

DEPARTMENT OF HEALTH AND HUMAN SERVICES

NATIONAL INSTITUTES OF HEALTH

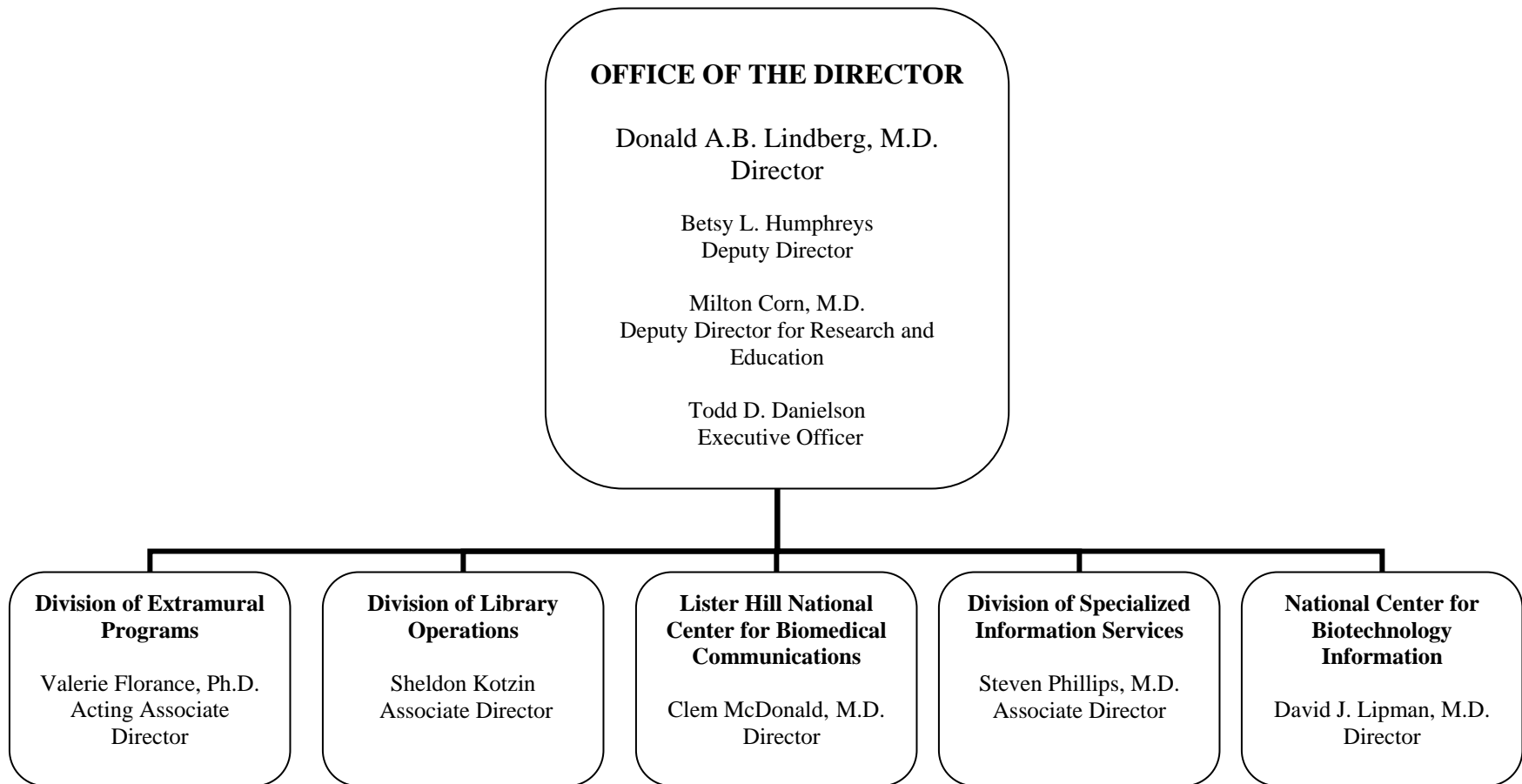
National Library of Medicine (NLM)

<u>FY 2010 Budget</u>	<u>Page No.</u>
Organization chart.....	2
Appropriation language.....	3
Amounts available for obligation .....	4
Budget mechanism table.....	5
Budget authority by activity.....	6
Major changes in budget request.....	7
Summary of changes.....	8
Budget graphs .....	10
Justification narrative.....	11
Budget authority by object.....	22
Salaries and expenses.....	23
Authorizing legislation.....	24
Appropriations history.....	25
Detail of full-time equivalent employment (FTE).....	26
Detail of positions.....	27
New positions requested.....	28

**NATIONAL INSTITUTES OF HEALTH**

**NATIONAL LIBRARY OF MEDICINE**

**ORGANIZATION STRUCTURE**



## **FY 2010 Proposed Appropriation Language**

### **NATIONAL INSTITUTES OF HEALTH**

#### National Library of Medicine

For carrying out section 301 and title IV of the Public Health Service Act (*PHS Act*) with respect to health information communications, [\$330,771,000] \$334,347,000, of which \$4,000,000 shall be available until expended for improvement of information systems: Provided, that in fiscal year [2009] 2010, the National Library of Medicine may enter into personal services contracts for the provisions of services in facilities owned, operated, or constructed under the jurisdiction of the National Institutes of Health: Provided further, that in addition to amounts provided herein, \$8,200,000 shall be available from amounts available under section 241 of the [Public Health Service Act] *PHS Act* to carry out the purposes of the National Information Center on Health Services Research and Health Care Technology established under section 478A of the [Public Health Service Act] *PHS Act* and related health services. (Department of Health and Human Services Appropriations Act, 2009)

**National Institutes of Health  
National Library of Medicine**

**Amounts Available for Obligation 1/**

Source of Funding	FY2008 Actual	FY2009 Estimate	FY2010 President's Budget
Appropriation	\$326,669,000	\$330,771,000	\$334,347,000
Type 1 Diabetes	0	0	0
Rescission	-5,707,000	0	0
Supplemental	1,705,000	0	0
Subtotal, adjusted appropriation	322,667,000	330,771,000	334,347,000
Real transfer under Director's one-percent transfer authority (GEI)	720,000	0	0
Comparative transfer to NIDCR	-455,000	0	0
Comparative transfer under Director's one-percent transfer authority (GEI)	-720,000	0	0
Subtotal, adjusted budget authority	322,212,000	330,771,000	334,347,000
Unobligated balance, start of year	10,000	0	0
Unobligated balance, end of year	0	0	0
Subtotal, adjusted budget authority	322,222,000	330,771,000	334,347,000
Unobligated balance lapsing	-12,000	0	0
Total obligations	322,210,000	330,771,000	334,347,000

1/ Excludes the following amounts for reimbursable activities carried out by this account:  
 FY2008 - \$24,703,000    FY2009 - \$27,300,000    FY2010 - \$27,875,000  
 Excludes \$3,000 in FY2009 and \$8,500 in FY2010 for royalties.

