DEPARTMENT OF HEALTH AND HUMAN SERVICES

NATIONAL INSTITUTES OF HEALTH

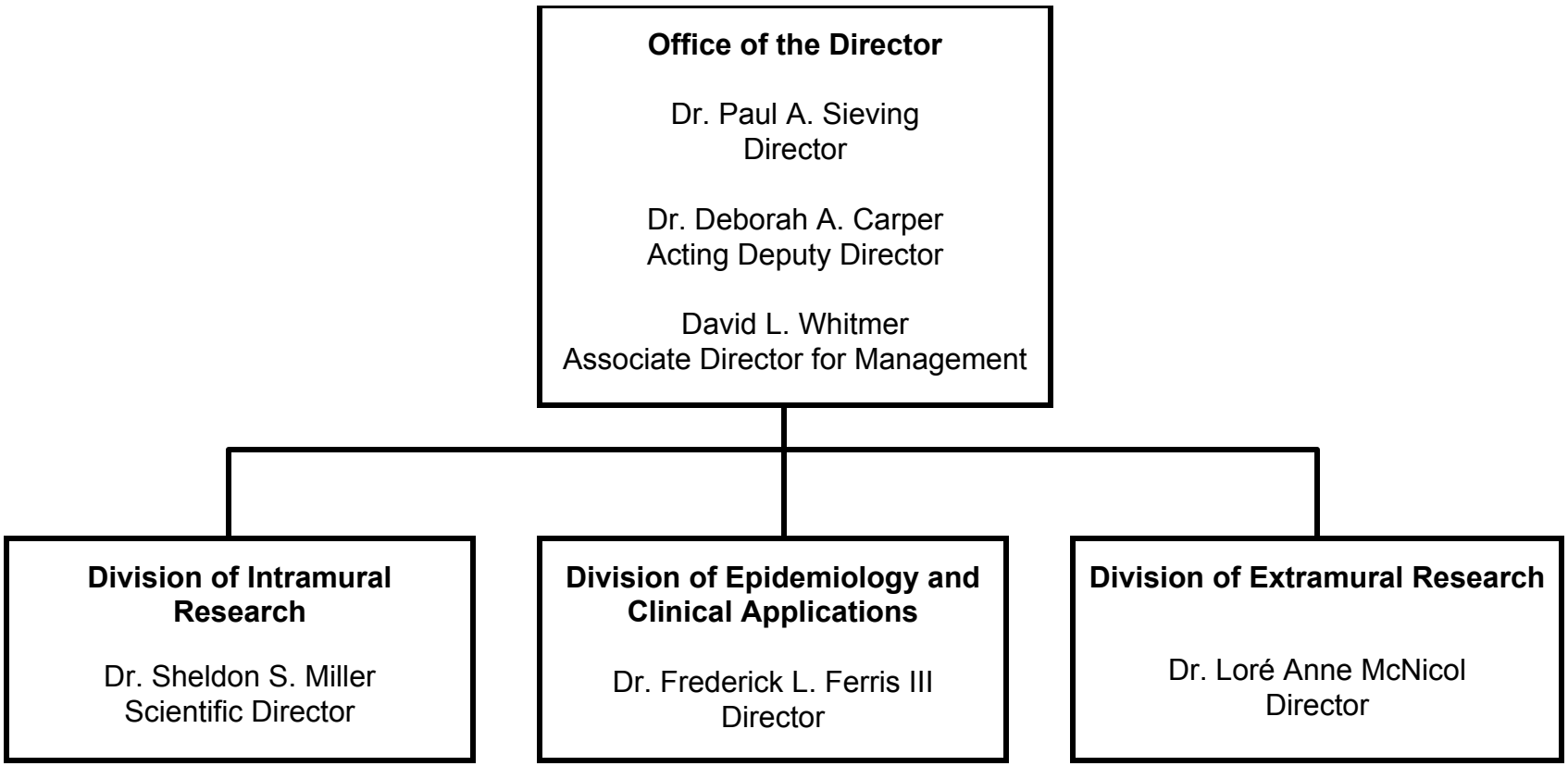
National Eye Institute

FY 2011 Budget — Page No.

