

DEPARTMENT OF HEALTH AND HUMAN SERVICES

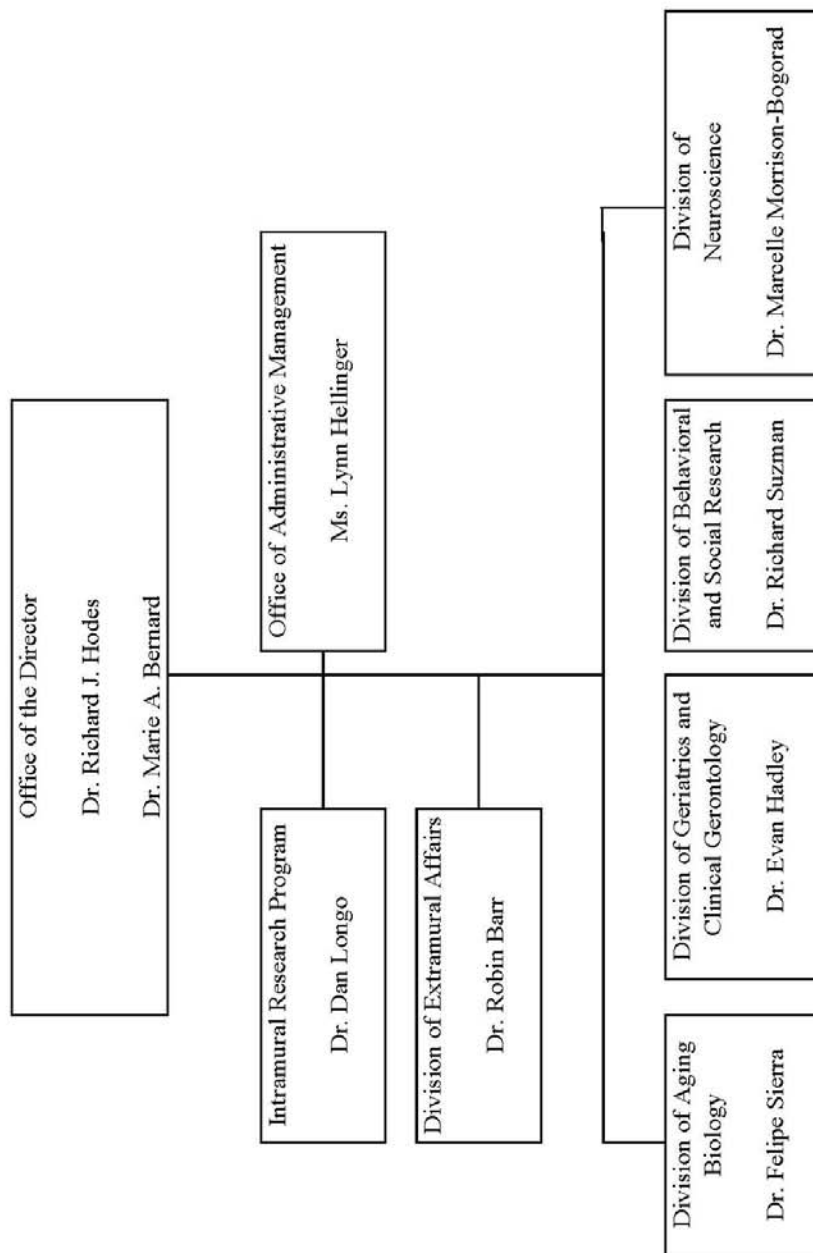
NATIONAL INSTITUTES OF HEALTH

National Institute on Aging (NIA)

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**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 Public Health Services Act with respect to Aging [\$1,110,229,000] *\$1,142,337,000* (Public Law 111-117, Consolidated Appropriations Act, 2010)

**National Institutes of Health
National Institute on Aging**

Amounts Available for Obligation 1/

Source of Funding	FY 2009 Actual	FY 2010 Estimate	FY 2011 PB
Appropriation	\$1,080,796,000	\$1,110,229,000	\$1,142,337,000
Type 1 Diabetes	0	0	0
Rescission	0	0	0
Supplemental	0	0	0
Subtotal, adjusted appropriation	1,080,796,000	1,110,229,000	1,142,337,000
Real transfer under Director's one-percent transfer authority (GEI)	-1,792,000	0	0
Comparative transfer to NLM for NCBI assessment	-171,000	-264,000	0
Comparative transfer to NLM for Public Access assessment	-153,000	-165,000	0
Comparative transfer under Director's one-percent transfer authority (GEI)	1,792,000	0	0
Subtotal, adjusted budget authority	1,080,472,000	1,109,800,000	1,142,337,000
Unobligated balance, start of year	0	0	0
Unobligated balance, end of year	0	0	0
Subtotal, adjusted budget authority	1,080,472,000	1,109,800,000	1,142,337,000
Unobligated balance lapsing	0	0	0
Total obligations	1,080,472,000	1,109,800,000	1,142,337,000

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

FY 2009 - \$8,278,000 FY 2010 - \$8,278,000 FY 2011 - \$8,278,000

Excludes \$15,882,000 Actual in FY 2009; Estimate \$16,000,000 in FY 2010 and Estimate \$16,200,000 in FY 2011 for royalties.

NATIONAL INSTITUTES OF HEALTH

National Institute on Aging

(Dollars in Thousands)