**NATIONAL INSTITUTES OF HEALTH**

**National Library of Medicine**

(Dollars in Thousands)

Budget Mechanism - Total

MECHANISM	FY 2008 Actual		FY 2009 Estimate		FY 2010 President's Budget		Change	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
Research Grants:								
<u>Research Projects:</u>								
Noncompeting	62	\$19,739	68	\$20,041	59	\$18,875	(9)	-\$1,166
Administrative supplements	(3)	72	(0)	0	(0)	0	(0)	0
Competing:								
Renewal	3	1,213	2	850	3	1,220	1	370
New	25	6,395	24	6,609	27	7,576	3	967
Supplements	0	0	0	0	0	0	0	0
Subtotal, competing	28	7,608	26	7,459	30	8,796	4	1,337
Subtotal, RPGs	90	27,419	94	27,500	89	27,671	(5)	171
SBIR/STTR	2	979	5	770	5	775	0	5
Subtotal, RPGs	92	28,398	99	28,270	94	28,446	(5)	176
<u>Research Centers:</u>								
Specialized/comprehensive	0	766	0	0	0	0	0	0
Clinical research	0	0	0	0	0	0	0	0
Biotechnology	0	0	0	0	0	0	0	0
Comparative medicine	0	0	0	0	0	0	0	0
Research Centers in Minority Institutions	0	0	0	0	0	0	0	0
Subtotal, Centers	0	766	0	0	0	0	0	0
<u>Other Research:</u>								
Research careers	12	1,560	12	1,575	12	1,599	0	24
Cancer education	0	0	0	0	0	0	0	0
Cooperative clinical research	0	0	0	0	0	0	0	0
Biomedical research support	5	2,770	5	2,776	5	2,818	0	42
Minority biomedical research support	0	0	0	0	0	0	0	0
Other	70	18,880	59	16,580	54	15,586	(5)	-994
Subtotal, Other Research	87	23,210	76	20,931	71	20,003	(5)	-928
<b>Total Research Grants</b>	<b>179</b>	<b>52,374</b>	<b>175</b>	<b>49,201</b>	<b>165</b>	<b>48,449</b>	<b>(10)</b>	<b>-752</b>
<u>Research Training:</u>	<u>FTEs</u>		<u>FTEs</u>		<u>FTEs</u>			
Individual awards	0	0	0	0	0	0	0	0
Institutional awards	0	0	0	0	0	0	0	0
<b>Total, Training</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<u>Research &amp; development contracts</u>								
(SBIR/STTR)	14	17,269	13	17,738	13	18,079	0	341
	0	0	(0)	(0)	(0)	(0)	(0)	(0)
	<u>FTEs</u>		<u>FTEs</u>		<u>FTEs</u>		<u>FTEs</u>	
Intramural programs	621	240,262	637	251,242	650	255,009	13	3,767
Research management and support	78	12,307	94	12,590	96	12,810	2	220
Construction		0		0		0		0
Buildings and Facilities		0		0		0		0
<b>Total, NLM</b>	<b>699</b>	<b>322,212</b>	<b>731</b>	<b>330,771</b>	<b>746</b>	<b>334,347</b>	<b>15</b>	<b>3,576</b>

Includes FTEs which are reimbursed from the NIH Roadmap for Medical Research

**NATIONAL INSTITUTES OF HEALTH**  
**National Library of Medicine**  
**BA by Program**  
(Dollars in thousands)

	FY 2006		FY 2007		FY 2008		FY 2008		FY 2009		FY 2010		Change	
	FTEs	Actual Amount	FTEs	Actual Amount	FTEs	Actual Amount	FTEs	Comparable Amount	FTEs	Estimate Amount	FTEs	Amount	FTEs	Amount
<b>Extramural Research</b>														
<u>Detail:</u>														
Health Information for Health Professionals and Public (NN/LM)		\$12,701		\$13,201		\$12,585		\$12,585		\$12,585		\$12,774		189
Informatics Infrastructure		25,813		25,813		24,311		24,841		22,135		21,225		-910
Informatics Research		30,733		32,573		32,217		32,217		32,219		32,529		310
<b>Subtotal, Extramural</b>		69,247		71,587		69,113		69,643		66,939		66,528		-411
<b>Intramural programs</b>	580	233,023	598	237,646	621	241,979	621	240,262	637	251,242	650	255,009	13	3,767
<b>Res. management &amp; support</b>	76	11,807	78	12,121	78	12,307	78	12,307	94	12,590	96	12,810	2	220
<b>TOTAL</b>	656	314,077	676	321,354	699	323,399	699	322,212	731	330,771	746	334,347	15	3,576

Includes FTEs which are reimbursed from the NIH Roadmap for Medical Research

## **Major Changes in the Fiscal Year 2010 Budget Request**

Major changes by budget mechanism and/or budget activity detail are 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 2010 budget request for NLM, which is \$3.576 million more than the FY 2009 Estimate, for a total of \$334.347 million.

Intramural Programs (+\$3.767 million; total \$255.009 million): NLM will support salary increases, incremental cost of literature purchases, and contractual services in order to maintain its national biomedical information services, including the development and dissemination of molecular biology and genomic information and other services that provide access to the results of cancer research.

**NATIONAL INSTITUTES OF HEALTH**  
**National Library of Medicine**  
**Summary of Changes**

FY 2009 estimate		\$330,771,000	
FY 2010 estimated budget authority		334,347,000	
Net change		3,576,000	
CHANGES	2009 Current		
	Estimate Base	Change from Base	
	Budget	Budget	
	FTEs	FTEs	Authority
A. Built-in:			
1. Intramural programs:			
a. Annualization of January 2009 pay increase	\$74,752,000		\$893,000
b. January FY 2010 pay increase	74,752,000		1,121,000
c. Zero less days of pay	74,752,000		0
d. Payment for centrally furnished services	8,386,000		168,000
e. Increased cost of laboratory supplies, materials, and other expenses	168,104,000		2,690,000
Subtotal			4,872,000
2. Research management and support:			
a. Annualization of January 2009 pay increase	\$8,867,000		\$106,000
b. January FY 2010 pay increase	8,867,000		133,000
c. Zero less days of pay	8,867,000		0
d. Payment for centrally furnished services	0		0
e. Increased cost of laboratory supplies, materials, and other expenses	3,723,000		60,000
Subtotal			299,000
Subtotal, Built-in			5,171,000



