DEPARTMENT OF HEALTH AND HUMAN SERVICES

NATIONAL INSTITUTES OF HEALTH
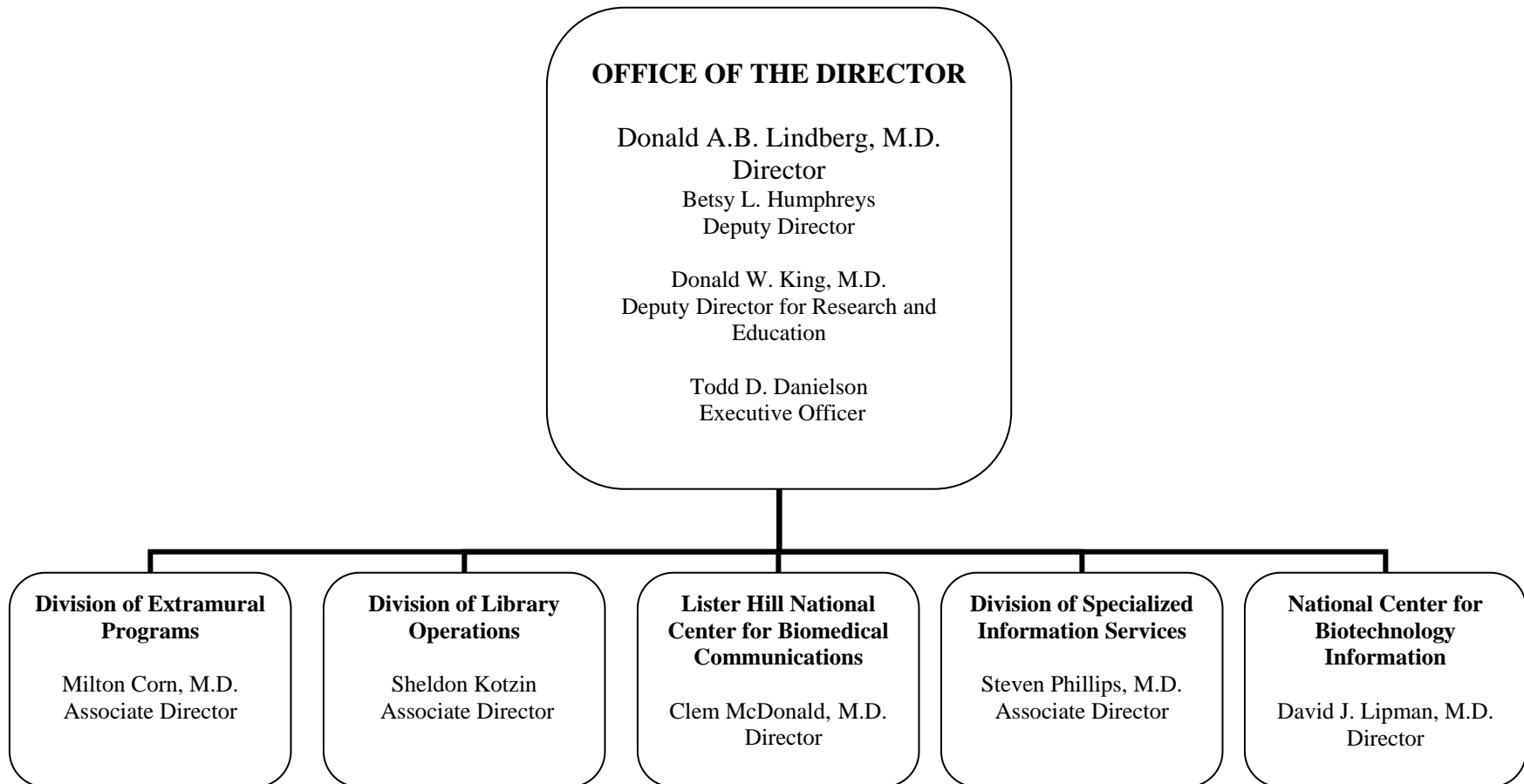
National Library of Medicine

NATIONAL INSTITUTES OF HEALTH

NATIONAL LIBRARY OF MEDICINE

ORGANIZATION STRUCTURE

OFFICE OF THE DIRECTOR

Donald A.B. Lindberg, M.D.
Director
Betsy L. Humphreys
Deputy Director

Donald W. King, M.D.
Deputy Director for Research and
Education

Todd D. Danielson
Executive Officer

Division of Extramural Programs	**Division of Library Operations**	**Lister Hill National Center for Biomedical Communications**	**Division of Specialized Information Services**	**National Center for Biotechnology Information**
Milton Corn, M.D. Associate Director	Sheldon Kotzin Associate Director	Clem McDonald, M.D. Director	Steven Phillips, M.D. Associate Director	David J. Lipman, M.D. Director

FY 2009 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 with respect to health information communications, ~~$320,507,000~~ **$323,046,000** (Department of Health and Human Services Appropriations Act, 2008)of which ~~$3,930,120~~ **$4,000,000** shall be available until expended for improvement of information systems: Provided, that in fiscal year 2009, the Library 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 to carry out National Information Center on Health Services Research and health Care Technology and health related services.