Budget Mechanism - Total

MECHANISM	FY 2009 Actual		FY 2009 Recovery Act Actual		FY 2010 Recovery Act Estimated		FY 2010 Estimate		FY 2011 PB		Change	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount	No.	Amount	No.	Amount
Research Grants:												
<u>Research Projects:</u>												
Noncompeting	1,077	\$483,993	\$0	\$0	\$148	\$102,774	1,077	\$557,366	986	\$566,877	(91)	\$9,511
Administrative supplements	(103)	14,935	23	12,684	1	112	(64)	9,248	(64)	9,248	0	0
<u>Competing:</u>												
Renewal	92	72,975	21	21,087			92	74,435	92	74,435	0	0
New	265	115,538	152	101,375	14	6,193	175	69,637	181	75,632	6	5,995
Supplements	7	1,884					7	1,884	7	1,884	0	0
Subtotal, competing	364	190,397	173	122,462	14	6,193	274	145,956	280	151,951	6	5,995
Subtotal, RPGs	1,441	689,325	173	135,146	162	109,079	1,351	712,570	1,266	728,076	(85)	15,506
SBIR/STTR	72	26,061	2	1,656	0	0	74	26,787	74	26,813	0	26
Subtotal, RPGs	1,513	715,386	175	136,802	162	109,079	1,425	739,357	1,340	754,889	(85)	15,532
<u>Research Centers:</u>												
Specialized/comprehensive	78	86,108	10	6,380	10	3,458	78	87,400	80	90,022	2	2,622
Clinical research	0	0	0	0	0	0	0	0	0	0	0	0
Biotechnology	0	0	0	0	0	0	0	0	0	0	0	0
Comparative medicine	0	697	0	0	0	0	0	707	0	728	0	21
Research Centers in Minority Institutions	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal, Centers	78	86,805	10	6,380	10	3,458	78	88,107	80	90,750	2	2,643
<u>Other Research:</u>												
Research careers	228	29,455	0	1,413	0	0	228	29,897	235	30,794	7	897
Cancer education	0	0	0	0	0	0	0	0	0	0	0	0
Cooperative clinical research	0	0	0	0	0	0	0	0	0	0	0	0
Biomedical research support	0	0	0	0	0	0	0	0	0	0	0	0
Minority biomedical research support	0	70	0	0	0	0	0	70	0	70	0	0
Other	38	4,906	0	0	0	0	39	4,980	40	5,129	1	149
Subtotal, Other Research	266	34,431	0	1,413	0	0	267	34,947	275	35,993	8	1,046
Total Research Grants	1,857	836,622	185	144,595	172	112,537	1,770	862,411	1,695	881,632	(75)	19,221
<u>Research Training:</u>	<u>FTEs</u>		<u>FTEs</u>		<u>FTEs</u>		<u>FTEs</u>		<u>FTEs</u>			
Individual awards	144	5,363	30	1,165	29	1,087	144	5,417	144	5,720	0	303
Institutional awards	431	18,537	8	1,445	8	1,652	431	18,722	431	19,855	0	1,133
Total, Training	575	23,900	38	2,610	37	2,739	575	24,139	575	25,575	0	1,436
Research & development contracts (SBIR/STTR)	120 (1)	68,798 (44)	0 (0)	0 (0)	1 (0)	4,085 (0)	120 (1)	69,730 (44)	120 (1)	75,959 (44)	0 (0)	6,229 (0)
<u>Intramural research</u>	<u>FTEs</u>		<u>FTEs</u>		<u>FTEs</u>		<u>FTEs</u>		<u>FTEs</u>		<u>FTEs</u>	
Intramural research	256	110,838	0	1,274	0	0	254	112,501	272	116,101	18	3,600
Research management and support	148	40,314	0	961	0	4,502	153	41,019	153	43,070	0	2,051
Total, NIA	404	1,080,472	223	149,440	210	123,863	407	1,109,800	425	1,142,337	18	32,537

NATIONAL INSTITUTES OF HEALTH
National Institute on Aging
BA by Program
(Dollars in thousands)

<u>Extramural Research</u> <u>Detail:</u>	FY 2007		FY 2008		FY 2009		FY 2009		FY 2010		FY 2011		FY 2011 +/-	
	FTEs	Amount	FTEs	Amount	FTEs	Amount	FTEs	Amount	FTEs	Estimate Amount	FTEs	PB Amount	FTEs	Amount
Aging Biology		\$179,394		\$174,718		\$164,334		\$164,594		\$169,369		\$174,131		4,762
Behavioral & Social Research		\$172,666		\$170,524		\$177,482		\$177,763		\$182,920		\$188,063		5,143
Neuroscience		414,962		424,251		450,852		451,565		464,665		477,729		13,064
Geriatrics & Clinical Gerontology		136,837		133,598		135,184		135,398		139,326		143,243		3,917
Subtotal, Extramural		903,859		903,091		927,852		929,320		956,280		983,166		26,886
Intramural research	247	102,566	251	108,217	256	110,838	256	110,838	254	112,501	272	116,101	18	3,600
Res. management & support	136	39,043	141	39,690	148	40,314	148	40,314	153	41,019	153	43,070	0	2,051
TOTAL	383	1,045,468	392	1,050,998	404	1,079,004	404	1,080,472	407	1,109,800	425	1,142,337	18	32,537

Major Changes in the Fiscal Year 2011 Budget Request

Major changes by budget mechanism and/or budget activity detail are briefly described below. Note that there may be overlap between budget mechanism and activity detail and these highlights will not sum to the total change for the FY 2011 budget request for NIA, which is \$32.537 million more than the FY 2010 Estimate, for a total of \$1,142.337 million.

Research Project Grants (RPGs; +\$15.602 million; total \$754.959 million): NIA will continue to maintain the number of competing RPGs at nearly the same number as FY 2010. NIA will award a total of 1,340 RPGs, a decrease of 85 from FY 2010, to reflect expiring grants.

Research and Development Contracts (+\$6.229 million; total \$75.959 million): NIA funding for R&D Contracts will support several trans-NIH initiatives, such as the Therapies for Rare and Neglected Diseases program (TRND), the Basic Behavioral and Social Sciences Opportunity Network (OppNet), and support for a new synchrotron at the Brookhaven National Laboratory, as well as increased support for other HHS agencies through the program evaluation set-aside. A total of \$0.429 million will be used to support NIA specific research priorities, including exploiting opportunities for follow-on research to existing NIA research studies, including studies of cognition and memory in older Americans.

Intramural Research (+\$3.6 million; total \$116.101 million): NIH will allocate additional funds to Intramural Research to help cover the costs of pay and other increases. NIA will work to identify areas of potential savings within the Intramural Research Program that will allow the institute to continue to achieve its program goals and accomplishments.

Research Management and Support (+\$2.051 million; total \$43.070 million): The NIA oversees over 1,700 research grants, 575 full-time training positions, and 120 research and development contracts. The 5 percent increase will partially be used to cover the expenses associated with pay raises and other costs to provide for the effective, administrative, planning and evaluation, public information and communications, and scientific leadership of the institute.