NATIONAL INSTITUTES OF HEALTH

National Eye Institute

Organization Chart



NATIONAL INSTITUTES OF HEALTH

National Eye Institute

For carrying out section 301 and title IV of the Public Health Services Act with respect to eye diseases and visual disorders [$707,036,000] *$724,360,000* (Public Law 111-117, Consolidated Appropriations Act, 2010*)*

National Institutes of Health
National Eye Institute

Amounts Available for Obligation 1/

Source of Funding	FY 2009 Actual	FY 2010 Enacted	FY 2011 PB
Appropriation	$688,480,000	$707,036,000	$724,360,000
Rescission	0	0	0
Supplemental	0	0	0
Subtotal, adjusted appropriation	688,480,000	707,036,000	724,360,000
Real transfer under Director's one-percent transfer authority (GEI)	-1,130,000	0	0
Comparative transfer to NLM for Public Access	-95,000	-103,000	0
Comparative transfer to NLM for NCBI	-109,000	-168,000	0
Comparative transfer under Director's one-percent transfer authority (GEI)	1,130,000	0	0
Subtotal, adjusted budget authority	688,276,000	706,765,000	724,360,000
Unobligated balance, start of year	0	0	0
Unobligated balance, end of year	0	0	0
Subtotal, adjusted budget authority	688,276,000	706,765,000	724,360,000
Unobligated balance lapsing	0	0	0
Total obligations	688,276,000	706,765,000	724,360,000

1/ Excludes the following amounts for reimbursable activities carried out by this account:
FY 2009 - $15,386,000 FY 2010 - $17,060,000 FY 2011 - $17,060,000
Excludes $ 2,794,000 in FY 2009 for royalties.

NATIONAL INSTITUTES OF HEALTH
National Eye Institute
(Dollars in Thousands)
Budget Mechanism - Total

MECHANISM	FY 2009 Actual		FY 2009 Recovery Act Actual		FY 2010 Recovery Act Estimated		FY 2010 Enacted		FY 2011 PB		Change	
Research Grants:	No.	Amount	No.	Amount	No.	Amount	No.	Amount	No.	Amount	No.	Amount
Research Projects:												
Noncompeting	791	$309,745	0	$0	119	$44,054	847	$334,316	814	$323,063	(33)	-$11,253
Administrative supplements	(106)	18,508	(171)	34,160	(45)	8,384	(91)	11,414	(111)	13,915	20	2,501
Competing:	264	98,012	132	50,546	24	19,328	250	94,671	288	111,289	38	16,618
Subtotal, RPGs	1,055	426,265	132	84,706	143	71,766	1,097	440,401	1,102	448,267	5	7,866
SBIR/STTR	47	17,516	4	2,845	7	2,887	46	17,152	47	17,576	1	424
Subtotal, RPGs	1,102	443,781	136	87,551	150	74,653	1,143	457,553	1,149	465,843	6	8,290
Research Centers:												
Specialized/comprehensive	40	27,196	1	696	0	0	40	27,604	40	28,432	0	828
Clinical research	0	0	0	0	0	0	0	0	0	0	0	0
Biotechnology	0	0	0	0	0	0	0	0	0	0	0	0
Comparative medicine	0	150	0	0	0	0	0	150	0	153	0	3
Research Centers in Minority Institutions	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal, Centers	40	27,346	1	696	0	0	40	27,754	40	28,585	0	831
Other Research:												
Research careers	64	11,983	15	1,551	0	0	69	12,882	71	13,268	2	386
Cancer education	0	0	0	0	0	0	0	0	0	0	0	0
Cooperative clinical research	33	46,817	18	7,514	0	0	33	46,817	33	47,753	0	936
Biomedical research support	0	0	0	0	0	0	0	0	0	0	0	0
Minority biomedical research support	0	0	0	0	0	0	0	0	0	0	0	0
Other	14	10,048	0	0	0	0	14	10,199	14	10,403	0	204
Subtotal, Other Research	111	68,848	33	9,065	0	0	116	69,898	118	71,424	2	1,526
Total Research Grants	1,253	539,975	170	97,312	150	74,653	1,299	555,205	1,307	565,852	8	10,647
Research Training:	FTTPs		FTTPs		FTTPs		FTTPs		FTTPs		FTTPs	
Individual awards	64	3,030	1	111	0	0	65	3,075	65	3,260	0	185
Institutional awards	198	7,313	0	0	0	0	201	7,423	201	7,690	0	267
Total, Training	262	10,343	1	111	0	0	266	10,498	266	10,950	0	452
Research & development contracts	46	44,036	0	0	0	0	46	45,673	46	48,687	0	3,014
(SBIR/STTR)		(28)	(0)	(0)	(0)	(0)	(0)	(184)	(0)	(184)	(0)	(0)
	FTEs		FTEs		FTEs		FTEs		FTEs		FTEs	
Intramural research	166	70,472	0	358	0	512	166	71,529	173	73,818	7	2,289
Research management and support	75	23,450	0	14	0	1,137	78	23,860	82	25,053	4	1,193
Construction	0	0	0	0	0	0	0	0	0	0	0	0
Buildings and Facilities	0	0	0	0	0	0	0	0	0	0	0	0
Total, NEI	241	688,276	0	97,795	0	76,302	244	706,765	255	724,360	11	17,595

