

DEPARTMENT OF HEALTH AND HUMAN SERVICES

NATIONAL INSTITUTES OF HEALTH

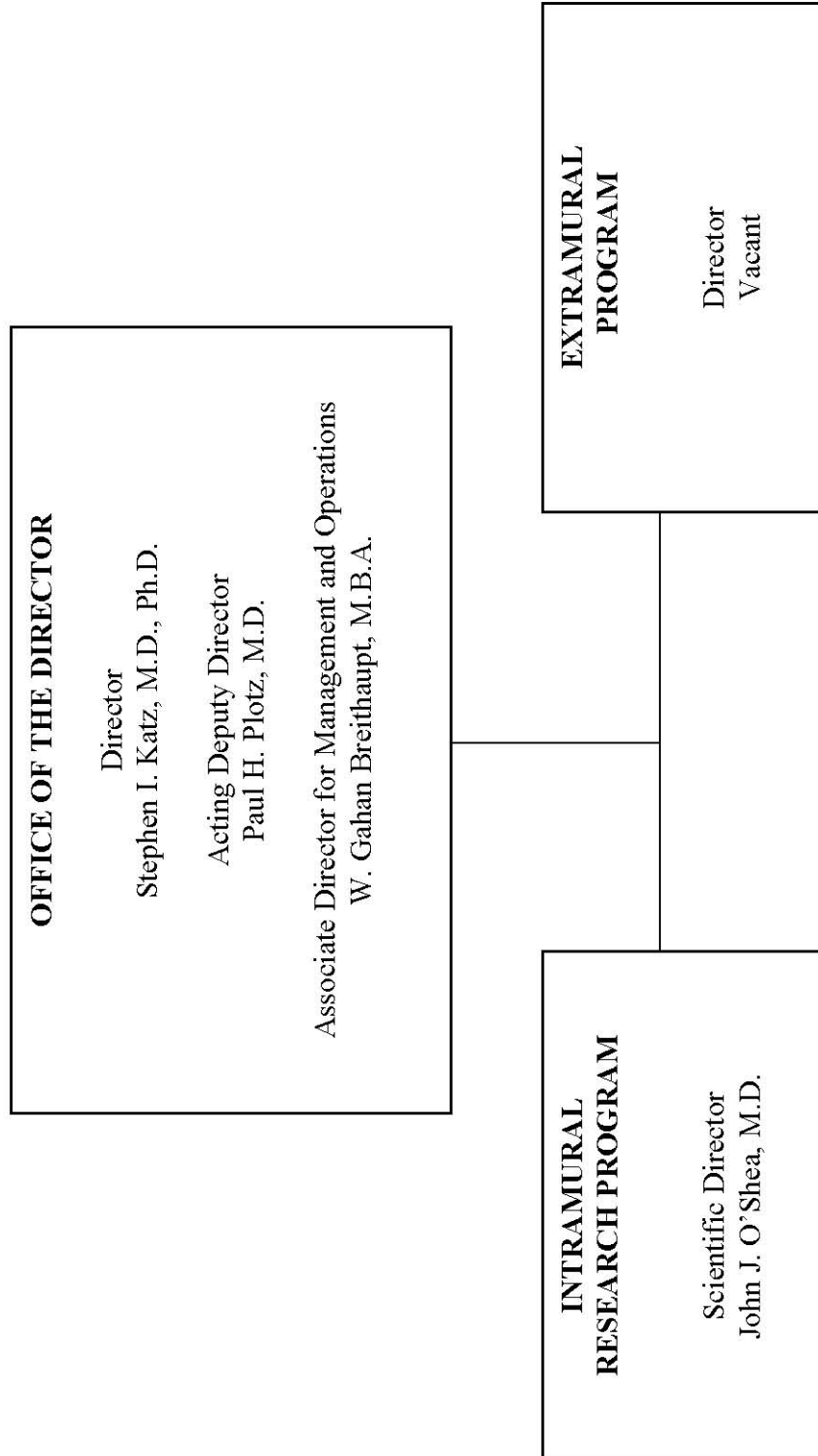
National Institute of Arthritis and Musculoskeletal and Skin Diseases

<u>FY 2008 Budget</u>	<u>Page No.</u>
Organization chart.....	2
Appropriation language.....	3
Amounts available for obligation.....	4
Budget mechanism table.....	5
Budget authority by program.....	6
Major changes in budget request.....	7
Summary of changes.....	8
Budget Graphs .....	10
Justification narrative.....	11
Budget authority by object.....	19
Salaries and expenses.....	20
Authorizing legislation.....	21
Appropriations history.....	22
Detail of full-time equivalent employment (FTE).....	23
Detail of positions.....	24
New positions requested.....	25

NATIONAL INSTITUTES OF HEALTH

National Institute of Arthritis and Musculoskeletal and Skin Diseases

Organizational Structure



**FY 2008 Proposed Appropriation Language**

**NATIONAL INSTITUTES OF HEALTH**

National Institute of Arthritis and Musculoskeletal and Skin Diseases

*For carrying out section 301 and title IV of the Public Health Service Act with respect to arthritis and musculoskeletal and skin Diseases, \$508,082,000*

**Supplementary Exhibit**

**Comparison of Proposed FY 2008 Appropriation Language to  
Most Recently Enacted Full-Year Appropriations**

**NATIONAL INSTITUTES OF HEALTH**

National Institute of Arthritis and Musculoskeletal and Skin Diseases

For carrying out section 301 and title IV of the Public Health Services Act with respect to arthritis and musculoskeletal and skin diseases [~~\$507,583,000~~] **\$508,082,000** (Department of Health and Human Services Appropriation Act, 2006)

**National Institutes of Health  
National Institute of Arthritis and Musculoskeletal and Skin Diseases**

**Amounts Available for Obligation 1/**

Source of Funding	FY 2006 Actual	FY 2007 Continuing Resolution	FY 2008 Estimate
Appropriation	\$513,063,000	\$507,932,000	\$508,082,000
Enacted Rescissions	-5,131,000	0	0
Subtotal, Adjusted Appropriation	507,932,000	507,932,000	508,082,000
Real Transfer under Roadmap Authority	-4,539,000		
Real Transfer under Secretary's One-percent transfer authority	-349,000		
Comparative transfer from OD for NIH Roadmap	4,539,000		
Comparative Transfer to NIBIB	-27,000	-28,000	
Comparative transfer to OD	-12,000	-13,000	
Comparative Transfer to NCRR	-127,000	-138,000	
Comparative Transfers to the Office of the Assistant Secretary for Admin. And Mgmt. and to the Office of the Assistant Secretary for Public Affairs	-1,000	-1,000	
Subtotal, adjusted budget authority	507,416,000	507,752,000	508,082,000
Unobligated Balance, start of year	0	0	0
Unobligated Balance, end of year	0	0	0
Subtotal, adjusted budget authority	507,416,000	507,752,000	508,082,000
Unobligated balance lapsing	-90,000	0	0
Total obligations	507,326,000	507,752,000	508,082,000

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

FY 2006 - \$914,000; FY 2007 - \$1,030,000; FY 2008 - \$1,000,000

Excludes \$36,000 in FY 2007 and \$40,000 in FY 2008 for royalties.