NATIONAL INSTITUTES OF HEALTH
National Institute on Aging
Summary of Changes

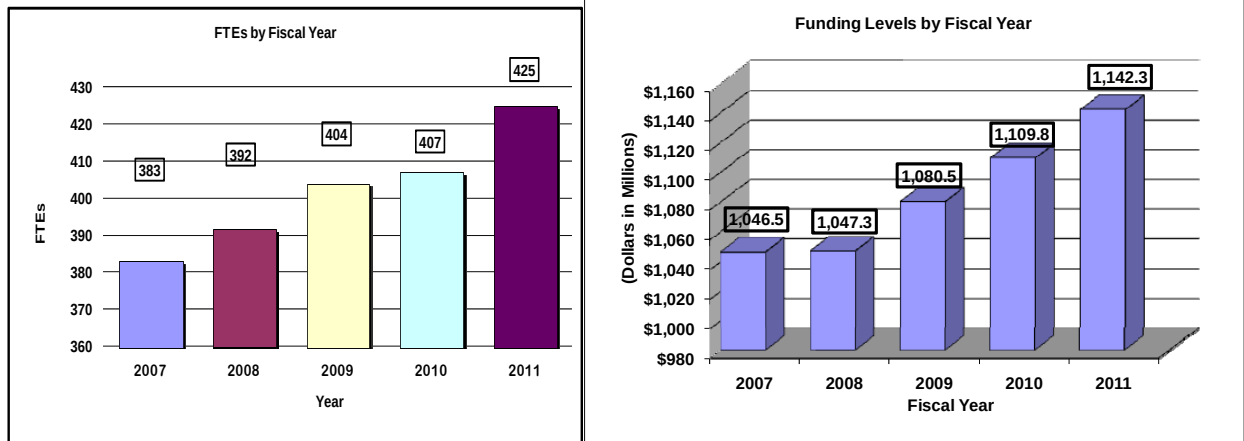
FY 2010 estimate				\$1,109,800,000
FY 2011 estimated budget authority				1,142,337,000
Net change				32,537,000
CHANGES	2010 Current Estimate Base		Change from Base	
	FTEs	Budget Authority	FTEs	Budget Authority
A. Built-in:				
1. Intramural research:				
a. Annualization of January 2010 pay increase		\$45,680,000		\$276,000
b. January FY 2011 pay increase		45,680,000		480,000
c. Zero less days of pay (n/a for 2011)		45,680,000		0
d. Payment for centrally furnished services		10,224,000		204,000
e. Increased cost of laboratory supplies, materials, and other expenses		56,597,000		935,000
Subtotal				1,895,000
2. Research management and support:				
a. Annualization of January 2010 pay increase		\$21,201,000		\$128,000
b. January FY 2011 pay increase		21,201,000		223,000
c. Zero less days of pay (n/a for 2011)		21,201,000		0
d. Payment for centrally furnished services		5,395,000		108,000
e. Increased cost of laboratory supplies, materials, and other expenses		14,423,000		245,000
Subtotal				704,000
Subtotal, Built-in				2,599,000

NATIONAL INSTITUTES OF HEALTH
National Institute on Aging
Summary of Changes--continued

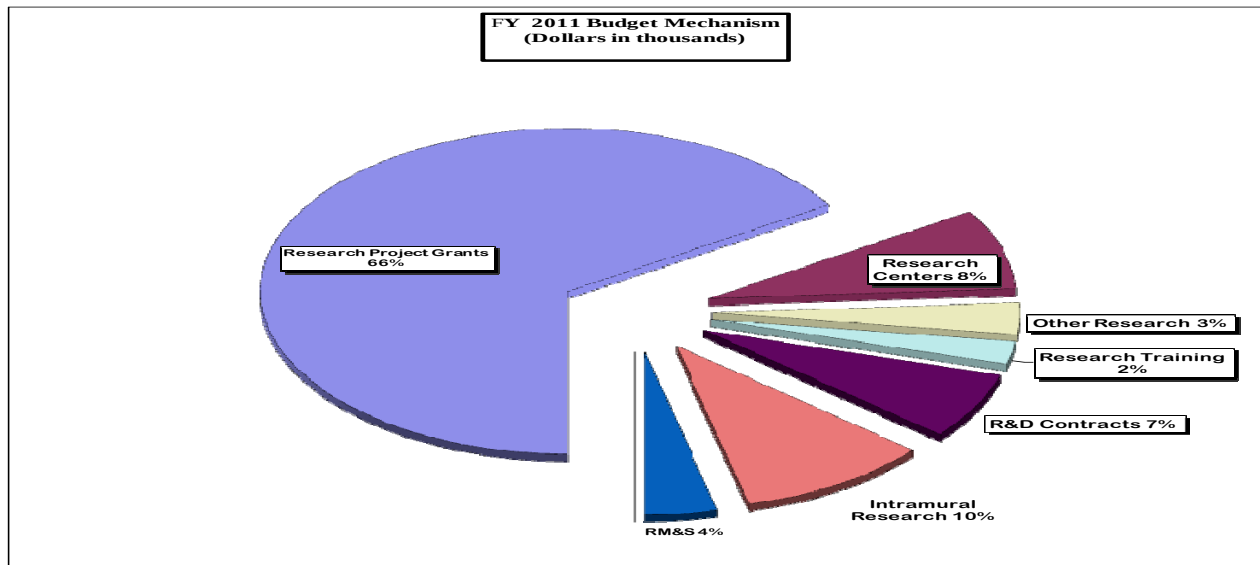
CHANGES	2010 Current Estimate Base		Change from Base	
	No.	Amount	No.	Amount
B. Program:				
1. Research project grants:				
a. Noncompeting	1,077	\$566,614,000	(91)	\$9,511,000
b. Competing	274	145,956,000	6	5,995,000
c. SBIR/STTR	74	26,787,000	0	26,000
Total	1,425	739,357,000	(85)	15,532,000
2. Research centers	78	88,107,000	2	2,643,000
3. Other research	267	34,947,000	8	1,046,000
4. Research training	575	24,139,000	0	1,436,000
5. Research and development contracts	120	69,730,000	0	6,229,000
Subtotal, extramural				26,886,000
	<u>FTEs</u>		<u>FTEs</u>	
6. Intramural research	254	112,501,000	18	1,705,000
7. Research management and support	153	41,019,000	0	1,347,000
8. Construction		0		0
9. Buildings and Facilities		0		0
Subtotal, program		1,109,800,000		29,938,000
Total changes	407		18	32,537,000

