

# NATIONAL INSTITUTES OF HEALTH OVERVIEW BY INSTITUTE



(dollars in millions)

	2010	2011 *	2012	2012 +/- 2010
<u>Institutes</u>				
National Cancer Institute.....	5,101	5,099	5,196	+95
National Heart, Lung and Blood Institute.....	3,095	3,094	3,148	+53
National Institute of Dental and Craniofacial Research.....	413	413	420	+7
Natl Inst. of Diabetes & Digestive & Kidney Diseases.....	1,957	1,957	1,988	+31
National Institute of Neurological Disorders and Stroke.....	1,635	1,635	1,664	+29
National Institute of Allergy and Infectious Diseases.....	4,816	4,510	4,916	+100
National Institute of General Medical Sciences.....	2,051	2,050	2,102	+52
Eunice K. Shriver Natl Inst. of Child Health & Human Dev.....	1,329	1,328	1,352	+23
National Eye Institute.....	707	706	719	+12
National Institute of Environmental Health Sciences:				
Labor/HHS Appropriation.....	689	689	701	+11
Interior Appropriation.....	79	79	81	+2
National Institute on Aging.....	1,110	1,109	1,130	+20
Natl Inst. of Arthritis & Musculoskeletal & Skin Diseases.....	539	539	548	+9
Natl Inst. on Deafness and Communication Disorders.....	419	418	426	+7
National Institute of Mental Health.....	1,490	1,489	1,517	+27
National Institute on Drug Abuse.....	1,059	1,059	1,080	+21
National Institute on Alcohol Abuse and Alcoholism.....	462	462	469	+7
National Institute of Nursing Research.....	146	146	148	+3
National Human Genome Research Institute.....	516	516	525	+9
Natl Institute of Biomedical Imaging and Bioengineering.....	316	316	322	+6
Natl Institute on Minority Health and Health Disparities.....	211	211	215	+3
National Center for Research Resources.....	1,268	1,268	1,298	+30
Natl Center for Complementary and Alternative Medicine.....	129	129	131	+2
Fogarty International Center.....	70	70	71	+1
National Library of Medicine.....	359	374	395	+36
Office of the Director.....	1,177	1,176	1,298	+122
Buildings and Facilities.....	100	100	126	+26
<b>Total, Program Level</b>	<b>31,243</b>	<b>30,943</b>	<b>31,987</b>	<b>+745</b>
<u>Less Funds Allocated from Other Sources</u>				
PHS Evaluation Funds (NLM).....	-8	-8	-8	--
Type 1 Diabetes Research (NIDDK) 1/.....	-150	-150	-150	--
<b>Total, Budget Authority</b>	<b>31,084</b>	<b>30,785</b>	<b>31,829</b>	<b>+745</b>
<b>Labor/HHS Appropriation.....</b>	<b>31,005</b>	<b>30,706</b>	<b>31,748</b>	<b>+743</b>
<b>Interior Appropriation.....</b>	<b>79</b>	<b>79</b>	<b>81</b>	<b>+2</b>
FTE.....	18,362	18,412	18,412	+50

1/ These mandatory funds were pre-appropriated in P.L. 110-275, the Medicare Improvements for Patients and Providers Act of 2008, and P.L. 111-309, the Medicare and Medicaid Extenders Act of 2010.

\*The 2010 Labor, HHS, and Education Appropriations Act included a total of \$4,818,275,000 for NIAID, of which \$304,000,000 was transferred from the Biodefense Countermeasures account in the Department of Homeland Security. Since there are no funds remaining in that account in 2011, under the current law continuing resolution (P.L. 111-317), there can be no transfer to NIAID. The Administration supports replacing this transfer with budget authority for NIAID in 2011.



# NATIONAL INSTITUTES OF HEALTH

*The National Institutes of Health uncovers new knowledge that will lead to better health for everyone.*

The FY 2012 Budget requests \$32.0 billion for the National Institutes of Health (NIH), an increase of \$745 million, or 2.4 percent, over the FY 2010 level.