**NATIONAL INSTITUTES OF HEALTH**  
**National Institute of Arthritis and Musculoskeletal and Skin Diseases**

(Dollars in Thousands)

Budget Mechanism - Total

MECHANISM	FY 2006 Actual		FY 2007 Continuing Resolution		FY 2008 Estimate		Change	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
Research Grants:								
<u>Research Projects:</u>								
Noncompeting	734	\$244,057	754	\$249,943	713	\$237,560	-41	-\$12,383
Administrative supplements	(22)	1,570	(22)	1,570	(22)	1,570	(0)	0
Competing:								
Renewal	72	28,763	62	24,167	74	28,488	12	4,321
New	172	48,024	148	40,349	174	47,562	26	7,213
Supplements	3	625	2	525	2	619	0	94
Subtotal, competing	247	77,412	212	65,041	250	76,669	38	11,628
Subtotal, RPGs	981	323,039	966	316,554	963	315,799	-3	-755
SBIR/STTR	51	11,874	52	11,955	51	11,804	-1	-151
Subtotal, RPGs	1,032	334,913	1,018	328,509	1,014	327,603	-4	-906
<u>Research Centers:</u>								
Specialized/comprehensive	38	38,002	38	41,728	38	41,728	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	38	38,002	38	41,728	38	41,728	0	0
<u>Other Research:</u>								
Research careers	142	16,635	148	17,896	152	18,256	4	360
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	1	237	1	291	1	291	0	0
Other	27	2,262	25	2,340	25	2,340	0	0
Subtotal, Other Research	170	19,134	174	20,527	178	20,887	4	360
Total Research Grants	1,240	392,049	1,230	390,764	1,230	390,218	0	-546
<u>Research Training:</u>	<u>FTEPs</u>		<u>FTEPs</u>		<u>FTEPs</u>			
Individual awards	69	3,214	68	3,214	68	3,214	0	0
Institutional awards	251	11,687	251	11,652	251	11,652	0	0
Total, Training	320	14,901	319	14,866	319	14,866	0	
Research & development contracts (SBIR/STTR)	55 (0)	21,947 (26)	55 (0)	21,703 (49)	55 (0)	22,100 (49)	0 (0)	397 (0)
<u>Intramural research</u>	<u>FTEs</u>		<u>FTEs</u>		<u>FTEs</u>		<u>FTEs</u>	
Intramural research	133	50,591	133	50,590	135	50,236	2	-354
Research management and support	78	23,389	80	23,739	81	23,976	1	237
Cancer prevention & control	0	0	0	0	0	0	0	0
Construction		0		0		0		0
Buildings and Facilities		0		0		0		0
NIH Roadmap for Medical Research	0	4,539	1	6,090	1	6,686		596
Total, NIAMS	211	507,416	214	507,752	217	508,082	3	330

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

NATIONAL INSTITUTES OF HEALTH  
National Institute of Arthritis and Musculoskeletal and Skin Diseases  
Budget Authority by Program  
(Dollars in thousands)

Extramural Research Detail:	FY 2004		FY 2005		FY 2006		FY 2006		FY 2007		FY 2008		Change	
	FTEs	Amount	FTEs	Amount	FTEs	Amount	FTEs	Amount	FTEs	Amount	FTEs	Amount	FTEs	Amount
Arthritis and Rheumatic Diseases		\$139,000		\$138,880		\$138,083		\$138,083		\$137,583		\$137,535		-\$48
Skin Biology and Diseases		72,382		69,264		63,628		63,628		63,398		63,376		-22
Muscle Biology and Diseases		78,519		74,724		70,887		70,760		70,492		70,467		-25
Musculoskeletal Biology and Diseases		61,331		76,806		73,729		73,729		73,462		73,436		-26
Bone Biology and Diseases		78,504		76,117		82,697		82,697		82,398		82,370		-28
Subtotal, Extramural		429,736		435,791		429,024		428,897		427,333		427,184		-149
Intramural Research	136	48,859	131	50,634	133	50,618	133	50,591	133	50,590	135	50,236	2	-354
Research Management & Support	84	20,822	81	21,501	78	23,402	78	23,389	80	23,739	81	23,976	1	237
NIH Roadmap for Medical Research	0	1,649	0	3,231	0	4,539	0	4,539	1	6,090	1	6,686	0	596
TOTAL	220	501,066	212	511,157	211	507,583	211	507,416	214	507,752	217	508,082	3	330

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

## **Major Changes in the Fiscal Year 2008 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 2008 budget request for NIAMS, which is - \$0.3 million more than the FY 2007 Continuing Resolution, for a total of \$508.1 million.

Research Project Grants (-\$0.8 million; total \$315.8 million). NIAMS will support a total of 963 Research Project Grant (RPG) awards in FY 2008. Noncompeting RPGs will decrease by 41 awards and decrease by \$12.4 million. Competing RPGs will increase by 38 awards and \$11.6 million.

Research Careers (+\$0.4 million; total \$18.3 million). NIAMS will support the Pathway to Independence program by funding an additional 4 awards in FY 2008. Total support for the Pathway program in FY 2008 is 8 awards and \$0.7 million.

NIH Roadmap for Biomedical Research (+\$0.6 million; total \$6.7 million). NIAMS will continue its support of the NIH Roadmap, an incubator for new ideas and initiatives that will accelerate the pace of discovery, in FY 2008.

Intramural Research (-\$0.4 million; total \$50.2 million). NIAMS will strive to identify areas of potential savings within the Intramural Research Program which will allow us to achieve our program goals and accomplishments as outlined in the Justification Narrative for the Intramural Research Program area.