Fiscal Year 2011 Budget Graphs

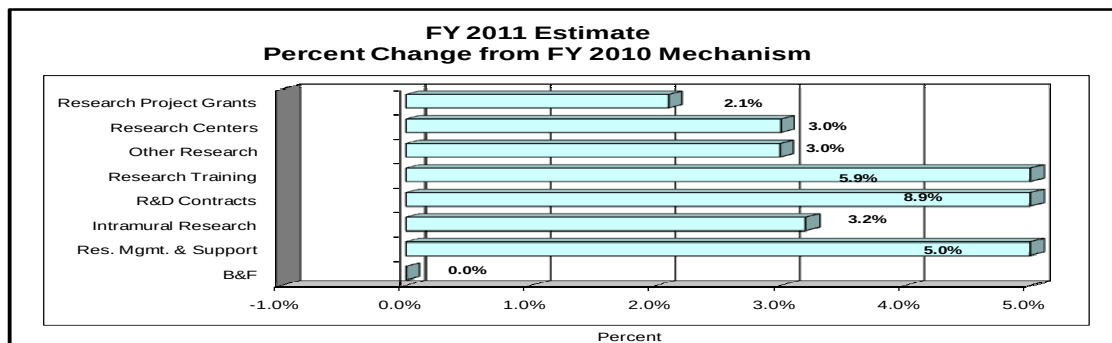
History of Budget Authority and FTEs:



Distribution by Mechanism:



Change by Selected Mechanism:



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

	FY 2009 <u>Appropriation</u>	FY 2010 <u>Appropriation</u>	FY 2011 President's <u>Budget</u>	FY 2011+/- <u>FY 2010</u>
BA	\$1,080,472,000	\$1,109,800,000	\$1,142,337,000	+\$32,537,000
FTE	404	407	425	+18

This document provides justification for the Fiscal Year (FY) 2011 activities of the National Institute on Aging (NIA), including HIV/AIDS activities. Details of the FY 2011 HIV/AIDS activities are in the "Office of AIDS Research (OAR)" Section of the Overview. Details on the Common Fund are located in the Overview, Volume One. Program funds are allocated as follows: Competitive Grants/Cooperative Agreements; Contracts; Direct Federal/Intramural and Other.

DIRECTOR'S OVERVIEW

The National Institute on Aging (NIA) leads a national scientific effort to understand the nature of aging in order to promote the health and well being of older adults. NIA's mission 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.
- Communicate information about aging and advances in research on aging with the scientific community, health care providers, and the public.

We carry out our mission by supporting extramural research at universities and medical centers across the United States and around the world and a vibrant intramural research program at NIA laboratories in Baltimore and Bethesda, Maryland.

The need for the kinds of research supported and conducted by NIA has never been more urgent because the American population as a whole is rapidly aging. Experts

believe that within 25 years, some 70 million Americans will reach age 65 or older – fully double today’s number in that age group. The number of “oldest old” – people age 85 or older – will more than quadruple by 2050, and this group is projected to include nearly one million centenarians, up from three thousand in 1950. As unprecedented numbers of Americans reach retirement age and beyond, profound changes will occur in our economic, health care, and social systems. And although the rate of disability among older Americans is decreasing, we are challenged to discover new and effective ways to make these added years as healthy and productive as possible and to continue the current trend of decline in disability across all segments of the population.

Through its broad and diverse research programs, NIA is well poised to address the many medical, social, and economic issues raised by the growth of the older population. For example, NIA-supported investigators are using genome-wide association studies (GWAS), i.e., rapid comparisons of the full genomes of thousands of individuals, to identify the genes or specific genetic alterations involved in the development and progression of a number of age-related conditions, including cognitive decline and Alzheimer’s disease (AD), cardiovascular disease, osteoarthritis, and functional disability. This approach can help to identify people at risk, provide important insights into the disease’s pathology, and even suggest targets for preventive or treatment interventions. Other investigators are working to identify factors that contribute to long life coupled with good health in both model systems and humans; a better understanding of the nature of aging and the mechanisms controlling longevity could enable the development of interventions to extend not only the length but also the quality of life. NIA-supported behavioral and social scientists are studying the economic and societal consequences of a rapidly aging population, and using insights from the emerging field of behavioral economics to develop and test interventions that promote healthy behaviors among older people. NIA also supports a growing portfolio of research comparing the effectiveness of various interventions in diverse populations.

NIA supports initiatives aimed at translating findings from basic science into preventive or treatment interventions. For example, NIA, in partnership with the National Institute of Neurological Disorders and Stroke and the National Institute of Mental Health, supports a Translational and Drug Discovery Initiative to expand and intensify the translation of basic research findings into clinical studies and human trials in AD. Components of this highly successful initiative include solicitations for research grant proposals on drug discovery and preclinical development. In addition, the Institutes supports a program of toxicology services for academic and small business investigators who believe they have promising compounds for the treatment or prevention of AD but lack the resources to perform the necessary toxicology studies.

Training the next generation of researchers in aging is a high priority at NIA, and we support several highly innovative programs. For example, since 1987, the annual Summer Institute on Aging Research has provided junior investigators an opportunity to be mentored in the substance and methodology of aging research by recognized experts in the field to enhance participants’ potential for success as independent investigators. Racial and ethnic minority investigators and researchers interested in research on minority health are especially encouraged to apply. The Beeson Awards,

co-supported by NIH, the American Federation for Aging Research, and several other philanthropic concerns, offer three- to five-year faculty development awards to outstanding junior and mid-career faculty committed to academic careers in aging-related research, training, and practice. Beeson scholars receive funding and resources to pursue their innovative research, protected time for research, mentorship through their own institutions and through the program itself, and extensive networking opportunities. Since its inception in 1995, the Beeson Award has provided nearly \$80 million to 152 independent investigators, many of whom have gone on to become leaders in the field of aging research. NIA also participates in trans-NIH activities aimed at encouraging participation of women and minorities and other underrepresented groups in biomedical research.

Finally, the aging of the population is not limited to the United States; rather it is an increasingly global phenomenon. Demographers anticipate that by 2040, the proportion of older people will double from 7 percent to 14 percent of the total world population, with the most rapid growth seen in the developing world. NIA continues to support a number of projects devoted to understanding the implications of population aging at the global level, including an initiative to consolidate and standardize findings from multiple large health surveys from around the world.