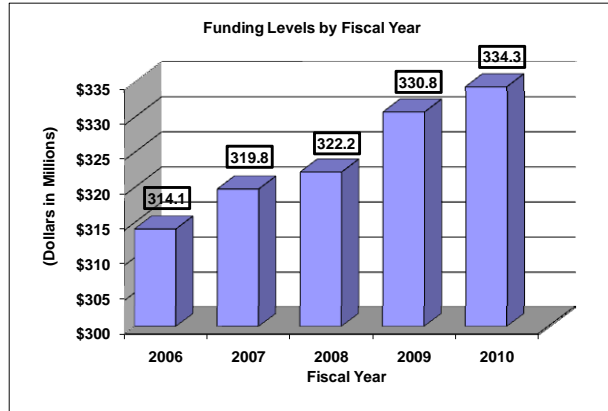
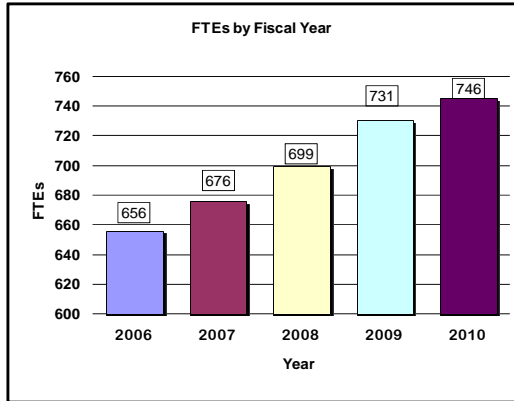
**NATIONAL INSTITUTES OF HEALTH  
National Library of Medicine**

**Summary of Changes--continued**

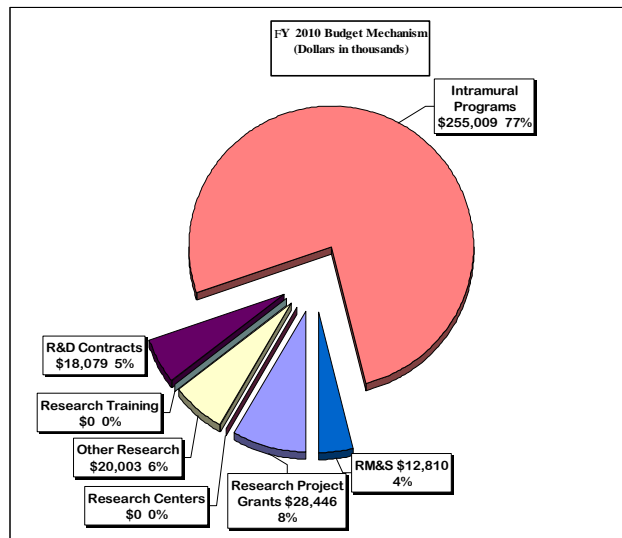
CHANGES	2009 Current Estimate Base		Change from Base	
	No.	Amount	No.	Amount
<b>B. Program:</b>				
1. Research project grants:				
a. Noncompeting	68	\$20,041,000	(9)	(\$1,166,000)
b. Competing	26	7,459,000	4	1,337,000
c. SBIR/STTR	5	770,000	0	5,000
Total	99	28,270,000	(5)	176,000
2. Research centers	0	0	0	0
3. Other research	76	20,931,000	(5)	(928,000)
4. Research training	0	0	0	0
5. Research and development contracts	13	17,738,000	0	341,000
Subtotal, extramural				(411,000)
6. Intramural programs	<u>FTEs</u> 637	251,242,000	<u>FTEs</u> 13	(1,105,000)
7. Research management and support	94	12,590,000	2	(79,000)
8. Construction		0		0
9. Buildings and Facilities		0		0
Subtotal, program		330,771,000		(1,595,000)
Total changes	731		15	3,576,000

## Fiscal Year 2010 Budget Graphs

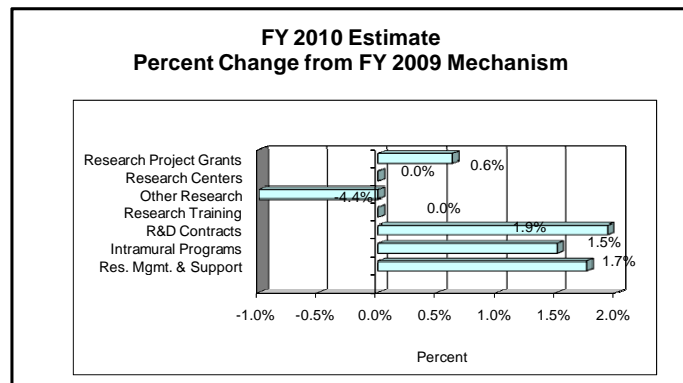
### History of Budget Authority and FTEs:



### Distribution by Mechanism:



### Change by Selected Mechanisms:



**Justification  
National Library of Medicine**

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

	FY 2008 <u>Appropriation</u>	FY 2009 <u>Omnibus</u>	FY 2009 Recovery <u>Act</u>	FY 2010 President's <u>Budget</u>	FY 2010 +/- 2009 <u>Omnibus</u>
BA	\$322,212,000	\$330,771,000	\$83,643,000	\$334,347,000	+\$3,576,000
FTE	699	731	0	746	+15

This document provides justification for the Fiscal Year 2010 activities of the National Library of Medicine (NLM), including HIV/AIDS activities. Details of the FY 2010 HIV/AIDS activities are in the "Office of AIDS Research (OAR) section of the Overview. Details on the NIH Common Fund are located in the Overview, Volume One. Program Funds are allocated as follows: Competitive Grants/Cooperative Agreement; Contracts; Direct Federal/Intramural and Other.

In FY 2009, a total of \$83,643,000 American Recovery and Reinvestment Act (ARRA) funds were transferred from the Office of the Director. These funds will be used to support scientific research opportunities that help support the goals of the ARRA. The ARRA allows NIH to execute these funds via any NIH funding mechanism. Funds are available until September 30, 2010. These funds are not included in the FY 2009 Omnibus amounts reflected in this document.

**DIRECTOR'S OVERVIEW**

The National Library of Medicine (NLM) is the world's largest biomedical library and the developer of electronic information services that deliver trillions of bytes of data to millions of users every day. Scientists, health professionals, and the public in the U.S. and around the globe search the Library's online resources nearly two billion times each year. For 172 years, NLM has played a pivotal role in translating biomedical research into practice. Today the Library fulfills this mission by:

- Acquiring, organizing, and preserving the world's scholarly biomedical literature;
- Providing nationwide access to biomedical and health information in partnership with the 5,800-member National Network of Libraries of Medicine;
- Serving, via its National Center for Biotechnology Information (NCBI), as a leading resource, both nationally and internationally, for building, curating, and providing sophisticated access to molecular biology and genomic information, including the output of the Human Genome project and NIH Roadmap initiatives;
- Creating high quality information services on toxicology, environmental health, health services research, public health, and disaster management;

- Conducting research and development on biomedical communications systems, methods, technologies, and networks and on information dissemination and use by health professionals, patients, and the general public;
- Funding advanced biomedical informatics research and serving as the primary supporter of pre- and post-doctoral research training in biomedical informatics at 18 U.S. universities; and
- Aiding national disaster management efforts by integrating libraries and information specialists into local disaster preparedness activities and conducting relevant informatics research.