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

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

	FY 2007 Actual		FY 2008 Actual		FY 2009 Actual		FY 2009 Comparable		FY 2010 Enacted		FY 2011 PB		Change	
Extramural Research	FTEs	Amount	FTEs	Amount	FTEs	Amount	FTEs	Amount	FTEs	Amount	FTEs	Amount	FTEs	Amount
Detail:														
Retinal Disease Research		$263,438		$263,374		$256,637		$257,037		$264,398		$270,501		6,103
Corneal Disease, Cataract, and Glaucoma Research		168,110		168,530		174,848		175,121		180,137		184,296		4,159
Sensorimotor Disorders and Rehabilitation Research		144,556		146,113		161,943		162,196		166,841		170,692		3,851
Subtotal, Extramural		576,104		578,017		593,428		594,354		611,376		625,489		14,113
Intramural research	145	67,298	159	68,594	166	70,472	166	70,472	166	71,529	173	73,818	7	2,289
Res. management & support	69	22,584	71	22,923	75	23,450	75	23,450	78	23,860	82	25,053	4	1,193
TOTAL	214	665,986	230	669,534	241	687,350	241	688,276	244	706,765	255	724,360	11	17,595

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

Major Changes in the Fiscal Year 2011 Budget Request

Major changes by budget mechanism and/or budget activity detail are briefly described below. Note that there may be overlap between budget mechanism and activity detail and these highlights will not sum to the total change for the FY 2011 budget request for NEI, which is $17.595 million more than the FY 2010 Enacted level, for a total of $724.360 million.

Research Project Grants (RPGs; +$8.290 million; total $465.843 million): NEI will continue to maintain an adequate number of competing RPGs—288 awards in FY 2011, an increase of 38 over FY 2010. About 814 noncompeting RPGs, totaling $323.063 million also will be made in FY 2011.

The NIH budget policy for Research Project Grants (RPGs) in FY 2011 is to provide 2 percent inflationary increases in noncompeting awards and in the average cost for competing RPGs. NEI will continue to support new investigators while maintaining an adequate number of competing RPGs. In FY 2011, NEI will support new investigators on R01 equivalent awards at success rates equivalent to those of established investigators submitting new R01 equivalent applications. NEI will support 1,149 RPGs in FY 2011, an increase of 6 grants and $8.290 million. Noncompeting RPGs will decrease by 33 awards and decrease by $11.253 million; competing RPGs will increase by 38 awards and increase by $16.618 million.

NATIONAL INSTITUTES OF HEALTH
National Eye Institute
Summary of Changes

FY 2010 estimate				$706,765,000
FY 2011 estimated budget authority				724,360,000
Net change				17,595,000
	2010 Current Estimate Base		Change from Base	
CHANGES	FTEs	Budget Authority	FTEs	Budget Authority
A. Built-in:				
1. Intramural research:				
a. Annualization of January 2010 pay increase		$26,676,000		$161,000
b. January FY 2011 pay increase		26,676,000		280,000
c. Zero less days of pay (n/a for 2011)		26,676,000		0
d. Payment for centrally furnished services		11,209,000		224,000
e. Increased cost of laboratory supplies, materials, and other expenses		33,644,000		579,000
Subtotal				1,244,000
2. Research management and support:				
a. Annualization of January 2010 pay increase		$10,728,000		$65,000
b. January FY 2011 pay increase		10,728,000		113,000
c. Zero less days of pay (n/a for 2011)		10,728,000		0
d. Payment for centrally furnished services		4,180,000		84,000
e. Increased cost of laboratory supplies, materials, and other expenses		8,952,000		150,000
Subtotal				412,000
Subtotal, Built-in				1,656,000