**NATIONAL INSTITUTES OF HEALTH**  
**National Institute of Arthritis and Musculoskeletal and Skin Diseases**  
**Summary of Changes**

FY 2007 Continuing Resolution		\$507,752,000	
FY 2008 Estimated Budget Authority		508,082,000	
Net change		330,000	
CHANGES	FY 2007		Change from Base
	FTEs	Budget Authority	Budget Authority
A. Built-in:			
1. Intramural research:			
a. Annualization of January 2007 pay increase		\$18,104,000	\$120,000
b. January 2008 pay increase		18,104,000	410,000
c. Two extra days of pay		18,104,000	139,000
d. Payment for centrally furnished services		9,327,000	93,000
e. Increased cost of laboratory supplies, materials, and other expenses		23,159,000	753,000
Subtotal			1,515,000
2. Research Management and Support:			
a. Annualization of January 2007 pay increase		\$9,554,000	\$64,000
b. January 2008 pay increase		9,554,000	217,000
c. Two extra days of pay		9,554,000	73,000
d. Payment for centrally furnished services		3,985,000	40,000
e. Increased cost of laboratory supplies, materials, and other expenses		0	405,000
Subtotal			799,000
Subtotal, Built-in			2,314,000



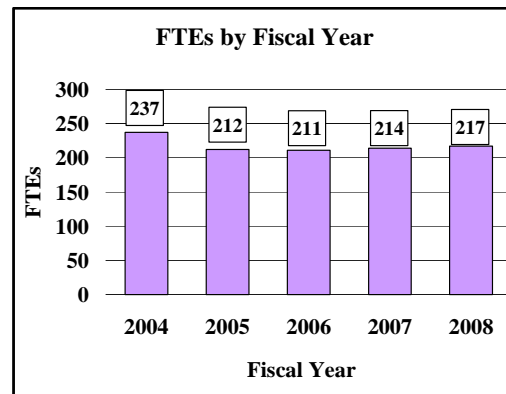
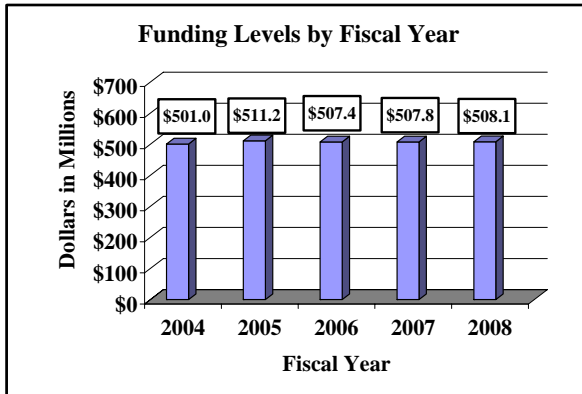
**NATIONAL INSTITUTES OF HEALTH**  
**National Institute of Arthritis and Musculoskeletal and Skin Diseases**

**Summary of Changes--continued**

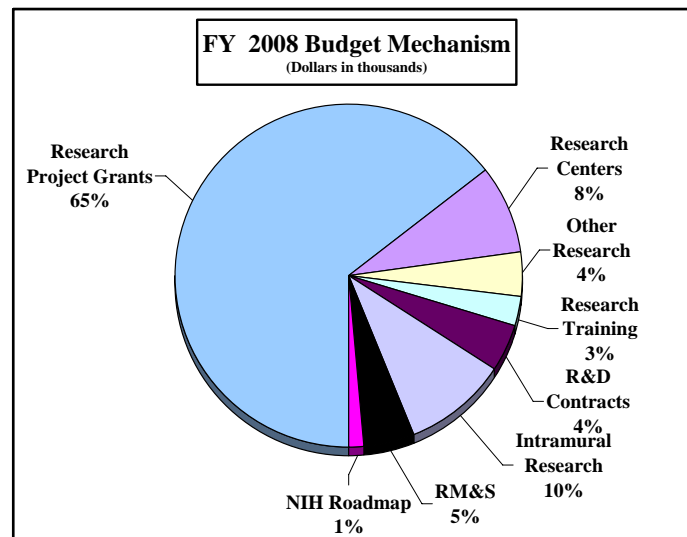
CHANGES	2007			
	Continuing Resolution		Change from Base	
	No.	Amount	No.	Amount
B. Program:				
1. Research project grants:				
a. Noncompeting	754	\$251,513,000	-41	-\$12,383,000
b. Competing	212	65,041,000	38	11,628,000
c. SBIR/STTR	52	11,955,000	-1	-151,000
Total	1,018	328,509,000	-4	-906,000
2. Research centers	38	41,728,000	0	0
3. Other research	174	20,527,000	4	360,000
4. Research training	319	14,866,000	0	0
5. Research and development contracts	55	21,703,000	0	397,000
Subtotal, extramural				-149,000
6. Intramural research	<u>FTEs</u> 133	50,590,000	<u>FTEs</u> 2	-1,869,000
7. Research management and support	80	23,739,000	1	-562,000
8. Cancer control and prevention	0	0	0	0
9. Construction		0		0
10. Buildings and Facilities		0		0
11. NIH Roadmap for Medical Research	1	6,090,000	0	596,000
Subtotal, program		507,752,000		-1,984,000
Total changes	214		3	330,000

## Fiscal Year 2008 Budget Graphs

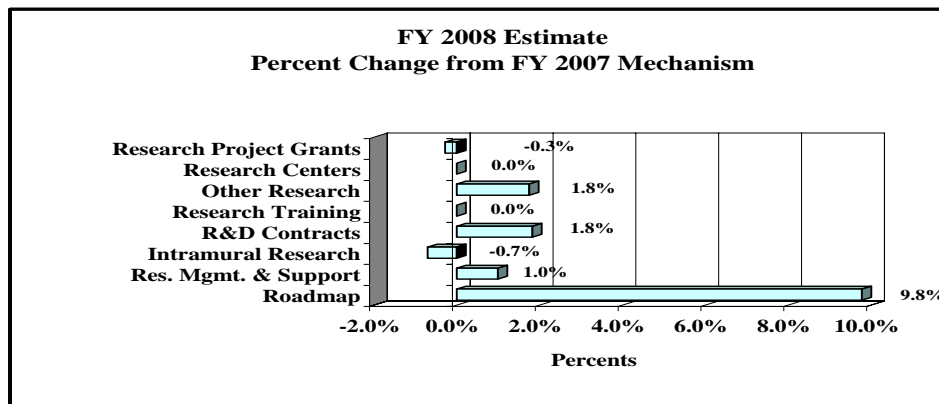
### History of Budget Authority and FTEs:



### Distribution by Mechanism:



### Change by Selected Mechanisms:



**Justification of Budget Request  
National Institute of Arthritis and Musculoskeletal and Skin Diseases**

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

Budget Authority:

FY 2006 Actual		FY 2007 Continuing Resolution		FY 2008 Estimate		Increase or Decrease	
<u>FTEs</u>	<u>BA</u>	<u>FTEs</u>	<u>BA</u>	<u>FTEs</u>	<u>BA</u>	<u>FTEs</u>	<u>BA</u>
211	\$507,416,000	214	\$507,752,000	217	\$508,082,000	+3	+\$330,000

This document provides justification for the Fiscal Year (FY) 2008 activities of the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS), including HIV/AIDS activities. Details of the FY 2008 HIV/AIDS activities are in the “Office of AIDS Research (OAR)” section of the Overview. Details on the Roadmap/Common Fund are located in the Overview, Volume One.