The Library stands at the center of biomedical research—receiving, storing, disseminating, and connecting published research results - including articles deposited in response to the Congressionally mandated NIH Public Access Policy - with biological, biochemical, genomic, and clinical research data from laboratories and research centers around the world.

Equally important to NLM's mission is providing timely, accurate, and understandable information to help patients, their families, and the public play a more active role in managing their health and health care. The heavily used Web-based health information services and the NIH MedlinePlus magazine (recently expanded to include a Spanish language edition) transmit the latest useful research findings in lay language and also provide guidance that can be easily understood by the public. NLM partners with libraries and community-based organizations to increase public awareness and use of these valuable resources.

NLM's ClinicalTrials.gov database serves the full spectrum of user groups: researchers, health professionals, and the public. This database contains information about more than 70,000 clinical research studies in more than 160 countries, with hundreds added each week. In response to the Food and Drug Administration (FDA) Amendments Act of 2007, ClinicalTrials.gov was recently expanded to accept more extensive information about trials of drugs, devices and other therapies, including summary results data for completed trials of FDA-approved medical products.

NLM continues to focus on the goals of its 2006-2016 Long Range Plan, including key activities in support of interoperable electronic health records, more effective response to disasters and emergencies, development of a robust knowledge base for personalized health care, reduction of health disparities, and improved health literacy.

Personal health records can contribute to all of these goals. NLM is developing personal health record tools that can help individuals caring for elderly parents or young children to enter test results, prescriptions, problems and immunizations, with links to MedlinePlus information about prescriptions and reminders about preventive care, such as flu shots. These same tools can be used to enhance electronic health records used by doctors and in long term care facilities. This work builds upon the Library's history of supporting, developing, and disseminating standard medical terminologies in the Unified Medical Language System, as well as on informatics research. As the Department of

Health and Human Services (HHS) coordinating body for clinical terminologies, NLM plays a leadership role in developing U.S. and international health data standards, including the expansion of standards to cover genetic tests.

NLM is committed to improving the nation's ability to prepare for and respond to disasters. In collaboration with the National Network of Libraries of Medicine, the newly established Disaster Information Management Research Center partners with other federal agencies to identify, develop, and deploy tools and information services that can assist first-responders and others involved in disaster management. NLM aims to promote more effective use of libraries and disaster information specialists in disaster management efforts, as well as to ensure uninterrupted access to critical health information resources when disasters occur.

NLM's NCBI works to promote scientific discovery by organizing and providing rapid access to the flood of data resulting from high throughput sequencing and bioassay technologies. NCBI's database of Genotype and Phenotype (dbGaP) makes the results of Genome Wide Association Studies available to researchers. By linking genomic and clinical data for the same patients, dbGaP helps to identify genetic variations that may affect predisposition to disease or response to therapy.

In addition to longstanding outreach partnerships with libraries, minority-serving institutions, and community-based organizations, NLM continues to place high priority on developing and testing novel methods for increasing awareness and use of its health information services. Information prescriptions, major exhibitions, announcements by media stars, games for school children, and libraries in virtual worlds are just some of the ways used to ensure that everyone in the United States has a known, easily accessible and understandable source of high quality health information.

NLM will continue to fund meritorious extramural projects relating to cancer that are received through its grant programs or undertaken by its informatics research trainees.

## **FY 2010 JUSTIFICATION BY ACTIVITY DETAIL**

### **Program Descriptions and Accomplishments**

**Overall Budget Policy:** NLM's highest priorities are maintaining the quality and integrity of the nation's archival collection of biomedical information and of the high volume services that make this information available across the US and the world. These activities are the focus of NLM's intramural programs and account for approximately 75 percent of the budget. The work includes both building and maintaining the collection of biomedical literature and building and providing access to electronic information services in areas spanning biomedical and genomic research, clinical trials, health care, toxicology, environmental health, and high quality health information for the general public. In its extramural program, NLM will continue to provide access to biomedical and health information in partnership with the

5,800 member National Network of Libraries of Medicine and support its broad grant programs including a substantial investment in informatics research and training. Intramural Research and Research Management and Support receive increases to help cover the cost of pay and other increases. NLM will continue to support new investigators and to maintain an adequate number of competing RPGs.

### **Intramural Activity Details**

NLM's intramural programs acquire, organize, preserve, and provide access to the world's biomedical literature. NLM also serves as a leading resource for molecular biology, genomic, and clinical trials information; provides information services on toxicology, disaster preparedness, and environmental health; and conducts research and development on systems, technologies and networks for information access by researchers, health professionals, patients and the general public.

### **Delivering Reliable, High Quality Biomedical and Health Information Services:**

At the core of the National Library of Medicine (NLM) are the world's largest, continually expanding collection of biomedical literature and a broad array of authoritative databases for health professionals, researchers, the public, and librarians and information specialists who serve them. NLM develops and uses sophisticated computer systems to support the complex, high volume operations necessary to acquire, describe, and provide rapid access to materials in its collections and to build and refine electronic databases and services for many different audiences.

In FY 2008, NLM greatly expanded the quantity and range of high quality information readily available to researchers, health professionals, and the general public. Major advances included: the addition of clinical phenotype and genomic data from more than 25 Genome Wide Association Studies in dbGaP, which promise to fuel discovery of genetic variations associated with common diseases; a 50% increase in the number of full text articles in PubMed Central, which now provides public access to more than 1.76 million articles, including those produced by NIH-funded researchers; the addition to MedlinePlus of high quality consumer health information in more than 40 languages (beyond English and Spanish) to address the growing need for understandable information for non-English-speaking patients treated in hospitals and clinics across the United States; the expansion of ClinicalTrials.gov to provide more comprehensive information – including summary results -- about a larger set of clinical trials of FDA-regulated products; and development of new information services on dietary supplements, women's health issues, disaster preparation and response, and other important topics. Furthermore, approximately 700,000 new citations were added to the heavily used PubMed database of biomedical journal literature.

Budget Policy: The FY 2010 Budget request is \$112.979 million, an increase of \$1.563 million or 1.4 percent from the FY 2009 appropriation of \$111.416 million. In FY 2010, the Library will concentrate on maintaining its current high level of services and, where possible, enhance and expand its most heavily used resources, including Medline/PubMed and PubMed Central, which provide critical access to published

biomedical research results worldwide. Another key service, MedlinePlus, contains a wide range of information written and formatted for consumers. Keeping MedlinePlus current with new information (in English, Spanish and other languages) from NIH and other reliable sources is a high priority in FY 2010. ClinicalTrials.gov will continue to require significant expansion in FY 2010 to accommodate the results reporting provisions of the Food and Drug Administration Amendments Act of 2007.