National Institutes of Health
National Library of Medicine

Amounts Available for Obligation 1/

Source of Funding	FY 2007 Actual	FY 2008 Enacted	FY 2009 Estimate
Appropriation	**$319,910,000**	**$326,669,000**	**$323,046,000**
Pay cost add-on	940,000	0	0
Rescission	0	-5,707,000	0
Subtotal, adjusted appropriation	320,850,000	320,962,000	323,046,000
Real transfer under Director's one-percent transfer authority (GEI)	720,000	0	0
Comparative transfer to NIBIB	-94,000	0	0
Comparative transfer to OD	-43,000	0	0
Comparative transfers to the Office of the Assistant Secretary for Admin. and Mgmt. and to the Office of the Assistant Secretary for Public Affairs	-4,000	0	0
Comparative transfer under Director's one-percent transfer authority (GEI)	-720,000	0	0
Comparative transfer to DHHS for PHS historian	-480,000	0	
Comparative transfer to NIDCR	-437,000	-455,000	
Subtotal, adjusted budget authority	319,792,000	320,507,000	323,046,000
Unobligated balance, start of year	0	10,000	0
Unobligated balance, end of year	10,000	0	0
Subtotal, adjusted budget authority	319,802,000	320,517,000	323,046,000
Unobligated balance lapsing	-205,000	0	0
Total obligations	319,597,000	320,517,000	323,046,000

1/ Excludes the following amounts for reimbursable activities carried out by this account:
   FY 2007 - $19,448,000   FY 2008 -$19,556,000   FY 2009 - $19,685,000

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National Library of Medicine

(Dollars in Thousands)

Budget Mechanism - Total

MECHANISM	FY 2007 Actual		FY 2008 Enacted		FY 2009 Estimate		Change	
Research Grants:	No.	Amount	No.	Amount	No.	Amount	No.	Amount
Research Projects:								
Noncompeting	42	$13,336	61	$17,722	58	$17,503	(3)	-$219
Administrative supplements	(3)	374	(3)	200	(3)	374	(0)	174
Competing:								
Renewal	6	1,935	8	2,294	5	1,443	(3)	-851
New	33	9,223	29	8,632	26	7,577	(3)	-1,055
Supplements	0	0	0	0	0	0	0	0
Subtotal, competing	39	11,158	37	10,926	31	9,020	(6)	-1,906
Subtotal, RPGs	81	24,868	98	28,848	89	26,897	(9)	-1,951
SBIR/STTR	5	1,116	5	722	5	659	0	-63
Subtotal, RPGs	86	25,984	103	29,570	94	27,556	(9)	-2,014
Research Centers:								
Specialized/comprehensive	0	0	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	0	0	0	0	0	0	0
Other Research:								
Research careers	18	2,539	18	2,564	10	1,450	(8)	-1,114
Cancer education	0	0	0	0	0	0	0	0
Cooperative clinical research	0	0	0	0	0	0	0	0
Biomedical research support	0	0	0	0	0	0	0	0
Minority biomedical research support	0	0	0	0	0	0	0	0
Other	81	10,538	58	7,551	60	8,476	2	925
Subtotal, Other Research	99	13,077	76	10,115	70	9,926	(6)	-189
Total Research Grants	185	39,061	179	39,685	164	37,482	(15)	-2,203
Research Training:	FTTPs		FTTPs		FTTPs			
Individual awards	12	563	5	522	3	313	(2)	-209
Institutional awards	267	14,743	172	10,797	187	11,137	15	340
Total, Training	279	15,306	177	11,319	190	11,450	13	131
Research & development contracts	9	17,220	8	16,404	8	15,901	0	-503
(SBIR/STTR)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	FTEs		FTEs		FTEs		FTEs	
Intramural programs	598	236,080	598	240,792	603	245,721	5	4,929
Research management and support	78	12,125	78	12,307	78	12,492	0	185
Construction		0		0		0		0
Buildings and Facilities		0		0		0		0
Total, NLM	676	319,792	676	320,507	681	323,046	5	2,539

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)

Extramural Research	FY 2005 Actual		FY 2006 Actual		FY 2007 Actual		FY 2007 Comparable		FY 2008 Enacted		FY 2009 Estimate		Change	
	FTEs	Amount	FTEs	Amount	FTEs	Amount	FTEs	Amount	FTEs	Amount	FTEs	Amount	FTEs	Amount
Detail:														
Health Information for Health Professionals and Public (NN/LM)		12,942		12,701		13,201		$13,201		$12,385		$11,882		-$503
Informatics Infrastructure		26,305		25,813		25,813		$25,813		$22,361		$21,376		-985
Informatics Research		30,153		30,733		32,573		32,573		32,662		31,575		-1,087
Subtotal, Extramural		69,400		69,247		71,587		71,587		67,408		64,833		-2,575
Intramural programs	581	234,855	580	233,023	598	237,646	598	236,080	598	240,792	603	245,721	5	4,929
Res. management & support	80	10,891	76	11,807	78	12,121	78	12,125	78	12,307	78	12,492	0	185
TOTAL	661	315,146	656	314,077	676	321,354	676	319,792	676	320,507	681	323,046	5	2,539

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

Major Changes in the Fiscal Year 2009 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 2009 budget request for NLM, which is $2.539 more than the FY 2008 Estimate, for a total of $323.046 million.