Through the application of genomic research and high-throughput technologies, breakthroughs in our understanding of the causes of many diseases and the identification of new targets and pathways for the development of new therapeutics are clearly within reach. For example, a decade ago, diagnosis of cancer was based on the organ involved and treatment depended on broadly aimed therapies that often diminished a patient's quality of life. Today, research in cancer biology is moving treatment toward more effective and less toxic therapies tailored to the genetic profile of each patient's cancer. NIH-funded researchers are also uncovering information about genes and the environment that will help point the way toward more personalized, targeted treatments for other diseases. New insights into molecular mechanisms represent new opportunities for NIH to straighten and shorten the pathway from discovery to health. This expectation is grounded in several recent developments: the dramatic acceleration of our basic understanding of hundreds of diseases; the establishment of NIH-supported centers that enable academic researchers to use such understanding to screen thousands of chemicals

for potential drug candidates; and the emergence of public-private partnerships to aid the movement of drug candidates into the commercial development pipeline.

NIH is the world's largest and most distinguished organization dedicated to maintaining and improving health through medical science. Its budget is composed of 27 appropriations for its Institutes and Centers, Office of the Director, and Buildings and Facilities. In FY 2012, about 83 percent of the funds appropriated to NIH will flow out to the extramural community, which supports work by more than 325,000 scientists and research personnel affiliated with over 3,000 organizations, including universities, medical schools, hospitals, and other research facilities. About 11 percent of

the budget will support an in-house, or intramural, program of basic and clinical research activities managed by world-class physicians and scientists. This intramural research program, which includes the NIH Clinical Center, gives our Nation the unparalleled ability to respond immediately to national and global health challenges. Another 6 percent will provide for agency leadership, research management and support, and facilities maintenance and improvements.

## ADDRESSING RESEARCH PRIORITIES IN FY 2012

In fulfilling its mission, NIH strives to maintain a diverse portfolio of research founded on both public health need and scientific opportunity. In FY 2012, NIH will use the \$32.0 billion Budget to support

### NIH Disease Accomplishments

NIH is continuing to make progress in combating major diseases. As just a few examples of accomplishments made by NIH-supported scientists in 2010:

- ◆ The first results from a large clinical trial testing candidate microbicides that use anti-retrovirals (ARVs) found that incorporating an ARV into a gel for women was more than 50 percent protective against HIV infection.
- ◆ The National Lung Screening Trial found that screening with low-dose computed tomography (CT) can decrease lung-cancer deaths among current and former heavy smokers by 20 percent.
- ◆ In mammals, hair cells in the inner ear that are essential for both hearing and balance cannot regenerate when they die or are damaged. Mouse embryonic and induced pluripotent stem cells were used to generate new hair cells. This work offers a major new avenue for treating deafness.
- ◆ Significant progress was made toward developing a universal flu vaccine that would confer longer term protection against multiple influenza virus strains and make yearly flu shots a thing of the past.

## The Cancer Genome Atlas

The Recovery Act appropriated \$10 billion directly to NIH, of which \$8.2 billion was designated for scientific research, and \$1.8 billion for scientific facilities and equipment. One example is \$178 million for The Cancer Genome Atlas (TCGA) project to accelerate its ground-breaking work of identifying and cataloguing genomic changes in 20 of the most common malignancies, including prostate, breast, ovarian, brain, and pancreatic cancers, and adult leukemia. The TCGA will provide unprecedented insights into the molecular basis of cancer, setting the stage for developing a new generation of personalized, targeted and more effective drugs and diagnostics to fight the disease. The Recovery Act funds helped speed every aspect of the project, from tissue collection to genome characterization and sequencing and the development of new tools for data analysis.

innovative research across the spectrum from basic to clinical, with a focus on one major area of extraordinary opportunity, and three other themes that are exceptionally ripe for investment and critical to improving the health of the American people.

***A Groundbreaking New Program at NIH – The National Center for Advancing Translational Sciences:*** Recent insights into the molecular basis of disease have identified many promising new targets for therapeutic intervention and yielded an unprecedented potential for developing more effective diagnostics and therapeutics. NIH is proposing to establish a new National Center for Advancing Translational Sciences (NCATS) on October 1, 2011, in order to place the agency in a pivotal position to re-engineer the pipeline for diagnostics and therapeutics discovery and development. NCATS will catalyze innovation at crucial junctures in the pipeline, spur new public-private partnerships, and facilitate the regulatory review process through recent

initiatives including the NIH-FDA Leadership Council and a research program in Regulatory Science. At this time, NIH also plans to abolish the existing National Center for Research Resources (NCRR); its programs will be transferred to the new Center or to other parts of NIH.