## **DIRECTOR’S OVERVIEW**

### **Institute Mission**

The NIAMS supports a broad range of research, training, and health information activities related to arthritis, musculoskeletal, and skin diseases. The diseases studied are both common and rare, affect individuals across the life span, and have a major impact on quality of life and disability. People of all racial and ethnic backgrounds, as well as economic strata, are affected, and in many cases, women and minorities are disproportionately afflicted. Since the Institute’s inception twenty years ago, significant progress has been made to better understand the causes of many disorders of the bones, muscles, joints, and skin. NIAMS has also supported the development of new treatments for conditions ranging from osteoporosis, a common disorder that weakens the bones, making them susceptible to fractures, to neonatal-onset multi-system inflammatory disease, a rare and debilitating disorder that affects numerous organs and body systems. An important component of the Institute’s stewardship involves strategic planning to identify research and training opportunities and gaps that NIAMS is uniquely positioned to address. The Institute is committed to pursuing high-priority projects across NIAMS mission areas, in collaboration with other NIH Institutes and Centers, and non-Federal partners.

### **Recent Progress**

In the summer of 2006, NIAMS released its Long-Range Research Plan for FYs 2006 to 2009. The plan serves as a broad scientific outline for NIAMS, and the scientific and lay communities, as it identifies compelling research opportunities that will inform the Institute’s priority-setting process. Over time, the plan – which includes both cross-cutting and program-specific sections – will help propel research progress related to the understanding, diagnosis, treatment, and

prevention of arthritis, musculoskeletal, and skin diseases. Areas of recent emphasis covered in the plan include enhancing research translation across our core disciplines, and strengthening collaborative efforts with both Federal and non-Federal partners in fields of shared scientific interest.

With respect to research training, the long-range plan articulates a broad need to develop a cadre of clinician scientists who are positioned to pursue epidemiology, clinical trials, and health outcomes research across NIAMS mission areas. To facilitate this, the Institute recently partnered with the Orthopaedic Research and Education Foundation and the American Skin Association to encourage applications for individual National Research Service Award post-doctoral fellowships. NIAMS anticipates the first set of these fellowships will be funded in FY 2007. The Institute is also strengthening research training offered to rheumatology fellows in the intramural program, to build a more multi-disciplinary approach and take advantage of diverse faculty and shared resources.

### **Future Directions**

In FY 2008, NIAMS will pursue a number of scientific opportunities identified through the Institute's planning process. These include an emphasis on genome-wide association studies related to diseases of interest to the Institute; support for a new extramural program in musculoskeletal development, tissue engineering, and regenerative medicine; and a continued commitment to the Senator Paul D. Wellstone Muscular Dystrophy Cooperative Research Centers, that promote side-by-side basic, translational, and clinical research. The Institute will also build on its efforts to enhance innovative public-private partnerships, such as the Osteoarthritis Initiative and the Collaborative Initiative on Bone Strength. In health information, NIAMS is committed to develop and disseminate science-based materials for patients, health providers, and the public. The Institute will enhance its efforts to reach underserved populations who may be particularly affected by the diseases NIAMS studies. Finally, NIAMS will integrate insights from on-going program evaluations research training and career development, as well as bone genetics, to ensure that these programs are operating as effectively as possible.

### **FY 2008 JUSTIFICATION BY ACTIVITY DETAIL**

Overall Budget Policy: Investigator-initiated research projects and research conducted by new scientists continue to be the Institute's highest priorities. Consistent with NIH policies for FY 2007, the NIAMS will not provide inflationary increases for its grants in FY 2008. The NIAMS will continue its policy of not accepting unsolicited applications for new program project grants, and competing continuation applications for program project grants will only be considered for a second competing award for a total project period of up to 10 years. As in previous years, the NIAMS will reserve a portion of its budget to support high priority research or meritorious applications beyond the established payline. Particular priority will be given to new investigators and first-time renewals.

One of the major strengths of the NIAMS research program is that many of its activities cut across disciplines and involve the collaboration of a diverse array of specialists from both basic and clinical areas. For example, the NIAMS partners with other Institutes, Centers, and non-NIH entities to support research endeavors of mutual interest. Its intramural researchers exchange information with extramural grantees across the United States and other experts around the world. It also is committed to bringing basic and clinical researchers together in a targeted and organized way to facilitate the translation of research findings into practical applications that improve the public's health (see portrait).

**Portrait of a Program: NIAMS Centers of Research Translation (CORT)**

FY 2007 Level:	\$11,890,000
FY 2008 Level:	<u>\$11,890,000</u>
Change:	\$ ---

A key ingredient in research success is translation of laboratory bench insights to the patient bedside and back again, to inspire new laboratory investigations that ultimately improve patient care and public health. In this vein, NIAMS launched its Centers of Research Translation (CORT) program to unite basic and clinical research in a way that translates basic discoveries into diagnostic approaches and treatments. The first set of centers, focusing on lupus, orthopaedic trauma care, scleroderma, and a genetic form of rickets (a childhood disorder characterized by a softening and weakening of bones), began in FY 2006 and are funded through FY 2011. Funding for a second set of centers is scheduled to begin in FY 2007 and continue through FY 2012.

CORT is a new funding mechanism for NIAMS, developed after an extensive review of the Specialized Centers of Research (SCOR) program. In summary, reviewers concluded that the SCOR program successfully broke down research silos by bringing together scientists who would not have otherwise interacted, and made positive and long-lasting changes in the research culture of the home institution. However, the program had not been designed to function under the modern-day “bench-to-bedside and back-again” paradigm, and it needed to be replaced by a program that would specifically emphasize and support translational research.

The new program includes many SCOR elements that are relevant to translation (e.g., participation of basic and clinical scientists, projects focused on a common disease theme, and core resources). Unlike the SCOR, the CORT program has an overarching goal of translating basic discoveries into clinical investigations, and includes resources and an administrative structure to facilitate this goal. Principal investigators are responsible for identifying diseases that their centers will address, and for outlining research topics on which translation efforts are based. In addition, each center’s scientific advisory group helps the translational process, and while their lay members bring the patient perspective to CORT activities.