Research Careers (-$ 1.114 million; total $1.450 million): NLM will support as many of the Pathway to independence program awards in FY 2009 as possible.

Research Project Grants (-$2.014 million; total $27.556 million): NLM will initiate fewer new research project grants focusing on topics of highest quality. The Budget policy for RPGs in FY 2009 is to provide no inflationary increases in noncompeting awards and no increase in average cost for competing RPGs.

Intramural Programs (+$4.929 million; total $245.721 million): NLM will increase resources supporting the development and dissemination of molecular biology and genomic information.

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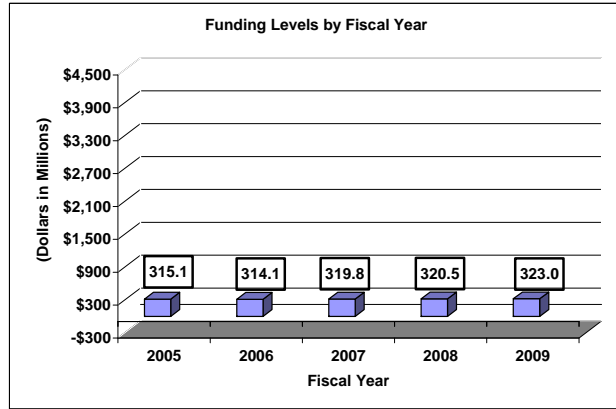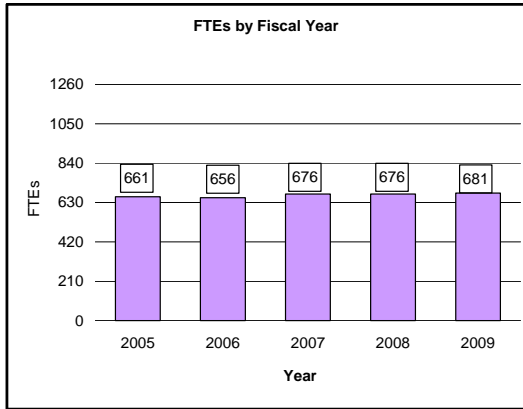**National Library of Medicine**
Summary of Changes

FY 2008 enacted				$320,507,000
FY 2009 estimated budget authority				323,046,000
Net change				2,539,000

	2008 Current Enacted Base		Change from Base	
CHANGES	FTEs	Budget Authority	FTEs	Budget Authority
A. Built-in:				
1. Intramural programs:				
a. Annualization of January 2008 pay increase		$67,402,000		$757,000
b. January FY 2009 pay increase		67,402,000		1,466,000
c. One less day of pay		67,402,000		(258,000)
d. Payment for centrally furnished services		11,558,000		173,000
e. Increased cost of laboratory supplies, materials, and other expenses		161,832		2,081,000
Subtotal				4,219,000
2. Research management and support:				
a. Annualization of January 2008 pay increase		$9,191,000		$103,000
b. January FY 2009 pay increase		9,191,000		200,000
c. One less day of pay		9,191,000		(35,000)
d. Payment for centrally furnished services		0		0
e. Increased cost of laboratory supplies, materials, and other expenses		3,116,000		284,000
Subtotal				552,000
Subtotal, Built-in				4,771,000

NATIONAL INSTITUTES OF HEALTH
National Library of Medicine

Summary of Changes--continued

	2008 Current Enacted Base		Change from Base	
CHANGES	No.	Amount	No.	Amount
B. Program:				
1. Research project grants:				
a. Noncompeting	61	$17,922,000	(3)	($45,000)
b. Competing	37	10,926,000	(6)	(1,906,000)
c. SBIR/STTR	5	722,000	0	(63,000)
Total	103	29,570,000	(9)	(2,014,000)
2. Research centers	0	0	0	0
3. Other research	76	10,115,000	(6)	(189,000)
4. Research training	177	11,319,000	13	131,000
5. Research and development contracts	8	16,404,000	0	(503,000)
Subtotal, extramural				(2,575,000)
	FTEs		FTEs	
6. Intramural programs	598	240,792,000	5	710,000
7. Research management and support	78	12,307,000	0	(367,000)
8. Construction		0		0
9. Buildings and Facilities		0		0
Subtotal, program		320,507,000		(2,232,000)
Total changes	676		5	2,539,000

