0 |
| 44.0 Refunds | 0 | 0 | 0 |
| Subtotal Non-Pay Costs | \$1,529,355 | \$1,528,648 | -\$707 |
| Total Budget Authority by Object Class | \$1,598,246 | \$1,598,246 | \$0 |

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

² Includes mandatory financing.

NATIONAL INSTITUTES OF HEALTH
National Institute on Aging

Salaries and Expenses

(Dollars in Thousands)

| OBJECT CLASSES | FY 2016 Enacted | FY 2017 President's Budget | FY 2017 +/- FY 2016 |
|--|--------------------|----------------------------------|---------------------------|
| Personnel Compensation | | | |
| Full-Time Permanent (11.1) | \$29,962 | \$30,190 | \$228 |
| Other Than Full-Time Permanent (11.3) | 14,214 | 14,322 | 108 |
| Other Personnel Compensation (11.5) | 892 | 899 | 7 |
| Military Personnel (11.7) | 411 | 414 | 3 |
| Special Personnel Services Payments (11.8) | 8,140 | 8,202 | 62 |
| Subtotal Personnel Compensation (11.9) | \$53,620 | \$54,028 | \$408 |
| Civilian Personnel Benefits (12.1) | \$14,963 | \$15,259 | \$296 |
| Military Personnel Benefits (12.2) | 309 | 311 | 2 |
| Benefits to Former Personnel (13.0) | 0 | 0 | 0 |
| Subtotal Pay Costs | \$68,891 | \$69,598 | \$707 |
| Travel & Transportation of Persons (21.0) | \$964 | \$982 | \$17 |
| Transportation of Things (22.0) | 141 | 144 | 3 |
| Rental Payments to Others (23.2) | 3 | 3 | 0 |
| Communications, Utilities & Misc. Charges (23.3) | 920 | 937 | 17 |
| Printing & Reproduction (24.0) | 0 | 0 | 0 |
| Other Contractual Services: | | | |
| Consultant Services (25.1) | 632 | 643 | 11 |
| Other Services (25.2) | 21,968 | 22,364 | 395 |
| Purchases from government accounts (25.3) | 69,684 | 74,068 | 4,384 |
| Operation & Maintenance of Facilities (25.4) | 2,682 | 2,731 | 48 |
| Operation & Maintenance of Equipment (25.7) | 2,807 | 2,858 | 51 |
| Subsistence & Support of Persons (25.8) | 0 | 0 | 0 |
| Subtotal Other Contractual Services | \$97,774 | \$102,664 | \$4,890 |
| Supplies & Materials (26.0) | \$8,937 | \$9,094 | \$158 |
| Subtotal Non-Pay Costs | \$108,739 | \$113,823 | \$5,084 |
| Total Administrative Costs | \$177,630 | \$183,421 | \$5,791 |

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

Detail of Full-Time Equivalent Employment (FTE)