**Arthritis and Rheumatic Diseases:** The overall goals of this program are to advance high-quality basic, translational, and clinical biomedical and biopsychosocial research to treat, cure, and prevent arthritis and rheumatic diseases. This includes work that advances the understanding of the natural history of these disorders, as well as mechanisms of disease susceptibility and development. The program supports research in rheumatoid arthritis, adjuvant and chemically-induced inflammatory arthritis, systemic lupus erythematosus, systemic scleroderma, spondyloarthropathies, dermatomyositis and myositis, vasculitis, fibromyalgia, juvenile arthritis and general autoimmunity; basic biology of cartilage and related diseases, such as osteoarthritis, and heritable disorders of connective tissue, such as Marfan’s syndrome; gout, Lyme disease, and infection-related arthritis. An important dimension involves taking advantage of new insights in the fields of genetics, genomics, proteomics, and imaging related to arthritis and

rheumatic diseases. The NIAMS is committed to pursuing new opportunities that identify risk factors for these disorders, to enhance disease prediction and advance prevention strategies.

**Budget Policy:** The 2008 budget estimate for the Arthritis and Rheumatic Diseases program is \$137,535,000, a decrease of \$48,000 or -0.03 percent from the FY 2007 Continuing Resolution. NIAMS plans for FY 2008 include a continued emphasis on the development and validation of biomarkers related to osteoarthritis, and for autoimmune diseases such as rheumatoid arthritis, juvenile arthritis, and systemic lupus erythematosus. The Institute will also support studies to further illuminate the role of genetics in various autoimmune disorders. In addition, it anticipates increased focus on innovative therapies for rare rheumatic diseases, such as vasculitis, and on translational research that facilitates the development of new treatment and prevention approaches.

**Musculoskeletal Biology and Diseases:** The Musculoskeletal Biology and Diseases program focuses on understanding the fundamental biology of tissues that constitute the musculoskeletal system, and on translating and applying this knowledge to a variety of diseases and conditions. It studies the causes and treatment of acute and chronic injuries—including carpal tunnel syndrome, repetitive stress injury, and low back pain—and clinical and epidemiological studies of osteoarthritis. The program supports the development of new technologies, such as methods for imaging bone and cartilage to improve the diagnosis and treatment of skeletal disorders, or facilitate repair of damage caused by trauma to otherwise healthy musculoskeletal tissue. Therapeutic approaches of interest in the program include drugs, nutritional interventions, joint replacement (including biomaterials and implant science), bone and cartilage transplantation, and gene therapy. Tissue engineering, regenerative medicine, sports medicine, and musculoskeletal fitness are areas of special emphasis.

**Budget Policy:** The 2008 budget estimate for the Musculoskeletal Biology and Diseases program is \$73,436,000, a decrease of \$26,000 or -0.03 percent from the FY 2007 Continuing Resolution. NIAMS plans for FY 2008 include partnering with other NIH components, the Food and Drug Administration, industry, and academic centers to launch a new program called the Collaborative Initiative on Bone Strength. It will enable researchers to identify markers of bone strength to be used as surrogate endpoints for fractures in clinical trials, and to find measurements that are more accurate than bone density to predict risk of fracture. This need is more pressing given the aging of the U.S. population and the risk of fractures in this demographic group. Information collected through this effort will facilitate development of new treatments to prevent fractures because it enables the design of clinical trials that are smaller, shorter, and less expensive than current studies. The Musculoskeletal Biology and Diseases program remains committed to another major effort to expedite clinical research—the Osteoarthritis Initiative (OAI). The OAI is a long-term effort, developed with support from numerous NIH components and private-sector sponsors, to create a research resource to identify and evaluate biomarkers of osteoarthritis for use in clinical research. The study has 5,000 participants who are at high risk for knee osteoarthritis and, as of early FY 2007, clinical data from approximately 2,000 of them were available for research projects. All data and resources developed in the OAI will become publicly available for scientific investigation.

**Bone Biology and Diseases:** The Bone Biology and Diseases program covers a broad spectrum of research to better understand genetic and cellular mechanisms involved in the build-up and break down of bone. It studies regulation of bone remodeling; mechanisms of bone formation, bone resorption, and mineralization; and effects of hormones, growth factors, and cytokines on bone cells. The program emphasizes application of fundamental knowledge of bone cell biology to the development of drug and gene therapies for bone diseases, especially osteoporosis. It supports several large epidemiologic cohorts for characterization of the natural history of osteoporosis, and for identification of genetic and environmental risk factors that contribute to bone disease. Like other cohort studies supported by NIAMS, the ultimate goals are to contribute to the development of better diagnostic tools, treatments, and prevention strategies.

Budget Policy: The 2008 budget estimate for the Bone Biology and Diseases program is \$82,370,000, a decrease of \$28,000 or -0.03 percent from the FY 2007 Continuing Resolution. Program plans for FY 2008 include continued support of a multi-center study of osteoporosis and fractures in nearly 6,000 older men. Thus far, researchers identified lifestyle, medical, and demographic characteristics that are associated with low bone mass and potential fracture risk in men over age 65—information that health care providers can use to identify men who are at high risk of fracture so they can begin treatment. NIAMS will continue to fund meritorious investigator-initiated grants on bone biology and diseases and encourage research collaborations to mine genetic resources that NIAMS-funded researchers have previously developed.

**Muscle Biology and Diseases:** The NIAMS' Muscle Biology and Diseases program supports a wide range of basic, translational, and clinical research projects in skeletal muscle biology and diseases. It focuses on fundamental biology of muscle development, physiology, and muscle imaging. Particular interests include the basic biology of satellite and muscle stem cells, excitation-contraction coupling, muscle metabolism, and adaptation of muscle to exercise. It addresses a need for translational research to develop these discoveries into advances in treatment, and improvements in the management of muscle, musculoskeletal diseases, and disorders. Its overarching objective is to advance the understanding of, and, ultimately, prevent and treat the muscular dystrophies, inflammatory myopathies, muscle ion channel diseases, and muscle disorders such as disuse atrophy and age-related loss of muscle mass.

Budget Policy: The 2008 budget estimate for the Muscle Biology and Diseases program is \$70,467,000, a decrease of \$25,000 or -0.03 percent from the FY 2007 Continuing Resolution. Program plans for FY 2008 include continued support of research efforts related to muscular dystrophy. The original Senator Paul D. Wellstone Muscular Dystrophy Cooperative Research Centers are scheduled to end during FY 2008, and as there is considerable interest in maintaining the program from the scientific community, Congress, and the public (see portrait), the NIAMS will participate in a multi-institute effort to solicit applications from institutions that are interested in participating in the program for FY 2008 and beyond. The Institute will continue to fund meritorious investigator-initiated applications submitted in response to announcements that encourage basic and translational muscular dystrophy research.