Fiscal Year 2009 Budget Graphs

History of Budget Authority and FTEs:

FTEs by Fiscal Year

Year	FTEs
2005	661
2006	656
2007	676
2008	676
2009	681

Funding Levels by Fiscal Year
(Dollars in Millions)

Fiscal Year	Funding
2005	315.1
2006	314.1
2007	319.8
2008	320.5
2009	323.0

Distribution by Mechanism:

**FY 2009 Budget Mechanism
(Dollars in thousands)**

- Intramural Programs, $246 , 76%
- R&D Contracts, $16 , 5%
- Research Training $11 , 3%
- Other Research, $10 , 3%
- Research Centers $ 0 , 0%
- Research Project Grants, $28 , 9%
- Construction, $0 , 0%
- Buildings & Facilities, $0 , 0%
- RM&S, $12 , 4%
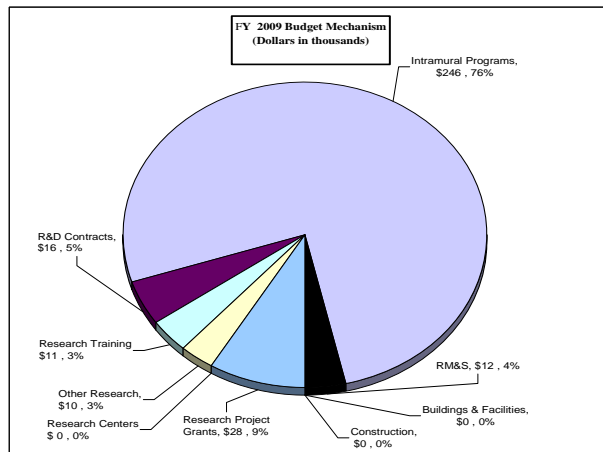
Change by Selected Mechanisms:

FY 2009 Estimate
Percent Change from FY 2008 Mechanism

Mechanism	Percent
Research Project Grants	-6.8
Research Centers	0.0
Other Research	-1.9
Research Training	1.2
R&D Contracts	-3.1
Intramural Programs	2.0
Res. Mgmt. & Support	1.5

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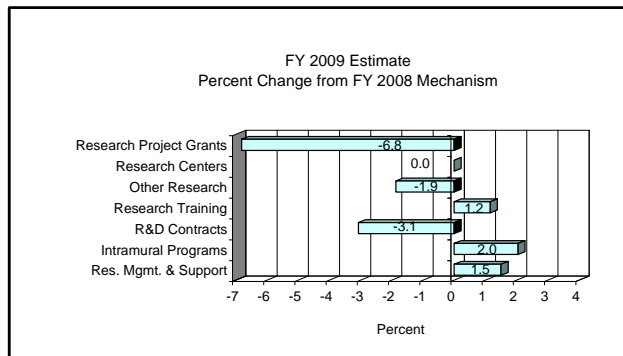
Justification
National Library of Medicine

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

Budget Authority:

FY 2007 Actual		FY 2008 Enacted		FY 2009 Estimate		Increase or Decrease	
FTE	BA	FTE	BA	FTE	BA	FTE	BA
676	$319,792,000	676	$320,507,000	681	$323,046,000	+5	+$2,529,000

This document provides justification for the Fiscal Year 2009 activities of the National Library of Medicine (NLM), including HIV/AIDS activities. Details of the FY 2009 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.

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 information resources more than one billion times each year. For 171 years, the 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 access to biomedical and health information across the country in partnership with the 5,800-member National Network of Libraries of Medicine;
- Serving, via its National Center for Biotechnology Information, as a leading resource, both nationally and internationally, for building, curating, and providing sophisticated access to molecular biology and genomic information, including those from the Human Genome project and NIH Roadmap initiatives;
- Creating high quality information services relevant to toxicology and environmental health, health services research, and public health;
- Conducting research and development on biomedical communications systems, methods, technologies, and networks and 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 US universities.

The Library stands at the center of much biomedical research—receiving, storing, disseminating, and connecting published research results and biological, biochemical, genomic, and clinical research data from laboratories and research centers around the world. The Library's databases and systems are essential tools for research and discovery in molecular biology and the study of the genetic and environmental factors affecting health and disease. They are also key enablers for research and development related to electronic health records and personalized health care.

Equally central 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 NLM's heavily used Web-based health information services and the NIH MedlinePlus magazine 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 NLM's user groups: researchers, health professionals, and the public.   The Food and Drug Administration Amendments Act of 2007 greatly increased NLM's role in disseminating clinical trials information by expanding mandatory registration of trials for drugs and devices in ClinicalTrials.gov and mandating the development of a database of clinical trial results.