| OFFICE/DIVISION | FY 2015 Actual | | | FY 2016 Est. | | | FY 2017 Est. | | |
|---|-------------------------|----------|------------|--------------|----------|------------|--------------|----------|------------|
| | Civilian | Military | Total | Civilian | Military | Total | Civilian | Military | Total |
| Division of Aging Biology | | | | | | | | | |
| Direct: | 13 | - | 13 | 13 | - | 13 | 13 | - | 13 |
| Reimbursable: | - | - | - | - | - | - | - | - | - |
| Total: | 13 | - | 13 | 13 | - | 13 | 13 | - | 13 |
| Division of Behavioral & Social Research | | | | | | | | | |
| Direct: | 12 | - | 12 | 12 | - | 12 | 12 | - | 12 |
| Reimbursable: | - | - | - | - | - | - | - | - | - |
| Total: | 12 | - | 12 | 12 | - | 12 | 12 | - | 12 |
| Division of Extramural Affairs | | | | | | | | | |
| Direct: | 36 | - | 36 | 37 | - | 37 | 37 | - | 37 |
| Reimbursable: | - | - | - | - | - | - | - | - | - |
| Total: | 36 | - | 36 | 37 | - | 37 | 37 | - | 37 |
| Division of Geriatrics & Clinical Gerontology | | | | | | | | | |
| Direct: | 14 | - | 14 | 14 | - | 14 | 14 | - | 14 |
| Reimbursable: | - | - | - | - | - | - | - | - | - |
| Total: | 14 | - | 14 | 14 | - | 14 | 14 | - | 14 |
| Division of Neuroscience | | | | | | | | | |
| Direct: | 17 | 1 | 18 | 20 | 1 | 21 | 20 | 1 | 21 |
| Reimbursable: | - | - | - | - | - | - | - | - | - |
| Total: | 17 | 1 | 18 | 20 | 1 | 21 | 20 | 1 | 21 |
| Intramural Research Program | | | | | | | | | |
| Direct: | 242 | 2 | 244 | 242 | 2 | 244 | 242 | 2 | 244 |
| Reimbursable: | - | - | - | - | - | - | - | - | - |
| Total: | 242 | 2 | 244 | 242 | 2 | 244 | 242 | 2 | 244 |
| Office of Administrative Management | | | | | | | | | |
| Direct: | 38 | - | 38 | 38 | - | 38 | 38 | - | 38 |
| Reimbursable: | - | - | - | - | - | - | - | - | - |
| Total: | 38 | - | 38 | 38 | - | 38 | 38 | - | 38 |
| Office of the Director | | | | | | | | | |
| Direct: | 24 | - | 24 | 24 | - | 24 | 24 | - | 24 |
| Reimbursable: | - | - | - | - | - | - | - | - | - |
| Total: | 24 | - | 24 | 24 | - | 24 | 24 | - | 24 |
| Total | 396 | 3 | 399 | 400 | 3 | 403 | 400 | 3 | 403 |
| 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 | | | | | | | | |
| 2013 | 12.0 | | | | | | | | |
| 2014 | 12.0 | | | | | | | | |
| 2015 | 11.8 | | | | | | | | |
| 2016 | 11.8 | | | | | | | | |
| 2017 | 11.8 | | | | | | | | |

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

Detail of Positions¹

| GRADE | FY 2015 Actual | FY 2016 Enacted | FY 2017 President's Budget |
|---|----------------|-----------------|----------------------------|
| Total, ES Positions | 1 | 1 | 1 |
| Total, ES Salary | 169,995 | 172,086 | 174,719 |
| GM/GS-15 | 41 | 41 | 41 |
| GM/GS-14 | 45 | 45 | 45 |
| GM/GS-13 | 64 | 68 | 68 |
| GS-12 | 59 | 59 | 59 |
| GS-11 | 30 | 30 | 30 |
| GS-10 | 0 | 0 | 0 |
| GS-9 | 38 | 38 | 38 |
| GS-8 | 8 | 8 | 8 |
| GS-7 | 18 | 18 | 18 |
| GS-6 | 3 | 3 | 3 |
| GS-5 | 3 | 3 | 3 |
| GS-4 | 1 | 1 | 1 |
| GS-3 | 1 | 1 | 1 |
| GS-2 | 0 | 0 | 0 |
| GS-1 | 0 | 0 | 0 |
| Subtotal | 311 | 315 | 315 |
| Grades established by Act of July 1, 1944 (42 U.S.C. 207) | 0 | 0 | 0 |
| Assistant Surgeon General | 0 | 0 | 0 |
| Director Grade | 3 | 3 | 3 |
| Senior Grade | 0 | 0 | 0 |
| Full Grade | 0 | 0 | 0 |
| Senior Assistant Grade | 0 | 0 | 0 |
| Assistant Grade | 0 | 0 | 0 |
| Subtotal | 3 | 3 | 3 |
| Ungraded | 93 | 93 | 93 |
| Total permanent positions | 314 | 314 | 314 |
| Total positions, end of year | 408 | 408 | 408 |
| Total full-time equivalent (FTE) employment, end of year | 399 | 403 | 403 |
| Average ES salary | 169,995 | 172,086 | 174,719 |
| Average GM/GS grade | 11.8 | 11.8 | 11.8 |
| Average GM/GS salary | 97,699 | 98,901 | 100,414 |

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