**Portrait of a Program: Senator Paul D. Wellstone Muscular Dystrophy Cooperative Research Centers**

FY 2007 Level: \$3,258,000  
FY 2008 Level: \$3,258,000  
Change: \$ ---

A major component of the NIAMS muscular dystrophy research portfolio includes funding for two of the six NIH-supported Senator Paul D. Wellstone Muscular Dystrophy Cooperative Research Centers. Each center brings together expertise, infrastructure, and resources focused on major questions about muscular dystrophy. The Wellstone Centers promote side-by-side basic, translational, and clinical research, and provide resources that can be used by the national muscle biology and neuromuscular research communities. The first NIAMS-supported center is located at the University of Pittsburgh where researchers are examining the use of gene and stem cell therapies to treat Duchenne muscular dystrophy (DMD), the most common childhood form of muscular dystrophy. The second center is located at the University of Pennsylvania where researchers are investigating strategies to inhibit muscle degeneration and to promote muscle growth. These approaches could be applicable to a wide range of muscular dystrophies and other muscle diseases. Although funding for the original Wellstone Centers is scheduled to end during FY 2008, NIAMS will participate in a multi-institute effort to solicit applications from institutions that are interested in participating in the program for FY 2008 and beyond.

To enhance the ongoing activities of the Wellstone Centers, NIAMS recently joined several other NIH components in announcing the availability of administrative supplements to the Centers. The first supplement promotes collaborations by the Centers, and maximizes opportunities for career development among junior investigators affiliated with the Centers. The second supplement encourages the Directors of the Wellstone Centers, in collaboration with other muscular dystrophy researchers and representatives from voluntary health organizations, to apply for administrative supplements to support workshops or conferences focused on specific topics in muscular dystrophy research. These workshops fill a specific need in the muscular dystrophy field to bring investigators together to achieve a range of objectives, including developing collaborations, focusing efforts and resources, and reaching consensus on research and patient care strategies. Funding for the supplements and workshops will be available through FY 2009.

**Skin Biology and Diseases:** This program supports a broad portfolio of basic and translational research in skin. These efforts include work on the developmental and molecular biology of skin, the study of skin as an immune organ, and the genetics of skin diseases. Areas of particular emphasis include investigations of stem cells found in skin; metabolic studies of skin, such as the effects of hormones and interactions with enzymes; and immunologically-mediated cutaneous disorders, such as atopic dermatitis, contact dermatitis, and vasculitis. Research is underway to better understand keratinizing disorders such as psoriasis and ichthyosis; disorders of pigmentation such as vitiligo; and bullous diseases such as pemphigus, pemphigoid, and epidermolysis bullosa. It studies acne and the physiologic activity of the sebaceous glands, as well as disorders of the hair, such as alopecia areata. Tremendous opportunities exist in the field of skin diseases research, from work toward a deeper understanding of the basic biology of skin, to new approaches for developing artificial skin, to advances in imaging technologies for diagnosis and tracking of skin disease progression. The NIAMS is committed to pursuing these and other avenues of research to improve health outcomes for patients with skin diseases.

**Budget Policy:** The 2008 budget estimate for the Skin Biology and Diseases program is \$63,376,000, a decrease of \$22,000 or -0.03 percent from the FY 2007 Continuing Resolution. NIAMS plans for FY 2008 include continued support for studies focused on wound healing, to better understand the molecular mechanisms underlying this process with the goal of finding ways to accelerate wound healing and to improve patient outcomes. In addition, the budget



estimate anticipates an enhanced emphasis on the genetic factors that contribute to skin diseases such as psoriasis, building on current projects supported by NIAMS and through the Genetic Association Information Network (GAIN).

**Intramural Research Program:** The mission of the intramural research program of NIAMS is to conduct innovative basic and translational research relevant to the health concerns of the Institute, and to provide training for investigators interested in careers in these areas. The ultimate goals are to provide new insights into the normal function of joints, bone, skin, and muscle—and diseases that affect them—and to generate a cadre of well-trained investigators equipped to continue the progress in understanding these structures and related disorders. NIAMS intramural investigators pursue diverse projects in biomedical research ranging from fundamental analyses of protein structure and function involving crystallography, cryoelectron microscopy, and atomic force microscopy, through protein chemistry, cell biology, signal transduction, gene regulation, tissue development and differentiation, genetics, and immunology, to animal models of disease and direct clinical studies on the genetics, etiology, pathogenesis, and treatment of a variety of rheumatic, autoimmune, inflammatory, joint, skin, and muscle diseases.

**Budget Policy:** The 2008 budget estimate for the Intramural Research Program is \$50,236,000, a decrease of \$354,000 or -0.6 percent from the FY 2007 Continuing Resolution. NIAMS plans for FY 2008 include an enhanced focus on translational research, in order to facilitate patient-oriented studies in the areas of arthritis, musculoskeletal, and skin diseases, including their genetic, inflammatory, and immune mechanisms. The Institute will strengthen its efforts in pediatric rheumatic diseases, as well as in musculoskeletal medicine and health outcomes research. Key recruitments in all of these areas are currently underway. In addition, it anticipates an increased emphasis on the development of state-of-the-art research resources, such as core facilities for genetic analyses using chip-based sequencing techniques, to enable cutting-edge investigations across its mission areas. Finally, NIAMS will continue its commitment to multidisciplinary training of rheumatology research fellows, to strengthen the pipeline of highly qualified physician-scientists in this field.

#### **Portrait of a Program: NIAMS Intramural Research Program**

FY 2007 Level:	\$50,590,000
FY 2008 Level:	<u>\$50,236,000</u>
Change:	\$ -354,000

Since the founding of NIAMS twenty years ago, its intramural program has pioneered a number of clinical and translational research successes. These include, but are not limited to, landmark clinical trials that established the efficacy of cyclophosphamide to treat patients with lupus nephritis; studies of the natural history, pathogenesis, and treatment of inflammatory disorders such as polymyositis and dermatomyositis; identification of a gene mutation which causes severe combined immunodeficiency, or SCID, and development of a new class of immunosuppressive drugs to treat the disorder; and discovery of the genetic causes of several systemic autoinflammatory diseases, as well as therapies to treat them effectively. Building on these successes to understand and treat inflammatory and immune system disorders, NIAMS will continue its program in clinical and translational research. The overall goal is to facilitate patient-oriented intramural research in the areas of arthritis, musculoskeletal, and skin diseases, including their genetic, inflammatory, and immune mechanisms.