**Promoting Public Awareness and Access to Information:** The NLM has extensive outreach programs to make biomedical researchers, health professionals, librarians, patients, their families, and other members of the public aware of the extensive information services. To improve access to high quality health information heavy use is made of the National Network of Libraries of Medicine and other formal partnerships including the Partners in Information Access for the Public Health Workforce, Environmental Health Information Outreach Program with Historically Black Colleges and Universities, tribal colleges, and other minority serving institutions. NLM also fosters informal partnerships, such as the Information Rx program to promote MedlinePlus usage by encouraging physicians to write “information prescriptions” for their patients, and uses exhibitions, the media, and new technologies in its efforts to reach underserved populations. As part of its outreach efforts, NLM continually solicits feedback from users on how existing resources can be improved.

In FY 2008, dozens of community-based projects were funded across the country to enhance awareness and access to health information, using a combination of “high touch” and the latest information and communication technologies. In addition to its longstanding partnership with the National Network of Libraries of Medicine, NLM developed new relationships with numerous groups in the public and private sectors, to provide vital health information resources to health professionals and the general public in the U.S. and around the world. With assistance from other NIH components and outside partners, NLM continues to increase the distribution of the NIH MedlinePlus magazine. Distribution has increased from 50,000 copies of each issue in 2006 to a distribution of over 500,000 copies of the summer 2008 issue. The opening of a major exhibition, “Against the Odds: Making a Difference in Global Health” provided an important opportunity to highlight collections and services relevant to underserved populations. The exhibition is available online and will begin to travel to cities across the country in November 2008 with the support of the Association of Schools of Public Health. New initiatives sought to improve access by underrepresented minority populations, enhance the understanding of Native American concepts of health and illness leading to a future exhibition on that subject, and to develop a comprehensive approach to educational outreach that encourages K-12 interest in and knowledge about health careers that address and may reduce health disparities in our nation.

Budget Policy: The FY 2010 Budget request is \$7.319 million, an increase of \$0.112 million or 1.6 percent from the FY 2009 appropriation of \$7.207 million. In FY 2010, NLM will continue its outreach programs with a special emphasis on those aimed at underserved and minority populations. As recommended by the 2006-2016 Long Range Plan, NLM will develop and test innovative outreach methods, including infrastructure improvements (for example, PDAs, intelligent agents, and network

techniques) to “enable ubiquitous health information access in homes, schools, public libraries, and work places.” Also as recommended in the Plan, the Library will continue to use its major historical exhibitions as a means for improving science and health literacy and promoting interest in biomedical careers, as well as increasing awareness and use of NLM information services.

**Portrait of a Program: National Network of Libraries of Medicine**

FY 2009 Level: \$12.585 million

FY 2010 Level: \$12.774 million

Change: +\$ 0.189 million

The 5,800 member institutions of the National Network of Libraries of Medicine are valued partners in ensuring that health information, including NLM’s many services, is available to scientists, health professionals, and the public. Comprised of academic health sciences libraries, hospital libraries, public libraries and community-based organizations, member institutions support interlibrary lending, exhibit at health-related conferences, offer training courses, and develop partnerships with community organizations to improve information access for underserved populations.

The Network is a key player in the MedlinePlus “Go Local” service, started in 2003 to provide information about local community services, including hospital, clinics, support groups, and community-based organizations, to complement the nationally applicable health information in MedlinePlus. There is Go Local coverage for 44 percent of the US population; expanding this reach is an important goal for the Library in FY 2009.

The Network plays a pivotal role in many NLM-wide efforts to expand outreach and services to the public, and address health literacy and racial and ethnic disparities. With an excellent track record of providing access to health information for clinicians and patients displaced by disasters, the Network is the backbone of NLM’s strategy to promote more effective use of libraries and librarians in local, state, and national disaster preparedness and response efforts.

**Developing Advanced Information Systems, Standards and Research Tools:** The NLM’s advanced information services have long benefitted from its intramural research and development (R&D) programs. The Library has two organizations that conduct advanced R&D on different aspects of biomedical communication—the Lister Hill National Center for Biomedical Communications (LHC) and the National Center for Biotechnology Information (NCBI). The LHC, established in 1968, conducts and supports research in such areas as the dissemination, processing, and use of high quality imagery; medical language processing; high-speed access to biomedical information; the development and dissemination of health information technology standards; and advanced technology for emergency and disaster management. The



NCBI, created in 1988, conducts research and development on the representation, storage, integration, retrieval, and display of biological data, literature, and knowledge; provides an integrated, one-stop, genomic information infrastructure for biomedical researchers at NIH and around the world; helps to set related standards; and uses the resources it creates to conduct research in computational biology.

In FY 2008, NLM's Lister Hill National Center for Biomedical Communication and its National Center for Biotechnology Information advanced the state of knowledge in biomedical informatics and computational biology, collaborated across NLM and with other agencies and organizations to test the effectiveness of informatics interventions, and provided new tools and standards to support biomedical informatics research and health information technology applications worldwide. To cite a few examples, intramural researchers at NLM developed informatics tools that support easy creation of standards-based personal health records, applied advanced natural language processing methods to extract information from biomedical literature to aid NHLBI experts in creating clinical guidelines, discovered a mechanism for immunity in bacteria, improved the automatic detection of gene and protein names in scientific text, and provided tools that enabled rapid expansion of the PubChem database of more than 650 types of bioassays and associated test results for over 12 million substances, for use in identification of potential new drugs. NLM made substantial contributions toward standardized reporting of genetic variations and clinical interpretation of genetic test results by augmenting RefSeqGene with more than 600 reference sequences for clinically significant genes, adding data about disease-causing mutations from Locus-specific databases to dbSNP, the internationally recognized database of variation, and expanding the LOINC (Logical Observations: Identifiers, Names, Codes) standard to cover 44 more variables needed to deliver structured clinical reports about sequencing and chip-based genetic tests.

Budget Policy: The FY 2010 Budget request is \$134.711 million, an increase of \$2.092 million or 1.6 percent from the FY 2009 appropriation of \$132.619 million. In accordance with the 2006-2016 Long Range Plan, NLM's research divisions will engage in critical research and development projects that are important to today's scientific community and that will have even greater influence in the future. In addition to NCBI's trans-NIH collaborations, other NLM intramural researchers will continue to pursue disaster management information research in partnership with the NIH Clinical Center, the Department of Defense, and Suburban Hospital; to develop advanced imaging tools for cancer diagnosis in cooperation with the National Cancer Institute; and to work with NIH-funded Clinical and Translational Research Centers on health data standardization issues. The Library will continue to serve as an HHS coordinating center for standard clinical vocabularies and to support, develop, or license for US-wide use key clinical vocabularies, including SNOMED CT®.