For a comprehensive overview of NIA's plans and priorities, see our strategic directions document, *Living Long and Well in the 21st Century: Strategic Directions for Research on Aging*, available online at www.nia.nih.gov/AboutNIA/StrategicDirections.

Overall Budget Policy: The FY 2011 request for NIA is \$1,142.337 million, an increase of \$32.537 million or +2.9 percent over the FY 2010 enacted level. In FY 2011, NIA will support new investigators on R01 equivalent awards at success rates equivalent to those of established investigators submitting new R01 equivalent applications. NIA will continue to maintain the number of competing RPGs at nearly the same level as FY 2010. NIA is providing a 2 percent inflationary increase for non-competing and competing grants. In addition, the NIA has targeted a portion of the funds available for competing research project grants to support high priority projects outside of the pay line, including awards to new investigators, and early stage investigators. The Institute also seeks to maintain a balance between solicitations issued to the extramural community and funding made available to support investigator-initiated projects. Intramural Research and Research Management and Support receive increases to help offset pay and other costs.

Funds are included in R&D contracts to support several trans-NIH initiatives, such as the Therapies for Rare and Neglected Diseases program (TRND), the Basic Behavioral and Social Sciences Opportunity Network (OppNet), and support for a new synchrotron at the Brookhaven National Laboratory, as well as increased support for other HHS agencies through the program evaluation set-aside.

FY 2011 JUSTIFICATION BY PROGRAM

Program Descriptions and Accomplishments

Biology of Aging Program:

Understanding Aging Processes, Health, and Longevity

Investigators supported by NIA's Biology of Aging Program seek to better understand the basic biological mechanisms underlying the process of aging and age-related diseases. 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's goal is to provide the biological basis for interventions in the process of aging, which is the major risk factor for many chronic diseases affecting the American population.

Budget Policy: The FY 2011 budget estimate for the Biology of Aging Program is \$174.131 million, an increase of \$4.762 million or 2.8 percent over the FY 2010 estimate. Ongoing initiatives that will remain active during FY11 include the Interventions Testing Program to identify compounds that extend median and/or maximal life span in a mouse model; an initiative to develop tools needed to determine cell fates in various tissues of aged mammals, both under normal and injury conditions; and a joint effort with the National Institute of Allergy and Infectious Diseases to understand and remediate age-related decline in the immune system. Also, a recent initiative has funded six collaborative projects between US and British investigators interested in different aspects of the biology of aging. The program also coordinates the Nathan Shock Centers of Excellence in the Basic Biology of Aging; renewal of the Shock Centers is anticipated for FY2010.

Behavioral and Social Research Program:

Understanding and Addressing the Behavioral, Emotional, and Social Dynamics of Aging

NIA's Behavioral and Social Research Program supports social and behavioral research to better understand the processes of aging at the individual, institutional, and societal levels. Research areas include the behavioral, psychological, and social changes individuals undergo throughout the adult lifespan; participation of older people in the economy, families, and communities; the development of interventions to improve the health and cognition of older adults, and the societal impact of population aging and of trends in labor force participation, including fiscal effects on the Medicare and Social Security programs. The program also supports research training; development of research resources such as publicly available, cross-nationally comparable studies that support research to understand the sources of international variations in health outcomes; interdisciplinary studies that integrate biological and genetic measures with traditional social, behavioral and economic measures; and a knowledge base of longitudinal databases for the development of interventions to maximize active life and health expectancy. These activities will remain active through FY 2011. The program coordinates the Centers on the Demography and Economics of Aging and Roybal Centers for Translational Research on Aging, as well as the Resource Centers for

Minority Aging Research (RCMARs). The RCMAR program's objectives include increasing the diversity of the scientific workforce studying aging and developing recruitment and retention strategies for minority aging research.

Budget Policy: The FY 2011 budget estimate for the Behavioral and Social Research Program is \$188.063 million, an increase of \$5.143 million or 2.8 percent over the FY 2010 estimate. This program will be expanded to more fully address its research objectives and more quickly translate NIA research into benefit for aging Americans and the nation as a whole.

Neuroscience Program:
Understanding, Preventing, and Treating Cognitive Decline and Disability

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 basic mission is to expand knowledge on the aging nervous system to allow improvement in the quality of life of older people. This includes basic and clinical studies of the nervous system, clinical trials of treatments and preventive interventions for neurological disease, and epidemiological research to identify risk factors and to establish prevalence and incidence estimates of pathologic conditions. Additionally, it supports research relevant to problems arising from psychiatric and neurological disorders associated with aging. An emerging focus is on how the process of aging and age-related cognitive decline intersect with the development of Alzheimer's disease and other dementias of aging.

Budget Policy: The FY 2011 budget estimate for the Neuroscience Program is \$477.729 million, an increase of \$13.064 million or 2.8 percent over the FY 2010 estimate. This program will expand support for a broad spectrum of basic, clinical, and translational research related to the pathology, prevention, diagnosis, treatment, and care of Alzheimer's disease; a major activity planned for FY2011 is the renewal of the highly successful Alzheimer's Disease Neuroimaging Initiative. The funds requested will allow for an expansion to more fully address its research objectives and more quickly translate NIA research into benefit for aging Americans.

Program Portrait: Neuroimaging

FY 2010 level: \$80,200,000

FY 2011 level: \$82,500,000

Change: \$ 2,300,000

Researchers and clinicians use today's safe, painless, noninvasive neuroimaging techniques – including positron emission tomography (PET) and magnetic resonance imaging (MRI) – to diagnose brain injury or disorders, monitor the treatment of people with neurological disease, and learn more about the inner workings of the brain in normal and disease states.