NCATS will align and bring together in one organization a number of trans-NIH programs that are inherently cross-cutting. As an example, the Cures Acceleration Network (CAN), for which \$100 million is requested in FY 2012, will play a leading role in the effort to accelerate the development of “high need cures” through the reduction of barriers between research discovery and clinical trials. The CAN initiative may use up to 20 percent of its funds on flexible research authorities to enable transactions other than contracts, grants, and cooperative agreements to carry out its goals.

Other components expected to be a part of NCATS are the Clinical and Translational Science Awards (CTSA)

program and the Therapeutics for Rare and Neglected Diseases (TRND) program. The FY 2012 Budget requests \$485 million for CTSA, which fund a nationwide consortium of biomedical research institutions united around the goals of accelerating therapeutics development, engaging communities in clinical research efforts and training clinical and translational investigators. NIH also plans to double support for the TRND program in FY 2012, to a total of \$50 million.

In FY 2012, NIH will also emphasize the following three scientific areas that the agency views as instrumental in paving the way for more rapid scientific advances across all areas of human health and disease, including global applications:

***Technologies to Accelerate Discovery:*** The critical first step in developing more effective therapies for diseases that affect millions of Americans every day, such as heart disease, cancer, and Alzheimer’s disease, is illuminating the complex causes of disease. Investigators are better able to take this step with such advanced technologies as DNA sequencing, microarray technology, nanotechnology, new imaging modalities, and computational biology. In FY 2012, NIH plans to support further development and application of these advanced technologies.

***Enhancing the Evidence Base for Health Care Decisions:*** NIH’s aim is not only to spur the development of new treatments, but also to support rigorous programs for assessing and ensuring their effectiveness

within populations and for individuals. Research in personalized medicine is essential to fulfilling the agency's mission and will enhance the evidence base for decision-making in clinical practice.

***New Investigators, New Ideas:*** The future vitality of biomedical science in the United States depends upon the NIH and its support for young scientists. In FY 2012, NIH will emphasize two programs. The NIH Director's New Innovator Award, for which \$80 million is requested in FY 2012, supports exceptionally creative new investigators with potentially high-impact projects. The Early Independence Program, for which \$8 million is requested, will enable our most talented young scientists to move directly from a doctoral degree to an independent research career.

As part of the President's initiative in FY 2012 to emphasize support for science, technology, engineering, and mathematics (STEM) education programs, the budget proposes a four percent stipend increase for predoctoral and postdoctoral research trainees supported by NIH's Ruth L. Kirschstein National Research Service Awards program. A total of \$794 million is requested in FY 2012 for this training program. The proposed increase in stipends will allow NIH to continue to attract high-quality research trainees that will be available to address the Nation's future biomedical, behavioral, and clinical research needs.

## Genome Sequencing

**Goal:** By 2011, reduce the fully loaded cost of sequencing a human genome to \$25,000.

**Performance:** Significant reductions in the cost of sequencing the human genome have improved our understanding of diseases and advanced biomedical research technology. To achieve greater knowledge in the genetic variations contributing to common and complex disorders, it is necessary to sequence large volumes of genomes. NIH aims to rapidly reduce the current cost of sequencing the genome from \$50,000 in 2009 to \$25,000 by the end of 2011. NIH has already achieved reductions in the total costs, currently at \$31,125, and remains on track to meet this goal by increasing efficiency, improving technology, and reducing computational expenses. By 2012, NIH aims to further reduce the cost of sequencing the human genome to \$15,000.

***Other Key Priorities:*** Focusing on recent discoveries regarding cancer genomes, NIH will continue in FY 2012 to pursue the leading edge of discovery in basic cancer science, and develop new cancer treatments and methods for prevention and early detection of cancer. For Alzheimer's disease, NIH is partnering with the private sector to find new methods for early diagnosis, and to support early drug discovery and preclinical drug development. Ongoing research into environmental factors, early detection, and novel treatments will transform our understanding of autism spectrum disorders.

NIH estimates it will devote nearly \$3.2 billion for research on HIV/AIDS in FY 2012. Controlling and ultimately eliminating HIV/AIDS will require safe, effective vaccines and other preventive measures. Developing such vaccines remains a priority and one of NIH's greatest challenges. This effort will require significant

advances in basic research to both better understand the virus and the disease and to develop new vaccine strategies.