### Portrait of a Program: National Center for Biotechnology Information (NCBI)

FY 2009 Level: \$83.108 million

FY 2010 Level: \$84.397 million

Change: +\$ 1.289 million

The establishment of the National Center for Biotechnology Information in 1988 has proved to be a boon to the global scientific community. With Web sites accessed several million times a day, the Center is at the hub of international exchange of molecular biology information. NCBI meets the challenge of collecting, organizing, analyzing, and disseminating scientific data by developing and distributing the tools, databases and technologies that enable the genetic discoveries of the 21<sup>st</sup> century.

Though GenBank (DNA sequences) and PubMed/MEDLINE (abstracts for 18 million scientific articles) databases are most widely known, the NCBI provides a broad array of genomic resources and is a valued collaborator throughout the NIH. PubChem, a repository of 40 million compounds for “small molecules” that are crucial as research tools and in drug development, filled a critical need in the NIH Roadmap Initiative. NCBI’s dbGaP resource, a database of Genome Wide Association Studies, is the NIH public repository for linking genotype data with phenotype information to identify genetic factors that influence health, disease, and response to treatment. The NCBI’s PubMed Central database, an archive of over 1.7 million full-text journal articles, is central to the efforts of NIH and other major international biomedical research funders to make accessible the published results of research they support. Its standard article formats have been adopted by electronic publishers and archives worldwide.

The next few years promise to be transformative for genetic research as dramatic improvements in sequencing technology produce an explosive growth in genomic data. NCBI resources will offer detailed views of human genetic variation to better understand human biology and develop new approaches for diagnosis and treatment of disease.

### **Extramural Activity Details**

NLM’s Extramural programs focus on two priority areas: (1) the creation and enhancement of informatics infrastructure for biomedicine and health whose components include sophisticated computational tools, knowledge resources and skilled informaticians and (2) informatics research. To accomplish its extramural goals, NLM offers five categories of grants: resource grants; training support; career enhancement awards; research grants; and SBIR/STTR grants. On average, NLM makes about 200 grant awards per year of which 25-35% are new awards. NLM will continue to fund meritorious extramural projects relating to cancer that are received through its grant programs or undertaken by its informatics research trainees.

## **Informatics Infrastructure for Biomedicine and Health**

For more than 40 years the NLM has funded programs to develop the US biomedical informatics infrastructure, including the informatics research workforce, advanced telecommunications capabilities, and cutting edge information resources. Many of today's Health IT leaders are graduates of NLM-funded university-based informatics research training programs, training nearly 250 people annually at 18 institutions across the country. In years past, NLM grants supported the first Internet connections for many health sciences libraries, hospitals, local public health departments, and community organizations. The Library's current infrastructure grant programs support the use of computers and networks for the optimal management and dissemination of health information, and the development of customized information resources for target audiences, as well as the preparation of scholarly works related to the history and philosophy of medicine, biomedical science and relevant public health policy issues. In FY 2008, NLM funding supported 163 predoctoral and 83 postdoctoral informatics trainees, plus 13 short-term minority informatics trainees. Three new career transition awards were issued in FY 2008, along with fifteen new awards for knowledge management or scholarly works. Among the supported awards are projects to explore ways of combining animal and human disease data for surveillance of disease outbreaks, build a Web-based computerized information and management system for use in hospitals during disasters, and conduct research for a publication on "Pesticides and Toxicology: A Century of Environmental Health."

Budget Policy: The FY 2010 Budget request is \$21.225 million, a \$0.910 million decrease or 4.1% compared to the FY 2009 appropriation of \$22.135 million. This program builds the informatics expertise and information resources needed to support biomedical scientists, health care providers, public health administrators and health services researchers. Fewer grants will be awarded in this area in FY 2010 in support of NLM's intramural program needs related to electronic systems and storage capacity upgrades. NLM will continue extramural funding support for: (1) its university-based training of research informaticians and information specialists; (2) planning and project grants for knowledge management initiatives for health-related information, including integrated, customized knowledge sources for target audiences; (3) preparation of scholarly publications in the history and philosophy of medicine and biomedical science; and (4) early career transition awards for informaticians.

### **Program Portrait: Support of Informatics Training**

FY 2009 Level: \$22.135 million

FY 2010 Level: \$21.376 million

Change: -\$0.759 million

Through its Extramural Programs Division, NLM remains the principal source of NIH support for research training in biomedical informatics. Informatics requires knowledge of a biological, medical or public health domain as well as computer and information sciences, statistics or mathematics, engineering and human behavior. Developing a cadre of cross-trained researchers is especially important as rapid advancement of health care and biomedical research requires investigators who understand biomedicine as well as fundamental problems of knowledge representation, decision support, translational research, and human-computer interface.

In FY 2007, NLM awarded eighteen five-year institutional training grants for biomedical informatics to support approximately 250 predoctoral and postdoctoral trainees across the U.S. Three other NIH institutes have provided funds to support eight more trainees. To increase diversity in informatics, a special short-term training appointment for underrepresented minorities is available at 12 training programs. This program funded 13 trainees in FY 2008, and NLM hopes to offer the program again in FY 2009.

The average cost for an informatics trainee ranges between \$56,000 (predoctoral) and \$76,500 (postdoctoral) per year. In FY 2008, NLM provided funding for 243 trainees, of which 26 were due to a Supplemental Appropriation to NIH. In FY 2009, NLM expects to support 213 trainees. Resources for this initiative are reduced due to budgetary constraints and the resources needed to fund NLM's heavily used information services.

### **Informatics Research**

NLM informatics research grants have supported pioneering research and development in bioinformatics, artificial intelligence in medicine, clinical decision support, biomedical ontology, imaging, electronic medical records, regional health data exchange, health applications of advanced telecommunications networks, automated bio-surveillance, and emergency management systems. These programs advance the science of biomedical informatics, which is the intersection of computer and information sciences with medicine, public health, and biological/behavioral sciences. Biomedical informatics research is fundamental to the sophisticated systems in which biological research and health data are stored, managed, and displayed. NLM programs include basic or applied research; both large and small projects, ranging from major research resources to small business innovation research; and investigator-initiated projects as well as focused requests for applications in target areas important to NLM's mission. These grant programs also include funds for support of unique informatics research resources

such as the Biological Magnetic Resonance Data Bank and Protein Data Bank, and for small business innovation research (SBIR/STTR) grants in informatics areas. In FY 2008, NLM issued 32 new research awards to organizations, including small businesses, and two NIH Director's Bridge awards to NLM-funded investigators. NLM also issued two new Requests for Applications to recompute the Biomedical Informatics Resource Grant Program and advance research in a new challenge area of discovery mining. Among the newly funded research awards are projects on decision making for health care and public health, including decision making for biosurveillance by public health departments, automatic capture of patient-physician dialogues, and a computational framework for individualized clinical decision making. Other new research awards aim to advance translational research by developing tools for high-throughput analysis of bacterial genomes, identifying patient and pathogen genotype patterns in tuberculosis, and integrating genomic and proteomic research data to increase their clinical utility.