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's current aim is to provide health record tools to help individuals caring for elderly parents or young children by supporting entry of test results, prescriptions, problems and immunizations, with connections to MedlinePlus information about prescriptions and reminders about preventive care interventions, such as annual flu shots. This work builds upon the Library's history of supporting, developing, and disseminating medical terminologies in the Unified Medical Language System, as well as on informatics research funded by NLM. As the HHS coordinating body for clinical terminologies, NLM plays a leadership role in US and international health data standards development, including the expansion of standards to cover genetic tests.

NLM is committed to ensuring uninterrupted access to critical information services in the event of disaster or emergency, natural or man-made.   NLM's new Disaster Information Management Research Center is building on proven emergency backup and response mechanisms within the National Network of Libraries of Medicine to promote effective use of libraries as a major and largely untapped resource in disaster management efforts. NLM also partners with other Federal agencies to develop and deploy new

disaster management information tools, such Radiological Event Medical Management (REMM).

NLM's National Center for Biotechnology Information provides access to HHS and NIH-funded Genome Wide Association Studies through its new database of Genotypes and Phenotypes, or dbGaP. 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. NLM continues to work to provide ever more powerful discovery capabilities to lead researchers to the interesting connections among disparate information sources that may signal important new findings.

NLM's information services are among the most heavily used in the world, but they are still unknown to many who could benefit from them. In addition to longstanding partnerships with libraries, minority serving institutions, and community-based organizations that are necessary to many successful outreach strategies, NLM continues to evaluate novel methods for increasing awareness and use of its high quality health information services. Information prescriptions, major exhibitions, service announcements by media stars, games for school children, and libraries in virtual worlds are just some of the ways the Library tries to ensure that everyone in the United States has a known, easily accessible and understandable source of high quality health information.

FY 2009 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 U.S. and the world. These activities are the focus of NLM's intramural programs and account for three fourths of NLM's budgetary resources. 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 5800-member National Network of Libraries of Medicine and support it's broad grant programs including a substantial investment in informatics research and training. Intramural Research and Research Management and Support receive modest increases to help offset 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 and genomic information; provides information services on toxicology and environmental health; and conducts research and development on system, 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 electronic databases for health professionals, researchers, the public, and librarians and information specialists who serve them. The NLM develops and uses sophisticated electronic 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.

Budget Policy: The FY 2009 budget estimate is $107,382,000, an increase of $1,762,000 or 1.7 percent from the FY 2008 estimate of $105,620.000. In FY 2009, the Library will concentrate on maintaining its current high level of services and, where possible, enhance and expand them; including Medline/PubMed and MedlinePlus. MedlinePlus contains a great range of information written and formatted for consumers. Keeping MedlinePlus current with new information (in both English and Spanish) from NIH and other reliable sources, and adding features to enhance its usefulness, are high priorities for NLM in FY 2009. The NLM has other databases heavily used by the public that will require maintenance and expansion, such as NIHSeniorHealth.gov, Household Products Database, Genetics Home Reference, and a series of databases dealing with toxicology and the environment. ClinicalTrials.gov must undergo significant expansion in FY 2009 to accommodate the results reporting provisions of the Food and Drugs 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 information services produced by NLM, NIH, and other federal agencies. To improve access to high quality health information, NLM makes heavy use 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.

Budget Policy: The FY 2009 budget estimate is $18,265,000, a decrease of $503,000 or 2.7 percent from the FY 2008 estimate of $18,768,000. In FY 2009, NLM will continue its outreach programs with a special emphasis on those aimed at underserved and minority populations. As recommended by the 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 2008 Level: $ 12,385,000
FY 2009 Level: $ 11,882,000
Change: -$503,000

The 5,800 member institutions of the National Network of Libraries of Medicine are valued partners in helping to ensure that health information—including NLM's many services—is available to scientists, practitioners, and the public. The Network comprises eight Regional Medical Libraries, 120 "resource libraries" primarily at schools of the health sciences, hospital libraries, and an increasing number of public libraries and community-based organizations that serve as health information portals. Together they form an efficient way to ensure that published research results are easily and efficiently accessible by scientists, health professionals, and the public. Member institutions staff exhibits at public and professional meetings, conduct a variety of orientation and training courses, and develop partnerships with community organizations to improve access to health information for underserved populations.

 The Network is a key player in the MedlinePlus "Go Local" service begun in 2003, when NLM responded to the expressed need of users for information about services in their community as an adjunct to the nationally applicable health information in MedlinePlus. To create and maintain "Go Local" NLM is partnering with medical and other libraries in the Network that have access to lists of local services such as hospitals, clinics, support groups, and community-based organizations. There is Go Local coverage for more than one third of the U.S. population and continuing to expand this reach is an important goal for the Library in FY 2009.

The Network plays a pivotal role in other community outreach activities by assisting in the distribution of the new NIHMedlinePlus magazine -- an effort to provide readers with a gold standard of reliable and understandable health and research information from the NIH, by supporting NLM's InformationRx project which provides physicians with materials to write prescriptions for information from MedlinePlus for their patients, and by participating in many NLM-wide outreach efforts designed to expand outreach and services to the public as well as to address health literacy and racial and ethnic disparities. The Network has an excellent track record of providing access to health information for clinicians and patients displaced by disasters, such as Hurricane Katrina, and in quickly backing up and assisting affected health sciences libraries. 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. Resources for this initiative are reduced to fund mandatory costs associated with NLM's heavily used information services.