One exciting area of neuroimaging research is the use of PET, MRI, and similar tools to understand and diagnose Alzheimer's disease (AD). Bolstered by the development of new tracers such as Pittsburgh Compound B, which permits for the first time visualization of AD's hallmark amyloid plaques in the living brain, investigators have made tremendous inroads in this area. The cornerstone of NIA's AD neuroimaging program is the Alzheimer's Disease Neuroimaging Initiative (ADNI), a major public-private partnership among NIH and academic and industry partners through the Foundation for NIH. ADNI's overall goal is to identify the best imaging biomarkers or combinations of imaging and molecular biomarkers for monitoring disease progression and treatment response. Since its inception in 2004, this study has made important progress; notably, ADNI investigators have established a method and standard for measuring levels of two known AD biomarkers in the cerebrospinal fluid, and determined that changes in these levels may signal the onset of mild AD. This is a significant step forward in developing a diagnostic test for AD. Funding provided under the American Recovery and Reinvestment Act expands the scope of the original ADNI research by allowing the enrollment of participants at an even earlier stage of mild cognitive impairment (often a precursor condition to AD). Clinical, imaging, and biological data from ADNI are immediately made available to all qualified scientific investigators in the public and private sectors, whether they are part of the study or not. Already, many of the tools and methods developed by the study are fueling similar efforts in Japan, the European Union, and Australia. This groundbreaking program will be active through FY2010 and is slated for potential renewal in FY2011. NIA supports a number of neuroimaging projects beyond ADNI. For example, a major study is ongoing to identify neuroimaging and other biomarkers that might be helpful in identifying cognitively normal individuals at risk for progression to mild or moderate cognitive impairment. Other studies are using neuroimaging tools to identify the areas of the brain that are active in decision making processes in older versus younger adults.

Geriatrics and Clinical Gerontology Program: Reducing Disease and Disability among Older People

As we age, our risk for many other 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 the 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. Program staff work closely with other NIH Institutes to coordinate research on diseases and conditions that are common among older people (for example, a long-term partnership with NCI encourages coordination of aging and cancer research) or represent a growing threat (for example, an ongoing collaboration with NIAID addresses the increasing incidence of HIV/AIDS among older Americans). The program also plans and administers clinical trials for a number of age-related conditions. In addition, the program coordinates the Claude D. Pepper Older American Independence Centers Program, the goal of which is to increase scientific knowledge leading to better ways to maintain or restore independence in older persons.

Budget Policy: The FY 2011 budget estimate for the Geriatrics and Clinical Gerontology Program is \$143.243 million, an increase of \$3.917 million or 2.8 percent over the FY 2010 estimate. Research of the Geriatrics and Clinical Gerontology Program will be expanded to more fully address its research objectives and more quickly translate NIA research into benefit for aging Americans and the nation as a whole.

Program Portrait: Osteoporosis

FY 2010 level: \$40,000,000

FY 2011 level: \$41,200,000

Change: \$ 1,200,000

It is estimated that 10 million men and women in the United States currently have osteoporosis and an additional 34 million have low bone mass and are at risk. In fact, one of every two women and one in four men over age 50 will have an osteoporosis-related fracture in his or her lifetime. NIA supports an extensive portfolio of research on the epidemiology, causes, and treatment of this common condition.

NIA partners with the National Institute of Arthritis and Musculoskeletal and Skin Diseases to support two long-term epidemiologic efforts focused on fracture risk in women and men, the Study of Osteoporotic Fractures (SOF) and the Osteoporotic Fractures in Men study (Mr. OS). Both of these studies have provided important information about potential risk factors for osteoporosis. For example, recent findings from these studies indicate that use of commonly prescribed antidepressant medications known as selective serotonin reuptake inhibitors (SSRIs) is associated with reductions in bone mineral density among men and an increased rate of bone loss at the hip in women. Because bone loss is common among older people, the finding that SSRIs may be a significant contributing factor to osteoporosis could have significant public health implications.

Findings from basic research suggest that bone mass is regulated through a complex interaction of hormones and other factors throughout the body, not exclusively in the bone. Researchers have found that the hormone leptin, which is secreted by fat cells, regulates bone mass through a central relay involving the brain's serotonin system. This finding has generated considerable interest and raised many additional questions about how activity in the brain influences skeletal physiology, and about the potential involvement of other proteins, hormones, and neurotransmitters in regulating bone mass. Notably, investigators recently found that the protein Lrp5, which is heavily involved in regulation of bone mass, acts not directly through the bone, as was previously believed, but rather via serotonin synthesis in the gut. The central regulation of bone mass was the topic of an NIA workshop in June 2009, and will be an important research focus in the immediate future.

Other NIA-supported osteoporosis research includes the Study of Women's Health Across the Nation (SWAN), which is examining changes in bone mass, bone turnover, and bone strength in a multiethnic (Chinese, Japanese, African American and Caucasian) cohort as the participants age. NIA also supports a number of projects on dietary and other interventions to prevent or treat osteoporosis and osteoporosis-related fractures in older men and women.

Intramural Research at NIA

NIA's Intramural Research Program (IRP) includes the scientific disciplines of biochemistry, cell and molecular biology, structural biology, genetics, immunology, neurogenetics, behavioral sciences (psychology, cognition, and psychophysiology), epidemiology, statistics, and clinical research and the medical disciplines of neurobiology, immunology, endocrinology, cardiology, rheumatology, hematology, oncology, and gerontology. The program seeks to understand the changes associated with healthy aging and to define the criteria for evaluating when a change becomes pathologic. Some NIA IRP studies focus on common age-related diseases such as Alzheimer's disease, Parkinson's disease, stroke, atherosclerosis, osteoarthritis, diabetes, and cancer. Others, such as the groundbreaking Baltimore Longitudinal Study of Aging explore the determinants of healthy aging. Ongoing NIA IRP research includes studies of the etiology of anemia, treatment trials for lymphoma, and studies to

better understand several connective tissue disorders, as well as basic research on the pathology of Alzheimer's disease, Parkinson's disease, and other neurological conditions. 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 (SES) on the development of age-related health disparities among socioeconomically diverse African Americans and whites living in Baltimore.

Budget Policy: The FY 2011 budget estimate for the NIA's Intramural Research Program is \$116.101 million, an increase of \$3.6 million or 3.2 percent over the FY 2010 estimate. Funds requested will be used to expand efforts in understanding the genetics of neurological disease, as well as improving NIA's capital equipments stock and other activities.

Program Portrait: Genetics of Neurological Disease

FY 2010 level: \$68,200,000

FY 2011 level: \$70,200,000

Change: \$ 2,000,000

Identification of the genes or specific genetic alterations involved in the development and progression of disease can help us identify people at risk, provide important insights into the disease's pathology, or even suggest targets for a preventive or treatment intervention. We can also use information about disease-related genes to create models in which to test potential preventive or treatment interventions.