In addition to these funds, the budget for the National Institute of Allergy and Infectious Diseases (NIAID) includes \$300 million, the same level as in FY 2010, to help support the United States Government's \$1.3 billion contribution to the Global Fund to Fight HIV/AIDS, Tuberculosis, and Malaria in FY 2012.

NIH will also contribute \$20 million to the National Robotics Initiative in FY 2012 in areas such as home care; personalized care for special needs populations and robotic wellness/ health promotion; robot-assisted recovery, rehabilitation, and behavioral therapy; surgical and interventional robots, and high-throughput robot technologies.

In response to recommendations in the Secretary's Medical Countermeasures Review, NIH will spend \$55 million in

FY 2012 to expand the Concept Acceleration Program within NIAID. This program dedicates NIH staff to individually help shepherd investigators who have promising, early-stage, medical countermeasure products, but limited product development experience, to more rapidly develop and test their products through to the clinical evaluation stages.

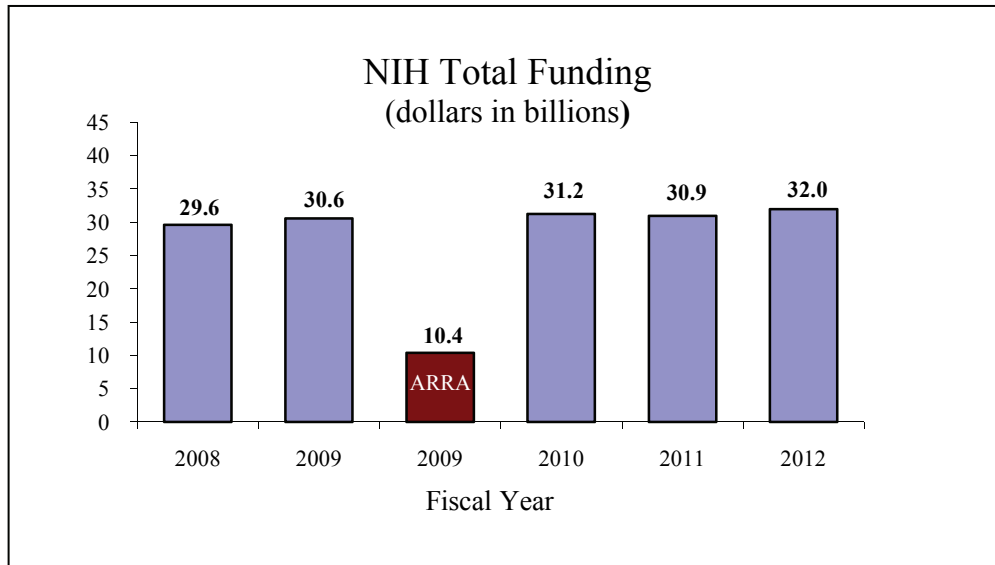
NIH estimates that it will support 9,158 new and competing research project grants (RPGs) in FY 2012, with

the total number of RPGs expected to be 36,852. The average cost of a new and competing RPG in FY 2012 will be about \$433,000.