Developing Advanced Information Systems, Standards, and Research Tools: The NLM's advanced information services have a long history of benefiting 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 by Congress 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 by the Congress 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.

Budget Policy: The FY 2009 budget estimate is $131,956,000, an increase of $3,167,000 or 2.4 percent from the FY 2008 estimate of $128,789,000. In accordance with the 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 (see box), 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. Other major intramural research priorities will be: digital publications - including automated indexing, image analysis, digital preservation, and special issues associated with interactive publications; "Next Generation" electronic health records - including clinical imaging tools, health data standards, extraction of actionable information from clinical text, research use of large aggregations of clinical data, and the Unified Medical Language system; and advanced representations of biomedical knowledge that can interact effectively with electronic health records - including representation of the summarized results of clinical trials and structured drug and test information that facilitates decision support. 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®.

<u>Portrait of a Program</u>: **National Center for Biotechnology Information (NCBI)**

FY 2008 Level: $80,734,000
FY 2009 Level: $83,240,000
Change: +$2,506,000

The establishment of the National Center for Biotechnology Information in 1988 has proved to be a boon to the global scientific community. The Center, whose Web sites are accessed several million times a day, is today at the hub of international interchange of molecular biology and genomic information. NCBI meets the challenge of collecting, organizing, storing, analyzing, and disseminating scientific data by designing, developing, and distributing the tools, databases and technologies that are enabling the genetic discoveries of the 21st century.

GenBank (DNA sequence data) and PubMed/MEDLINE (records for 17 million scientific articles) are the most widely known of its services, but the NCBI provides a wide array of genomic and sequence data and is a valued collaborator of virtually every Institute and Center on the NIH campus. With the NIAID, for example, it has created an Influenza Virus Resource that links researchers working on vaccines to genomic data about the influenza virus. NLM participates actively in the NIH Roadmap Initiatives, and the NCBI filled a critical need associated with the Molecular Libraries component of the Roadmap by creating "PubChem," a rapidly growing depository of 12 million records for what are called "small molecules" that are crucial as research tools and in drug development.

The NCBI also has a prominent role in the important new Genome Wide Association Studies project, a major NIH-wide initiative directed at understanding the genetic factors underlying human disease. An important part of this project is dbGaP, a database of Genome Wide Association studies, including the monumental Framingham heart study and its many subcomponents. dbGap is NIH's public repository for linking up genotype data with phenotype information in order to identify the genetic factors that influence health, disease, and response to treatment. dbGaP and related NCBI databases are important elements in providing a powerful discovery system in which users can glean information from many levels of scientific data and published research results from a single online search. The NCBI also developed the PubMed Central database, an archive of full text journal articles that is a central element in the efforts of NIH and other major international biomedical research funders to make accessible the published results of the research they support. PubMed Central is being replicated in other countries, with the first international installation in the United Kingdom. Its standard article formats have been adopted by electronic publishers and archives worldwide.

In FY 2009 NCBI will continue to play a pivotal role, through the PubMed Central archive, in the NIH's Public Access policy which ensures that researchers and the public have free access to the 80,000 scientific articles published each hear by NIH-funded authors.

Through dramatic improvements in sequencing technology, NCBI also expects to be collecting in the next few years, over 50 times the amount of sequence data currently in public databases, as part of international efforts such as the 1000 Genomes project which will produce the most comprehensive map of human genetic variation to date.

Extramural Activity Details

NLM's Extramural programs focus on two priority areas: (1) basic and applied research in biomedical informatics and (2) the creation and enhancement of biomedical information infrastructure whose components include sophisticated computational tools, knowledge resources and skilled informaticians. To accomplish its extramural goals, NLM offers 5 types of grants: research grants; resource grants; training support; career enhancement awards; and SBIR/STTR grants. On average, NLM makes about 200 grant awards per year of which 30-50% are new awards.

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, now training more than 250 people annually at 18 institutions across the country. NLM grants supported the first Internet connections for many health sciences libraries, hospitals, local public health departments, and community organizations. The Library's grant programs encourage integrated institution-wide access to knowledge and information technology in academic health centers and support development of customized information resources for target audiences, as well as the preparation of scholarly works in all media related to the history and philosophy of medicine and biomedical science and relevant public policy issues.

Budget Policy: The FY 2009 budget estimate is $21,376,000 a 4.4% decrease over FY 2008 amount of $22,361,000.These programs build the informatics expertise and information resources needed to support biomedical scientists, health care providers, public health administrators and health services researchers. 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 data/information/knowledge, including integrated, customized knowledge sources for target audiences; (3) preparation of scholarly publications in the history and philosophy of medicine and biomedical science; (4) early career transition awards for informaticians, and (5) fellowships for informationist training.