NIA conducts and supports an extensive program of research to identify genes implicated in neurological diseases, including Alzheimer's disease (AD), Parkinson's disease (PD), and others. Until recently, only four genes had been definitively associated with AD, and three of these are exclusively associated with the rare early-onset form of the disease. In recent studies of the whole genome, investigators found three additional genes that, when altered, may be associated with increased risk of late onset disease; these researchers also identified several additional genes that merit further investigation. In 2009, NIA funded the Alzheimer's Disease Genetics Consortium (ADGC) to collaboratively use the collective resources of the AD research community to identify additional risk factor genes for late-onset AD. NIA has also established the Dominantly Inherited Alzheimer Network to better understand the onset and development of early-onset AD by identifying concurrent changes in imaging and other biomarkers, as well as in cognitive and clinical symptoms. Better understanding this form of the disease may provide clues to decoding other dementias and developing dementia tests and treatments.

NIA also maintains a Laboratory of Neurogenetics (LNG) within its Intramural Research Program. The LNG's mission is to find the genes and gene mutations that cause or contribute to neurological disease. The primary disease focus in the LNG is PD, but research is also ongoing in amyotrophic lateral sclerosis, dementia, dystonia, ataxia, and stroke. LNG investigators were responsible for the groundbreaking discovery that triplication of the synuclein gene causes some forms of PD; shortly thereafter, investigators identified the most common genetic cause of PD, mutations in LRRK2, which are believed to underlie about 20,000 cases of PD in the United States today. LNG research has also uncovered genes for such rare conditions as spinocerebellar ataxia 15 (SCA15), SCA11, SCA20 and dystonia-parkinsonism 16. Most recently, LNG scientists have completed a large collaborative study, the first of its kind, to identify common genetic risk factors for PD. They were also collaborators in one of the partnerships that recently identified additional risk factor genes for late onset AD.

Research Management and Support

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 1,900 research project grants and centers, as well as 600 full-time training positions and more than 120 research and support contracts.

Budget Policy: The FY 2011 budget estimate for NIA's Research Management and Support is \$43.07 million, an increase of \$2.051 million or 5 percent over the FY 2010 estimate. The requested funds would allow NIA to fund efforts at improving its IT infrastructure and offsetting the increased costs of centralized activities as well as personnel costs.

Roadmap Initiatives

The NIA participates in the support of the following Roadmap initiatives funded through the NIH Common Fund:

- Interdisciplinary Research Consortium
- Using Metabolomics to Investigate Biological Pathways and Networks
- Supplements for Methodological Innovations – Behavioral and Social Science

Recovery Act Implementation

Recovery Act Funding: \$273.303 million

In FY 2009, the National Institute on Aging received \$273.3 million under the Recovery Act. Of this amount, \$149.4 million was obligated in FY 2009 and \$123.9 million will be obligated in FY 2010. These funds currently support approximately 400 active research projects, including some 40 challenge grants and 23 "Grand Opportunity" projects, as well as recruitment of seven emerging researchers into tenure-track university positions. NIA has also participated in several NIH-wide ARRA initiatives with job creation as a major focus, including a program to provide paid "summer research experiences" to students, teachers at all levels, and faculty from non-research intensive institutions; in 2009, NIA was able to place students and teachers in 48 NIH-supported laboratories.

NIA-supported investigators have received Recovery Act funds to support new and ongoing studies in Alzheimer's disease to identify additional risk factor genes, improve diagnostic tools, identify biomarkers, develop therapies and preventive measures, and conduct clinical trials. ARRA-supported investigators are also working to determine the potential healthy aging effects of the compound rapamycin, and to understand the causes of protein misfolding—when a protein is either not formed correctly or damaged afterwards—that lead to age-related disease. The Lifestyle Interventions and Independence for Elders trial, the largest ever undertaken to prevent mobility disability among older people who are at risk, is now underway with ARRA support, and four ARRA awards have been made to expand the long-running Health and Retirement Study, including the enrollment of approximately 3000 African American and Hispanic participants.

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Budget Authority by Object

	FY 2010 Estimate	FY 2011 PB	FY 2011 +/- FY 2010
Total compensable workyears:			
Full-time employment	407	425	18
Full-time equivalent of overtime and holiday hour	1	1	1
Average ES salary	\$182,700	\$185,258	\$2,558
Average GM/GS grade	11.5	12.0	0.5
Average GM/GS salary	\$93,700	\$95,012	\$1,312
Average salary, grade established by act of July 1, 1944 (42 U.S.C. 207)	\$106,250	\$107,738	\$1,488
Average salary of ungraded positions	141,911	143,898	1,987
OBJECT CLASSES	FY 2010 Estimate	FY 2011 Estimate	Increase or Decrease
Personnel Compensation:			
11.1 Full-time permanent	\$27,041,000	\$27,488,000	\$447,000
11.3 Other than full-time permanent	15,885,000	16,148,000	263,000
11.5 Other personnel compensation	1,271,000	1,292,000	21,000
11.7 Military personnel	351,000	357,000	6,000
11.8 Special personnel services payments	9,477,000	9,634,000	157,000
Total, Personnel Compensation	54,025,000	54,919,000	894,000
12.0 Personnel benefits	12,581,000	12,790,000	209,000
12.2 Military personnel benefits	275,000	279,000	4,000
13.0 Benefits for former personnel	0	0	0
Subtotal, Pay Costs	66,881,000	67,988,000	1,107,000
21.0 Travel and transportation of persons	1,256,000	1,404,000	148,000
22.0 Transportation of things	86,000	96,000	10,000
23.1 Rental payments to GSA	0	0	0
23.2 Rental payments to others	17,000	19,000	2,000
23.3 Communications, utilities and miscellaneous charges	3,312,000	3,657,000	345,000
24.0 Printing and reproduction	146,000	165,000	19,000
25.1 Consulting services	1,707,000	1,872,000	165,000
25.2 Other services	12,236,000	11,182,000	(1,054,000)
25.3 Purchase of goods and services from government accounts	89,069,000	96,465,000	7,396,000
25.4 Operation and maintenance of facilities	1,337,000	1,472,000	135,000
25.5 Research and development contracts	34,112,000	36,321,000	2,209,000
25.6 Medical care	159,000	175,000	16,000
25.7 Operation and maintenance of equipment	1,723,000	1,896,000	173,000
25.8 Subsistence and support of persons	0	0	0
25.0 Subtotal, Other Contractual Services	140,343,000	149,383,000	9,040,000
26.0 Supplies and materials	9,665,000	10,630,000	965,000
31.0 Equipment	2,429,000	2,691,000	262,000
32.0 Land and structures	0	0	0
33.0 Investments and loans	0	0	0
41.0 Grants, subsidies and contributions	885,662,000	906,301,000	20,639,000
42.0 Insurance claims and indemnities	0	0	0
43.0 Interest and dividends	3,000	3,000	0
44.0 Refunds	0	0	0
Subtotal, Non-Pay Costs	1,042,919,000	1,074,349,000	31,430,000
Total Budget Authority by Object	1,109,800,000	1,142,337,000	32,537,000