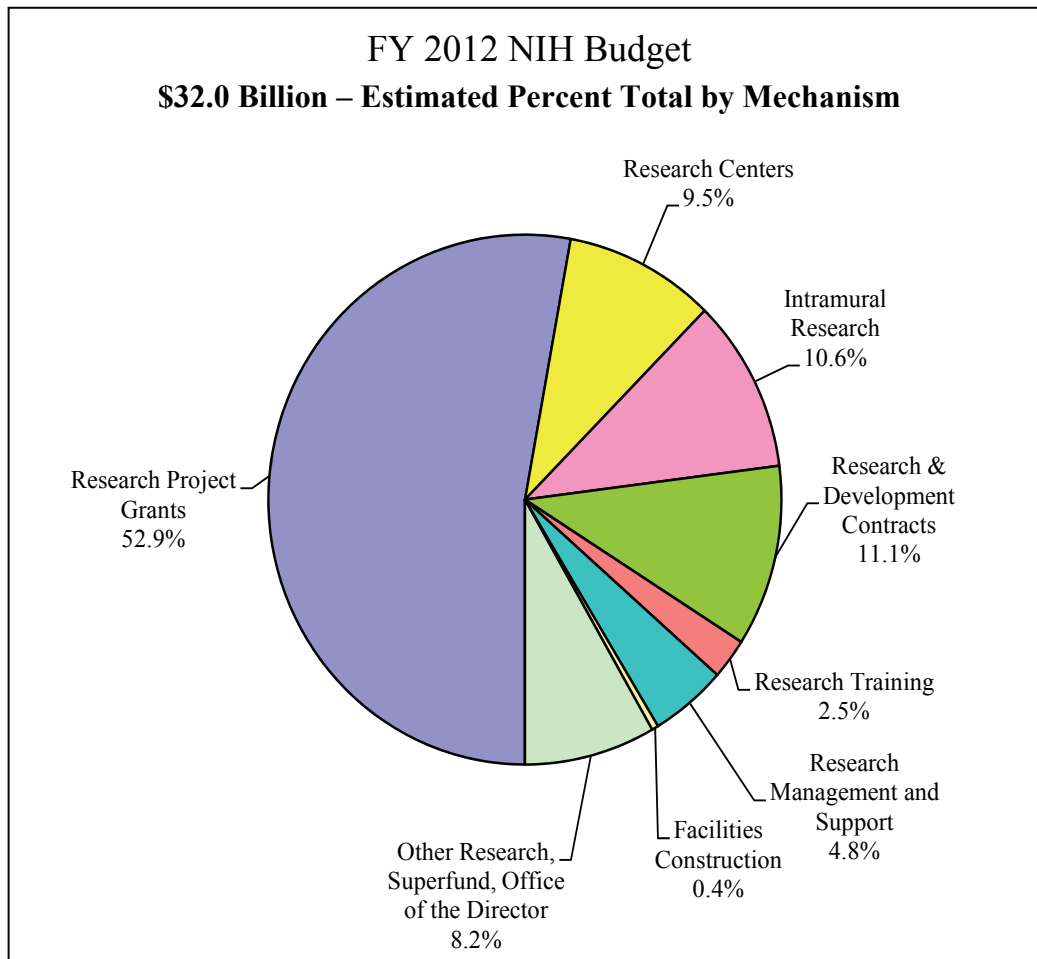
#### **INTRAMURAL BUILDINGS AND FACILITIES**

A total of \$134 million is requested for NIH Intramural Buildings and Facilities (B&F) in FY 2012, an increase of \$26 million above FY 2010, to sustain and improve the physical infrastructure used to carry out quality biomedical

research on the NIH campuses. In FY 2012, NIH will focus on upgrades to ensure essential safety and regulatory compliance, as well as on facility repairs and improvements to address the most critical utility systems, fire safety, and environmental deficiencies. Within the B&F mechanism total, \$8 million is appropriated to the National Cancer Institute for facilities projects at its Frederick, Maryland campus.



ARRA (American Recovery and Reinvestment Act) funds were available for obligation in both FY 2009 and FY 2010. ARRA funding for NIH included a \$400 million transfer from the Agency for Healthcare Research and Quality for patient-centered health research.



# NATIONAL INSTITUTES OF HEALTH OVERVIEW BY MECHANISM



(dollars in millions)

Mechanism	2010	2011 *	2012	2012 +/- 2010
Research Project Grants (dollars).....	16,473	16,390	16,909	+436
[ # of Non-Competing Grants ].....	[25,738]	[25,936]	[26,019]	[+281]
[ # of New/Competing Grants].....	[9,386]	[8,734]	[9,158]	[-228]
[ # of Small Business Grants].....	[1,685]	[1,658]	[1,675]	[-10]
[ Total # of Grants ].....	[36,809]	[36,328]	[36,852]	[+43]
Research Centers.....	3,078	3,008	3,036	-41
Other Research.....	1,794	1,813	1,820	+25
Research Training.....	775	782	794	+19
Research and Development Contracts.....	3,456	3,258	3,545	+89
Intramural Research.....	3,340	3,351	3,390	+50
Research Management and Support.....	1,508	1,523	1,538	+30
Office of the Director.....	633	632	742	+109
[ NIH Common Fund (non-add)].....	[544]	[544]	[557]	[+13]
Buildings and Facilities.....	108	108	134	+26
NIEHS Interior Appropriation (Superfund).....	79	79	81	+2
<b>Total, Program Level</b>	<b>31,243</b>	<b>30,943</b>	<b>31,987</b>	<b>+745</b>
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