Program Portrait: Support of Informatics Training

FY 2008 Level $ 22,361,000
FY 2009 Level $ 21,376,000
Change: -$984,789

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. Computation is increasingly becoming the base of health care and public health administration, and is already an inextricable element for basic biomedical research.

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 new five-year institutional training grants for biomedical informatics to support approximately 250 pre-doctoral and post-doctoral trainees across the U.S. Between FY 2004 and FY 2008, special funds from Robert Wood Johnson Foundation supported the training of 18 additional NLM trainees in public health informatics. In 2008, three other NIH institutes provided funds to support eight more NLM trainees.

To increase diversity in the field of informatics, there is a special informatics short-term training appointment available any of NLM's 18 programs. NLM's annual Informatics Training Conference brings together more than 300 people from informatics training programs funded by NLM, the Department of Veterans Affairs and the Centers for Disease Control & Prevention. Resources for this initiative are reduced as a result of budgetary constraints and the resources needed to fund NLM's heavily used information services.

The average cost of support for an informatics trainee ranges between $56,000 (predoc), and $76,500 (postdoc) per year. In 2008, NLM expects the number of supported trainees to be at least 187. In FY 2009, NLM expects to support at least 172 trainee slots across its 18 training programs.

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 biosurveillance, 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. 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.

Budget Policy: The FY 2009 budget estimate is $27,556,000, a 3.7% decrease over the FY 2008 amount of $28,643,000. 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 an expanding program of challenge grants, issuing RFAs in several informatics focus areas such as in-silico knowledge discovery, natural language understanding, and intelligent personal health records. NLM will continue to accept investigator-initiated grants through NIH parent grant FOAs for R01, R21 and R03. 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

NLM RMS activities provide administrative, budgetary, logistical, and scientific support for the NLM's 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, 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 2009 budget estimate for RMS is $12,492,000 an increase of $185,000 or 1.5 percent from the FY 2008 amount of $12,307,000. The focus of these activities will continue to be the coordination of NLM's activities and policies and the development and administration of NLM's grant activities.

The NLM participates in the support of PubChem (ML2-1) database support for Molecular Libraries funded through the NIH Common Fund.

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Budget Authority by Object

	FY 2008 Enacted	FY 2009 Estimate	Increase or Decrease
Total compensable workyears:			
Full-time employment	676	681	5
Full-time equivalent of overtime and holiday hour	3	3	(0)
Average ES salary	$167,829	$173,703	$5,874
Average GM/GS grade	10.86	10.86	0.0
Average GM/GS salary	$89,956	$93,105	$3,149
Average salary, grade established by act of			
July 1, 1944 (42 U.S.C. 207)	$79,538	$82,322	$2,784
Average salary of ungraded positions	116,528	120,606	4,078

OBJECT CLASSES	FY 2008 Estimate	FY 2009 Estimate	Increase or Decrease
Personnel Compensation:			
11.1 Full-time permanent	$51,873	$53,385	$1,512
11.3 Other than full-time permanent	5,990	6,165	175
11.5 Other personnel compensation	1,880	1,935	55
11.7 Military personnel	172	177	5
11.8 Special personnel services payments	1,480	1,523	43
Total, Personnel Compensation	61,395	63,185	1,790
12.0 Personnel benefits	15,129	15,570	441
12.2 Military personnel benefits	69	71	2
13.0 Benefits for former personnel	0	0	0
Subtotal, Pay Costs	**76,593**	**78,826**	**2,233**
21.0 Travel and transportation of persons	1,395	1,400	5
22.0 Transportation of things	453	453	0
23.1 Rental payments to GSA	0	0	0
23.2 Rental payments to others	62	63	1
23.3 Communications, utilities and			
miscellaneous charges	2,614	2,700	86
24.0 Printing and reproduction	244	241	(3)
25.1 Consulting services	44,417	44,885	468
25.2 Other services	36,848	37,000	152
25.3 Purchase of goods and services from			
government accounts	55,577	57,644	2,067
25.4 Operation and maintenance of facilities	5,608	5,700	92
25.5 Research and development contracts	12,385	11,882	(503)
25.6 Medical care	0	0	0
25.7 Operation and maintenance of equipment	7,189	7,200	11
25.8 Subsistence and support of persons	0	0	0
25.0 Subtotal, Other Contractual Services	**162,024**	**164,311**	**2,287**
26.0 Supplies and materials	2,118	2,120	2
31.0 Equipment	24,000	24,000	0
32.0 Land and structures	0	0	0
33.0 Investments and loans	0	0	0
41.0 Grants, subsidies and contributions	51,004	48,932	(2,072)
42.0 Insurance claims and indemnities	0	0	0
43.0 Interest and dividends	0	0	0
44.0 Refunds	0	0	0
Subtotal, Non-Pay Costs	**243,914**	**244,220**	**306**
Total Budget Authority by Object	**320,507**	**323,046**	**2,539**