Within funds allocated, NIAMS will pursue novel research studies in the following high-priority areas: investigations into the pathophysiology of human disease; studies of conditions for which it is difficult to assemble adequate patient cohorts in academic health centers; innovative interventional trials in serious disorders for which effective treatment options do not exist; studies capitalizing on the sophisticated imaging and laboratory technologies available in the NIH Clinical Research Center; and development of trans-Institute initiatives in translational research. These cross-cutting activities will establish the foundation for a multidisciplinary, collaborative program in inflammation and immunity. It will enable the development of multi-Institute natural history and treatment protocols, as well as sharing of innovative laboratory resources for clinical samples. In addition, a clinical scholars training program will be pursued to foster interactions among existing training programs with common scientific interests in rheumatology, dermatology, transplantation, gastroenterology, infectious diseases, and allergic disorders.

To ensure the intramural program is operating as efficiently as possible, scientific staff will be realigned to better reflect the high-priority program areas. In addition, emerging technologies will be used to improve the overall management of scientific programs and streamline research activities, as appropriate.

**Research Management and Support (RMS):** NIAMS' RMS supports the scientific, administrative management, and information technology expenses associated with the Institute's day-to-day operations. It reflects costs associated with long-term investments in the research enterprise: the review of applications for grants and contracts by special panels of outside experts, and the management and evaluation of grants and contracts after they are awarded. Expenses incurred to disseminate research results and health information to patients, health care providers, and the American public are also included. The Institute currently oversees more than 1,240 research grants and centers, as well as 55 research and development contracts and 125 individual and institutional research training grants. NIAMS supports 421 clinical research projects, including 52 clinical trials.

**Budget Policy:** The 2008 budget estimate for RMS is \$23,976,000, an increase of \$237,000 or 1.0 percent from the FY 2007 Continuing Resolution. NIAMS plans for FY 2008 include continued support for the community-based Health Partnership Program, an outreach initiative to address health disparities that exist among local minority groups with rheumatic diseases. The NIAMS will build on a successful feasibility study to systematically evaluate its extramural training and career development awards programs to determine if they are producing the scientists to advance fields relevant to the NIAMS mission. RMS funds will be used to assess the need for a consortium to combine the clinical and genetic resources generated by NIAMS-funded investigations into factors influencing bone mass and fracture risk in humans. Finally, the Institute will continue to sponsor roundtable discussions and a scientific retreat with extramural investigators and lay representatives to inform the research priority-setting and strategic planning process.

**NATIONAL INSTITUTES OF HEALTH**  
**National Institute of Arthritis and Musculoskeletal and Skin Diseases**

**Budget Authority by Object**

	FY 2007 Continuing Resolution	FY 2008 Estimate	Increase or Decrease
Total compensable workyears:			
Full-time employment	214	217	3
Full-time equivalent of overtime & holiday hours	0	0	0
Average ES salary	\$159,455	\$165,355	\$5,900
Average GM/GS grade	11.0	11.0	0
Average GM/GS salary	\$78,735	\$82,040	\$3,305
Average salary, grade established by act of July 1, 1944 (42 U.S.C. 207)	\$76,894	\$79,739	\$2,845
Average salary of ungraded positions	\$105,547	\$109,452	\$3,905
<b>OBJECT CLASSES</b>	<b>FY 2007 Continuing Resolution</b>	<b>FY 2008 Estimate</b>	<b>Increase or Decrease</b>
Personnel Compensation:			
11.1 Full-Time Permanent	\$15,625,000	\$16,511,000	\$886,000
11.3 Other than Full-Time Permanent	2,772,000	2,929,000	157,000
11.5 Other Personnel Compensation	374,000	395,000	21,000
11.7 Military Personnel	248,000	262,000	14,000
11.8 Special Personnel Services Payments	3,406,000	3,600,000	194,000
<b>Total, Personnel Compensation</b>	<b>22,425,000</b>	<b>23,697,000</b>	<b>1,272,000</b>
12.0 Personnel Benefits	5,120,000	5,410,000	290,000
12.2 Military Personnel Benefits	113,000	119,000	6,000
13.0 Benefits for Former Personnel	0	0	0
<b>Subtotal, Pay Costs</b>	<b>27,658,000</b>	<b>29,226,000</b>	<b>1,568,000</b>
21.0 Travel & Transportation of Persons	762,000	712,000	-50,000
22.0 Transportation of Things	63,000	59,000	-4,000
23.1 Rental Payments to GSA	0	0	0
23.2 Rental Payments to Others	1,000	1,000	0
23.3 Communications, Utilities & Miscellaneous Charges	436,000	405,000	-31,000
24.0 Printing & Reproduction	276,000	266,000	-10,000
25.1 Consulting Services	1,842,000	1,763,000	-79,000
25.2 Other Services	3,432,000	3,187,000	-245,000
25.3 Purchase of Goods & Services from Government Accounts	42,712,000	42,640,000	-72,000
25.4 Operation & Maintenance of Facilities	223,000	213,000	-10,000
25.5 Research & Development Contracts	14,856,000	14,856,000	0
25.6 Medical Care	408,000	374,000	-34,000
25.7 Operation & Maintenance of Equipment	3,062,000	2,820,000	-242,000
25.8 Subsistence & Support of Persons	0	0	0
<b>25.0 Subtotal, Other Contractual Services</b>	<b>66,535,000</b>	<b>65,853,000</b>	<b>-682,000</b>
26.0 Supplies & Materials	4,454,000	4,103,000	-351,000
31.0 Equipment	2,192,000	2,032,000	-160,000
32.0 Land and Structures	0	0	0
33.0 Investments & Loans	0	0	0
41.0 Grants, Subsidies & Contributions	399,283,000	398,737,000	-546,000
42.0 Insurance Claims & Indemnities	0	0	0
43.0 Interest & Dividends	2,000	2,000	0
44.0 Refunds	0	0	0
<b>Subtotal, Non-Pay Costs</b>	<b>474,004,000</b>	<b>472,170,000</b>	<b>-1,834,000</b>
<b>NIH Roadmap for Medical Research</b>	<b>6,090,000</b>	<b>6,686,000</b>	<b>596,000</b>
<b>Total Budget Authority by Object</b>	<b>507,752,000</b>	<b>508,082,000</b>	<b>330,000</b>