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Salaries and Expenses

OBJECT CLASSES	FY 2010 Estimate	FY 2011 PB	FY 2011 +/- FY 2010
Personnel Compensation:			
Full-time permanent (11.1)	\$27,041,000	\$27,488,000	\$447,000
Other than full-time permanent (11.3)	15,885,000	16,148,000	263,000
Other personnel compensation (11.5)	1,271,000	1,292,000	21,000
Military personnel (11.7)	351,000	357,000	6,000
Special personnel services payments (11.8)	9,477,000	9,634,000	157,000
Total Personnel Compensation (11.9)	54,025,000	54,919,000	894,000
Civilian personnel benefits (12.1)	12,581,000	12,790,000	209,000
Military personnel benefits (12.2)	275,000	279,000	4,000
Benefits to former personnel (13.0)	0	0	0
Subtotal, Pay Costs	66,881,000	67,988,000	1,107,000
Travel (21.0)	1,256,000	1,404,000	148,000
Transportation of things (22.0)	86,000	96,000	10,000
Rental payments to others (23.2)	17,000	19,000	2,000
Communications, utilities and miscellaneous charges (23.3)	3,312,000	3,657,000	345,000
Printing and reproduction (24.0)	146,000	165,000	19,000
Other Contractual Services:			
Advisory and assistance services (25.1)	1,707,000	1,872,000	165,000
Other services (25.2)	12,236,000	11,182,000	(1,054,000)
Purchases from government accounts (25.3)	55,917,000	59,510,000	3,593,000
Operation and maintenance of facilities (25.4)	1,337,000	1,472,000	135,000
Operation and maintenance of equipment (25.5)	1,723,000	1,896,000	173,000
Subsistence and support of persons (25.8)	0	0	0
Subtotal Other Contractual Services	72,920,000	75,932,000	3,012,000
Supplies and materials (26.0)	9,661,000	10,626,000	965,000
Subtotal, Non-Pay Costs	87,398,000	91,899,000	4,501,000
Total, Administrative Costs	154,279,000	159,887,000	5,608,000

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Authorizing Legislation						
	PHS Act/ Other Citation	U.S. Code Citation	2010 Amount Authorized	FY 2010 Estimate	2011 Amount Authorized	FY 2011 PB
Research and Investigation	Section 301	42§241	Indefinite	\$1,109,800,000	Indefinite	\$1,142,337,000
	Section 402(a)	42§281				
National Institute on Aging						
Total, Budget Authority				1,109,800,000		1,142,337,000

**NATIONAL INSTITUTES OF HEALTH
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Appropriations History

Fiscal Year	Budget Estimate to Congress	House Allowance	Senate Allowance	Appropriation
2002	879,961,000	873,186,000	909,174,000	893,443,000
Rescission				(313,000)
2003	958,155,000	958,155,000	1,000,099,000	1,000,099,000
Rescission				(6,501,000)
2004	994,411,000	994,411,000	1,031,411,000	1,024,598,000
Rescission				(6,557,000)
2005	1,055,666,000	1,055,666,000	1,094,500,000	1,060,666,000
Rescission				(8,676,000)
2006	1,057,203,000	1,057,203,000	1,090,600,000	1,057,203,000
Rescission				(10,572,000)
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)
Supplemental				xxx
2009	1,048,278,000	1,084,321,000	1,077,448,000	1,080,796,000
Rescission				0
2010	1,093,143,000	1,119,404,000	1,099,409,000	1,110,229,000
Rescission				0
2011	1,142,337,000			

1/ Reflects enacted supplementals, rescissions, and reappropriations.

2/ Excludes funds for HIV/AIDS research activities consolidated in the NIH Office of AIDS Research.

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Details of Full-Time Equivalent Employment (FTEs)

OFFICE/DIVISION	FY 2009 Actual	FY 2010 Estimate	FY 2011 PB
Office of the Director	26	26	26
Intramural Research Program	256	254	272
Office of Administrative Management	38	38	38
Division of Extramural Affairs	28	29	29
Division of Aging Biology	14	14	14
Division of Geriatrics & Clinical Gerontology	11	13	13
Division of Behavioral & Social Research	13	14	14
Division of Neuroscience	18	19	19
Total	404	407	425
Includes FTEs which are reimbursed from the NIH Roadmap for Medical Research			
FTEs supported by funds from Cooperative Research and Development Agreements			
	(0)	(0)	(0)
FISCAL YEAR	Average GM/GS Grade		
2007	11.4		
2008	11.5		
2009	11.6		
2010	11.5		
2011	12.0		

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Detail of Positions

GRADE	FY 2009 Actual	FY 2010 Estimate	FY 2011 PB
Total, ES Positions	1	1	1
Total, ES Salary	177,000	182,700	185,258
GM/GS-15	30	37	37
GM/GS-14	34	33	33
GM/GS-13	47	47	47
GS-12	74	71	90
GS-11	40	37	37
GS-10	2	2	2
GS-9	29	36	41
GS-8	10	12	12
GS-7	22	18	18
GS-6	6	7	7
GS-5	1	2	2
GS-4	1	1	1
GS-3	0	0	0
GS-2	0	0	0
GS-1	0	0	0
Subtotal	296	303	327
Grades established by Act of July 1, 1944 (42 U.S.C. 207):			
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	110	110	110
Total permanent positions	308	305	329
Total positions, end of year	436	417	441
Total full-time equivalent (FTE) employment, end of year	404	407	425
Average ES salary	177,000	182,700	185,258
Average GM/GS grade	11.6	11.5	12.0
Average GM/GS salary	89,081	93,700	95,012

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New Positions Requested

	FY 2011		
	Grade	Number	Annual Salary
Biologist	GS-12	19	74,872
Biological Lab Tech	GS-9	5	51,630
Total Requested		24	