Budget Policy: The FY 2010 Budget request is \$32.529 million, an increase of \$0.310 million, or 1.0 percent, over the FY 2009 appropriation of \$32.219 million. Informatics research is fundamental to the sophisticated systems in which research and health data are stored, managed and displayed. NLM plans to continue to strengthen its RPG portfolio through additional challenge grant initiatives, issuing RFAs in informatics focus areas such as computational data mining, natural language understanding, and intelligent personal health records. NLM will continue to accept investigator-initiated grants through NIH parent grant FOAs for R01 and R21. These grant programs also include funds for support of unique informatics research resources such as the Biological Magnetic Resonance Data Bank and Protein Data Bank, and for small business innovation research (SBIR/STTR) grants in informatics areas.

### **Research Management and Support**

Research Management and Support (RMS) activities provide administrative, budgetary, logistical, and scientific support for basic library services, intramural research programs and the review, award and monitoring of research grants and training awards. RMS functions also include strategic planning, coordination, and evaluation of NLM's programs, regulatory compliance, policy development, international coordination and liaison with other Federal agencies, Congress, and the public. Included within this activity are: the Director and his immediate staff, the Office of Extramural Programs, the Office of Administrative Management, the Office of Health Information Programs Development, and the Office of Communications and Public Liaison.

Budget Policy: The FY 2010 Budget request is \$12.810 million, an increase of \$0.220 million or 1.7 percent above the FY 2009 appropriation of \$12.590 million. The focus of RMS will continue to be the coordination of NLM's activities and policies and the development and administration of NLM's grant activities. NLM is a key participant in the NIH Roadmap's Molecular Libraries initiative through its development and distribution of the PubChem small-molecule database (ML2-1). This activity is supported in its entirety by the NIH Common Fund.

**NATIONAL INSTITUTES OF HEALTH  
National Library of Medicine  
Budget Authority by Object**

	FY 2009 Estimate	FY 2010 President's Budget	Increase or Decrease	Percent Change
Total compensable workyears:				
Full-time employment	731	746	15	2.1
Full-time equivalent of overtime and holiday hours	3	3	0	0.0
Average ES salary	\$177,822	\$188,847	\$11,025	6.2
Average GM/GS grade	10.9	10.9	0.0	0.0
Average GM/GS salary	\$84,870	\$87,157	\$2,287	2.7
Average salary, grade established by act of July 1, 1944 (42 U.S.C. 207)	\$78,323	\$80,790	\$2,467	3.1
Average salary of ungraded positions	127,041	130,465	3,424	2.7
<b>OBJECT CLASSES</b>	<b>FY 2009 Estimate</b>	<b>FY 2010 Estimate</b>	<b>Increase or Decrease</b>	<b>Percent Change</b>
Personnel Compensation:				
11.1 Full-time permanent	\$43,172,000	\$45,299,000	\$2,127,000	4.9
11.3 Other than full-time permanent	19,832,000	20,799,000	967,000	4.9
11.5 Other personnel compensation	2,053,000	2,155,000	102,000	5.0
11.7 Military personnel	149,000	156,000	7,000	4.7
11.8 Special personnel services payments	1,711,000	1,794,000	83,000	4.9
<b>Total, Personnel Compensation</b>	<b>66,917,000</b>	<b>70,203,000</b>	<b>3,286,000</b>	<b>4.9</b>
12.0 Personnel benefits	16,578,000	17,394,000	816,000	4.9
12.2 Military personnel benefits	124,000	130,000	6,000	4.8
13.0 Benefits for former personnel	0	0	0	0.0
<b>Subtotal, Pay Costs</b>	<b>83,619,000</b>	<b>87,727,000</b>	<b>4,108,000</b>	<b>4.9</b>
21.0 Travel and transportation of persons	964,000	948,000	(16,000)	-1.7
22.0 Transportation of things	124,000	122,000	(2,000)	-1.6
23.1 Rental payments to GSA	0	0	0	0.0
23.2 Rental payments to others	71,000	71,000	0	0.0
23.3 Communications, utilities and miscellaneous charges	1,018,000	1,016,000	(2,000)	-0.2
24.0 Printing and reproduction	107,000	105,000	(2,000)	-1.9
25.1 Consulting services	51,653,000	51,565,000	(88,000)	-0.2
25.2 Other services	44,635,000	44,603,000	(32,000)	-0.1
25.3 Purchase of goods and services from government accounts	50,323,000	50,422,000	99,000	0.2
25.4 Operation and maintenance of facilities	5,189,000	5,177,000	(12,000)	-0.2
25.5 Research and development contracts	12,969,000	13,285,000	316,000	2.4
25.6 Medical care	0	0	0	0.0
25.7 Operation and maintenance of equipment	9,657,000	9,653,000	(4,000)	0.0
25.8 Subsistence and support of persons	0	0	0	0.0
<b>25.0 Subtotal, Other Contractual Services</b>	<b>174,426,000</b>	<b>174,705,000</b>	<b>279,000</b>	<b>0.2</b>
26.0 Supplies and materials	2,512,000	2,489,000	(23,000)	-0.9
31.0 Equipment	18,700,000	18,686,000	(14,000)	-0.1
32.0 Land and structures	0	0	0	0.0
33.0 Investments and loans	0	0	0	0.0
41.0 Grants, subsidies and contributions	49,201,000	48,449,000	(752,000)	-1.5
42.0 Insurance claims and indemnities	0	0	0	0.0
43.0 Interest and dividends	29,000	29,000	0	0.0
44.0 Refunds	0	0	0	0.0
<b>Subtotal, Non-Pay Costs</b>	<b>247,152,000</b>	<b>246,620,000</b>	<b>(532,000)</b>	<b>-0.2</b>
<b>Total Budget Authority by Object</b>	<b>330,771,000</b>	<b>334,347,000</b>	<b>3,576,000</b>	<b>1.1</b>