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

**NATIONAL INSTITUTES OF HEALTH**  
**National Institute of Arthritis and Musculoskeletal and Skin Diseases**

**Salaries and Expenses**

OBJECT CLASSES	FY 2007 Continuing Resolution	FY 2008 Estimate	Increase or Decrease
<b>Personnel Compensation:</b>			
Full-Time Permanent (11.1)	\$15,625,000	\$16,511,000	\$886,000
Other Than Full-Time Permanent (11.3)	2,772,000	2,929,000	157,000
Other Personnel Compensation (11.5)	374,000	395,000	21,000
Military Personnel (11.7)	248,000	262,000	14,000
Special Personnel Services Payments (11.8)	3,406,000	3,600,000	194,000
<b>Total Personnel Compensation (11.9)</b>	<b>22,425,000</b>	<b>23,697,000</b>	<b>1,272,000</b>
Civilian Personnel Benefits (12.1)	5,120,000	5,410,000	290,000
Military Personnel Benefits (12.2)	113,000	119,000	
Benefits to Former Personnel (13.0)	0	0	0
<b>Subtotal, Pay Costs</b>	<b>27,658,000</b>	<b>29,226,000</b>	<b>1,568,000</b>
Travel (21.0)	762,000	712,000	-50,000
Transportation of Things (22.0)	63,000	59,000	-4,000
Rental Payments to Others (23.2)	1,000	1,000	0
Communications, Utilities and Miscellaneous Charges (23.3)	436,000	405,000	-31,000
Printing and Reproduction (24.0)	276,000	266,000	-10,000
<b>Other Contractual Services:</b>			
Advisory and Assistance Services (25.1)	1,842,000	1,763,000	-79,000
Other Services (25.2)	3,432,000	3,187,000	-245,000
Purchases from Govt. Accounts (25.3)	17,193,000	16,591,000	-602,000
Operation & Maintenance of Facilities (25.4)	223,000	213,000	-10,000
Operation & Maintenance of Equipment (25.7)	3,062,000	2,820,000	-242,000
Subsistence & Support of Persons (25.8)	0	0	0
<b>Subtotal Other Contractual Services</b>	<b>25,752,000</b>	<b>24,574,000</b>	<b>-1,178,000</b>
Supplies and Materials (26.0)	4,452,000	4,101,000	-351,000
<b>Subtotal, Non-Pay Costs</b>	<b>31,742,000</b>	<b>30,118,000</b>	<b>-1,624,000</b>
<b>Total, Administrative Costs</b>	<b>59,400,000</b>	<b>59,344,000</b>	<b>-56,000</b>

**NATIONAL INSTITUTES OF HEALTH**  
**National Institute of Arthritis and Musculoskeletal and Skin Diseases**

Authorizing Legislation						
	PHS Act/ Other Citation	U.S. Code Citation	2007 Amount Authorized	FY 2007 Continuing Resolution	2008 Amount Authorized	FY 2008 Estimate
Research and Investigation	Section 301	42§241	Indefinite		Indefinite	
National Institute of Arthritis and Musculoskeletal and Skin Diseases			{			
				\$507,752,000		\$508,082,000
		P.L. 109-482	Indefinite		Indefinite	
Total, Budget Authority				507,752,000		508,082,000

**NATIONAL INSTITUTES OF HEALTH**  
**National Institute of Arthritis and Musculoskeletal and Skin Diseases**

**Appropriations History**

Fiscal Year	Budget Estimate to Congress	House Allowance	Senate Allowance	Appropriation <u>1/</u>
1999	290,176,000 <u>2/ 3/</u>	296,688,000	304,320,000	308,164,000
Rescission				-204,000
2000	309,953,000 <u>2/</u>	333,378,000	350,429,000	351,840,000
Rescission				-1,872,000
2001	363,479,000 <u>2/</u>	400,025,000	401,161,000	396,604,000
Rescission				-144,000
2002	443,565,000	440,144,000	460,202,000	448,865,000
Rescission				-617,000
2003	485,851,000	485,851,000	489,324,000	489,324,000
Rescission				-3,181,000
2004	502,778,000	502,778,000	505,000,000	504,300,000
Rescission				-3,234,000
2005	515,378,000	515,378,000	520,900,000	515,378,000
Rescission				-4,221,000
2006	513,063,000	513,063,000	525,758,000	513,063,000
Rescission				-5,131,000
2007	504,533,000	504,533,000	508,583,000	507,932,000 <u>4/</u>
2008	508,082,000			

1/ Reflects enacted supplementals, rescissions, and reappropriations.

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

3/ Reflects a decrease of \$877,000 for the budget amendment for Bioterrorism

4/ Annualized current rate

**NATIONAL INSTITUTES OF HEALTH**  
**National Institute of Arthritis and Musculoskeletal and Skin Diseases**

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

OFFICE/DIVISION	FY 2006 Actual	FY 2007 Continuing Resolution	FY 2008 Estimate
Office of the Director	53	53	53
Extramural Program	25	28	29
Intramural Research Program	133	133	135
Total	211	214	217
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		
2004	11.4		
2005	11.0		
2006	11.0		
2007	11.0		
2008	11.0		

**NATIONAL INSTITUTES OF HEALTH**  
**National Institute of Arthritis and Musculoskeletal and Skin Diseases**

**Detail of Positions**

GRADE	FY 2006 Actual	FY 2007 Continuing Resolution	FY 2008 Estimate
Total, ES Positions	2	2	2
Total, ES Salary	\$310,375	\$318,910	\$330,710
GM/GS-15	16	16	16
GM/GS-14	16	17	16
GM/GS-13	26	27	28
GS-12	28	29	30
GS-11	15	15	15
GS-10	0	0	0
GS-9	14	14	15
GS-8	7	7	7
GS-7	12	12	12
GS-6	3	3	3
GS-5	2	2	2
GS-4	4	4	4
GS-3	0	0	0
GS-2	2	2	2
GS-1	2	2	2
Subtotal	147	150	152
Grades established by Act of July 1, 1944 (42 U.S.C. 207):			
Assistant Surgeon General	0	0	0
Director Grade	1	1	1
Senior Grade	1	1	1
Full Grade	0	0	0
Senior Assistant Grade	1	1	1
Assistant Grade	0	0	0
Subtotal	3	3	3
Ungraded	65	65	65
Total permanent positions	194	197	200
Total positions, end of year	217	220	223
Total full-time equivalent (FTE) employment, end of year	211	214	217
Average ES salary	155,188	159,455	165,355
Average GM/GS grade	11.0	11.0	11.0
Average GM/GS salary	75,561	78,735	82,040

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



**NATIONAL INSTITUTES OF HEALTH**  
**National Institute of Arthritis and Musculoskeletal and Skin Diseases**

**New Positions Requested**

	FY 2008		
	Grade	Number	Annual Salary
Research Scientist	GS-13	1	\$79,397
Biologist	GS-09	1	46,041
Program Analyst	GS-11	1	55,706
Total Requested		3	