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

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Salaries and Expenses

OBJECT CLASSES	FY 2008 Enacted	FY 2009 Estimate	Increase or Decrease
Personnel Compensation:			
Full-time permanent (11.1)	$51,873	$53,385	$1,512
Other than full-time permanent (11.3)	5,990	6,165	175
Other personnel compensation (11.5)	1,880	1,935	55
Military personnel (11.7)	172	177	5
Special personnel services payments (11.8)	1,480	1,523	43
Total Personnel Compensation (11.9)	**61,395**	**63,185**	**1,790**
Civilian personnel benefits (12.1)	15,129	15,570	441
Military personnel benefits (12.2)	69	71	2
Benefits to former personnel (13.0)	0	0	0
Subtotal, Pay Costs	**76,593**	**78,826**	**2,233**
Travel (21.0)	1,395	1,400	5
Transportation of things (22.0)	453	453	0
Rental payments to others (23.2)	62	63	1
Communications, utilities and miscellaneous charges (23.3)	2,614	2,700	86
Printing and reproduction (24.0)	244	241	(3)
Other Contractual Services:			
Advisory and assistance services (25.1)	44,417	44,885	468
Other services (25.2)	36,848	37,000	152
Purchases from government accounts (25.3)	0	0	0
Operation and maintenance of facilities (25.4)	5,608	5,700	92
Operation and maintenance of equipment (25.)	7,189	7,200	11
Subsistence and support of persons (25.8)	0	0	0
Subtotal Other Contractual Services	**94,062**	**94,785**	**723**
Supplies and materials (26.0)	2,118	2,120	2
Subtotal, Non-Pay Costs	100,948	101,762	814
Total, Administrative Costs	**177,541**	**180,588**	**3,047**

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Authorizing Legislation

	PHS Act/ Other Citation	U.S. Code Citation	2007 Amount Authorized	FY 2008 Enacted	2008 Amount Authorized	FY 2009 Budget Estimate
Research and Investigation	Section 301	42§241	Indefinite		Indefinite	
National Library of Medicine	Section 402(a)	42§281	Indefinite	$320,507,000	Indefinite	$323,046,000
Total, Budget Authority				320,507,000		323,046

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Appropriations History

Fiscal Year	Budget Estimate to Congress	House Allowance	Senate Allowance	Appropriation 1/
2000	185,654,000 2/ 3/	202,027,000	210,183,000	215,214,000
Rescission	0	0	0	1,146,000
2001	230,135,000 2/	256,281,000	256,953,000	246,801,000
Rescission				(399,000)
2002	275,725,000 2/	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
2008	312,562,000	325,484,000	327,817,000	326,669,000
Rescission				(5,707,000)
2009	323,046,000			

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 2007 Actual	FY 2008 Enacted	FY 2009 Estimate
Division of Library	322	322	322
Lister Hill National Center for Biomedical Comm	70	70	70
National Center for Biotechnology Information	171	171	176
Division of Specialized Information Services	35	35	35
Office of the Director/Administration	63	63	63
Division of Extramural Programs	15	15	15
Total	676	676	681
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
2005	10.86
2006	10.86
2007	10.86
2008	10.86
2009	10.86

An additional 5 FTEs will be used to support data analysis and database operations for NIH-wide programs that require NCBI to be a focal point for data submission and access. Specific initiatives include the new mandatory Public Access policy (submission of journal articles of NIH-funded research) and the mandated repository of genome association study data, dbGap.

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Detail of Positions

GRADE	FY 2007 Actual	FY 2008 Enacted	FY 2009 Estimate
Total, ES Positions	5	5	5
Total, ES Salary	810,774	861,000	914,296
GM/GS-15	37	37	37
GM/GS-14	43	43	43
GM/GS-13	114	114	114
GS-12	142	142	142
GS-11	28	28	28
GS-10	2	2	2
GS-9	24	24	24
GS-8	56	56	56
GS-7	40	40	40
GS-6	6	6	6
GS-5	5	5	5
GS-4	20	20	20
GS-3	6	6	6
GS-2	5	5	5
GS-1	2	2	2
Subtotal	530	530	530
Grades established by Act of July 1, 1944 (42 U.S.C. 207):			
Assistant Surgeon General	0	0	0
Director Grade	0	0	0
Senior Grade	1	1	1
Full Grade	0	0	0
Senior Assistant Grade	1	1	1
Assistant Grade	0	0	0
Subtotal	2	2	2
Ungraded	190	190	195
Total permanent positions	619	619	619
Total positions, end of year	727	727	727
Total full-time equivalent (FTE) employment, end of year	676	676	681
Average ES salary	162,154	167,829	173,703
Average GM/GS grade	10.86	10.86	10.86
Average GM/GS salary	86,091	89,956	89,956

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

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New Positions Requested

	FY 2009		
	Grade	Number	Annual Salary
Computer Scientists	Ungraded	5	$100,000
Total Requested		5	