Includes FTEs which are reimbursed from the NIH Roadmap for Medical Research

**NATIONAL INSTITUTES OF HEALTH  
National Library of Medicine**

**Salaries and Expenses**

OBJECT CLASSES	FY 2009 Estimate	FY 2010 President's Budget	Increase or Decrease	Percent Change
<b>Personnel Compensation:</b>				
Full-time permanent (11.1)	\$43,172,000	\$45,299,000	\$2,127,000	4.9
Other than full-time permanent (11.3)	19,832,000	20,799,000	967,000	4.9
Other personnel compensation (11.5)	2,053,000	2,155,000	102,000	5.0
Military personnel (11.7)	149,000	156,000	7,000	4.7
Special personnel services payments (11.8)	1,711,000	1,794,000	83,000	4.9
<b>Total Personnel Compensation (11.9)</b>	<b>66,917,000</b>	<b>70,203,000</b>	<b>3,286,000</b>	<b>4.9</b>
Civilian personnel benefits (12.1)	16,578,000	17,394,000	816,000	4.9
Military personnel benefits (12.2)	124,000	130,000	6,000	4.8
Benefits to former personnel (13.0)	0	0	0	0.0
<b>Subtotal, Pay Costs</b>	<b>83,619,000</b>	<b>87,727,000</b>	<b>4,108,000</b>	<b>4.9</b>
Travel (21.0)	964,000	948,000	(16,000)	-1.7
Transportation of things (22.0)	124,000	122,000	(2,000)	-1.6
Rental payments to others (23.2)	71,000	71,000	0	0.0
Communications, utilities and miscellaneous charges (23.3)	1,018,000	1,016,000	(2,000)	-0.2
Printing and reproduction (24.0)	107,000	105,000	(2,000)	-1.9
<b>Other Contractual Services:</b>				
Advisory and assistance services (25.1)	51,653,000	51,565,000	(88,000)	-0.2
Other services (25.2)	44,635,000	44,603,000	(32,000)	-0.1
Purchases from government accounts (25.3)	46,325,000	46,424,000	99,000	0.2
Operation and maintenance of facilities (25.4)	5,189,000	5,177,000	(12,000)	-0.2
Operation and maintenance of equipment (25.7)	9,657,000	9,653,000	(4,000)	0.0
Subsistence and support of persons (25.8)	0	0	0	0.0
<b>Subtotal Other Contractual Services</b>	<b>157,459,000</b>	<b>157,422,000</b>	<b>(37,000)</b>	<b>0.0</b>
Supplies and materials (26.0)	2,512,000	2,489,000	(23,000)	-0.9
<b>Subtotal, Non-Pay Costs</b>	<b>162,255,000</b>	<b>162,173,000</b>	<b>(82,000)</b>	<b>-0.1</b>
<b>Total, Administrative Costs</b>	<b>245,874,000</b>	<b>249,900,000</b>	<b>4,026,000</b>	<b>1.6</b>

**NATIONAL INSTITUTES OF HEALTH  
National Library of Medicine**

**Authorizing Legislation**

	PHS Act/ Other Citation	U.S. Code Citation	2009 Amount Authorized	FY 2009 Estimate	2010 Amount Authorized	FY 2010 President's Budget
Research and Investigation	Section 301	42§241	Indefinite	\$330,771,000	Indefinite	\$334,347,000
	Section 402(a)	42§281	Indefinite		Indefinite	
National Library of Medicine						
Total, Budget Authority				330,771,000		334,347,000



**NATIONAL INSTITUTES OF HEALTH  
National Library of Medicine**

**Appropriations History**

Fiscal Year	Budget Estimate to Congress	House Allowance	Senate Allowance	Appropriation
2001	230,135,000 <u>2/</u>	256,281,000	256,953,000	246,801,000
Rescission				(399,000)
2002	275,725,000	273,610,000	281,581,000	277,658,000
Rescission				(1,567,000)
2003	313,534,000	313,534,000	331,443,000	302,099,000
Rescission				(1,964,000)
2004	315,401,000	315,401,000	319,396,000	311,635,000
Rescission				(2,520,000)
2005	316,947,000	316,947,000	316,900,000	317,947,000
Rescission				(2,801,000)
2006	318,091,000	318,091,000	327,247,000	318,091,000
Rescission				(3,181,000)
2007	313,269,000	313,269,000	315,294,000	320,850,000
Rescission				0
2008	312,562,000	325,484,000	327,817,000	326,669,000
Rescission				(5,707,000)
Supplemental				1,705,000
2009	323,046,000	331,847,000	329,996,000	330,771,000
Rescission				0
2010	334,347,000			

1/ Reflects enacted supplementals, rescissions, and reappropriations.

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

**NATIONAL INSTITUTES OF HEALTH  
National Library of Medicine**

**Details of Full-Time Equivalent Employment (FTEs)**

OFFICE/DIVISION	FY 2008 Actual	FY 2009 Estimate	FY 2010 President's Budget
Division of Library Operations	315	324	331
Lister Hill National Center for Biomedical Communications	68	70	72
National Center for Biotechnology Information	196	201	206
Division of Specialized Information Services	37	38	39
Office of the Director/Administration	68	83	83
Division of Extramural Programs	15	15	15
<b>Total</b>	<b>699</b>	<b>731</b>	<b>746</b>
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		
2006	10.9		
2007	10.9		
2008	10.9		
2009	10.9		
2010	10.9		

**National Library of Medicine**

**Detail of Positions**

GRADE	FY 2008 Actual	FY 2009 Estimate	FY 2010 President's Budget
Total, ES Positions	4	5	5
Total, ES Salary	669,764	889,110	944,235
GM/GS-15	39	39	39
GM/GS-14	41	41	41
GM/GS-13	125	142	150
GS-12	133	140	147
GS-11	30	36	36
GS-10	1	1	1
GS-9	34	34	34
GS-8	59	59	59
GS-7	36	36	36
GS-6	6	6	6
GS-5	4	4	4
GS-4	10	10	10
GS-3	12	12	12
GS-2	7	7	7
GS-1	2	2	2
Subtotal	539	569	584
Grades established by Act of July 1, 1944 (42 U.S.C. 207):			
Assistant Surgeon General Director Grade			
Senior Grade			
Full Grade	1	1	1
Senior Assistant Grade			
Assistant Grade			
Subtotal	1	1	1
Ungraded	216	217	217
Total permanent positions	521	553	568
Total positions, end of year	760	792	807
Total full-time equivalent (FTE) employment, end of year	699	731	746
Average ES salary	167,441	177,822	188,847
Average GM/GS grade	10.9	10.9	10.9
Average GM/GS salary	81,054	84,870	87,157

Includes FTEs which are reimbursed from the NIH Roadmap for Medical Research.

**NATIONAL INSTITUTES OF HEALTH  
National Library of Medicine**

**New Positions Requested**

	FY 2010		
	Grade	Number	Annual Salary
Technical Information Specialist	GS-13	8	\$86,927
Technical Information Specialist	GS-12	7	\$85,281
<b>Total Requested</b>		<b>15</b>	