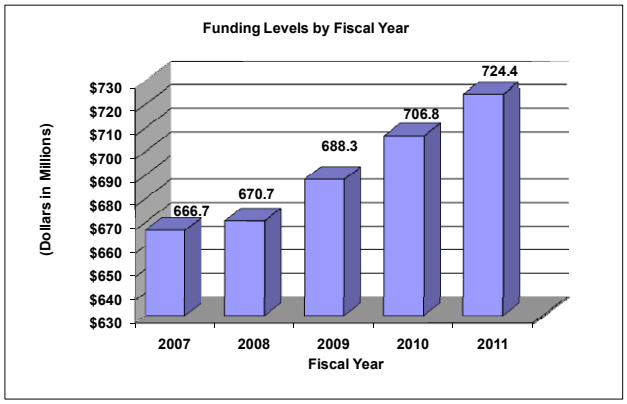
NATIONAL INSTITUTES OF HEALTH
National Eye Institute

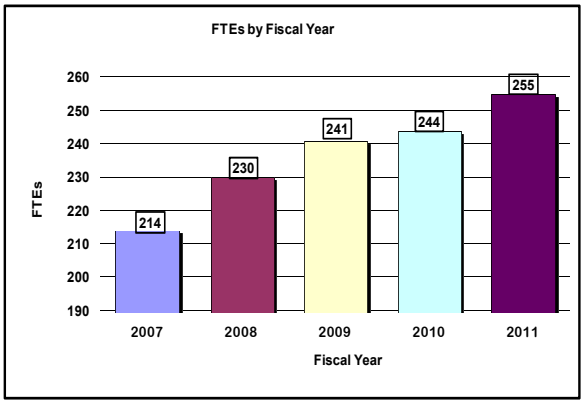
Summary of Changes--continued

CHANGES	2010 Current Estimate Base		Change from Base	
	No.	Amount	No.	Amount
B. Program:				
1. Research project grants:				
a. Noncompeting	847	$345,730,000	(33)	($8,752,000)
b. Competing	250	94,671,000	38	16,618,000
c. SBIR/STTR	46	17,152,000	1	424,000
Total	1,143	457,553,000	6	8,290,000
2. Research centers	40	27,754,000	0	831,000
3. Other research	116	69,898,000	2	1,526,000
4. Research training	266	10,498,000	0	452,000
5. Research and development contracts	46	45,673,000	0	3,014,000
Subtotal, extramural				14,113,000
	FTEs		FTEs	
6. Intramural research	166	71,529,000	7	1,045,000
7. Research management and support	78	23,860,000	4	781,000
8. Construction		0		0
9. Buildings and Facilities		0		0
Subtotal, program		706,765,000		15,939,000
Total changes	244		11	17,595,000

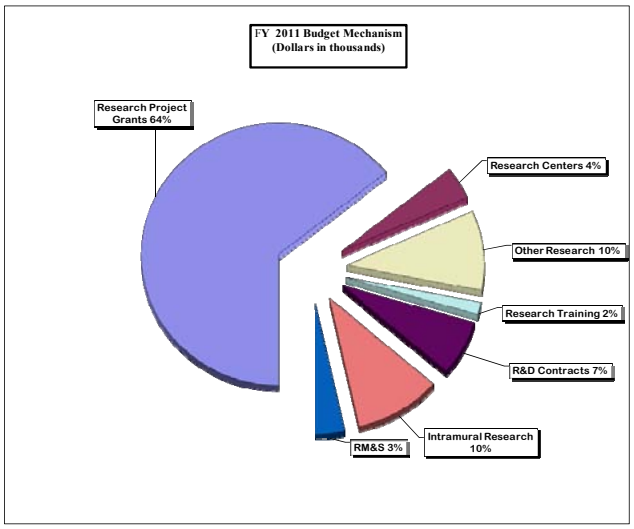
Fiscal Year 2011 Budget Graphs

History of Budget Authority and FTEs:

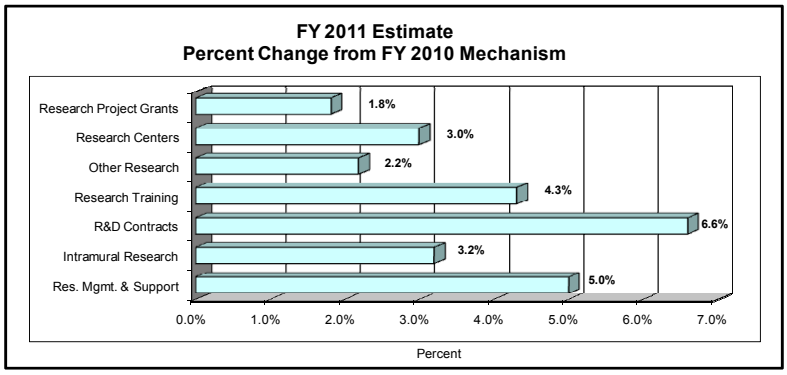




Distribution by Mechanism:



Change by Selected Mechanisms:



Justification of Budget Request

National Eye Institute

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

Budget Authority:

	FY 2009 Appropriation	FY 2010 Appropriation	FY 2011 President's Budget	Increase or Decrease
BA	$688,276,000	$706,765,000	$724,360,000	$17,595,000
FTE	241	244	255	11

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

Director's Overview

The National Eye Institute's (NEI) mission is to conduct and support research, training, health information dissemination, and other programs with respect to blinding eye diseases, visual disorders, mechanisms of visual function, preservation of sight, and the special health problems and requirements of the blind. These investigations are conducted in hundreds of laboratories and clinics throughout the U.S. and in NEI intramural research facilities in Bethesda, Maryland.

Applying Unprecedented Opportunities in Genomics

In recognition of the 40th anniversary of NEI, Congress designated 2010 through 2020 as the "Decade of Vision", a resolution that recognizes the potential of eye and vision research in the coming decade. NEI investigators are capitalizing on the remarkable progress made by the Human Genome Project and have recently submitted Genome-Wide Association Studies (GWAS) datasets for Age-Related Macular Degeneration (AMD), as well as a twin study of risk factors for glaucoma and Myopia, to the public domain (dBGap). Using the newest technologies, this latest GWAS of AMD included 5 times more information and over 6 times more patient samples than the pioneering submission of four years ago. NEI recognizes its central role in providing leadership and resources to maintain momentum in this area and recently held a Functional Genomics Workshop that included expertise in vision, genetics and computation as part of its ongoing strategic planning efforts. A new position, Associate Director for

Ophthalmic Genetics, was created to insure implementation of opportunities such as GWAS of Glaucoma (see program portrait). In parallel, NEI established GLAUGEN (Gene-Environment interactions in glaucoma)— through the NIH Gene-Environment Initiative (GEI)— to identify the relationships of environmental exposures to gene-trait associations in common, complex diseases.

eyeGENE is a new and critical NEI resource. eyeGENE operates as a partnership of 20 academic research labs across the nation that work collaboratively to elucidate the genetic basis of eye disease. eyeGENE is creating a centralized repository of DNA patient samples and clinical diagnostic information for vision researchers. Patients and their doctors receive genetic information during their participation in eyeGENE. Over the last year, eyeGENE expanded by adding more laboratories and has collected over 1200 patient samples. eyeGENE improves patient care while furthering research knowledge.

Translating Basic Science Discoveries into New and Better Treatments
Recently published one-year follow-up results of gene transfer in patients with Leber congenital amaurosis (LCA), a severe, early onset retinal disease, indicate that the treatment is safe with evidence of lasting visual improvement. Follow-up studies will evaluate gene transfer in younger patients with less severe disease, which may prove to be more efficacious. These encouraging findings are considered “proof-of-concept” that could help usher several other gene-based therapies for retinitis pigmentosa, macular degeneration, and related retinal diseases into clinical trials.

In a unique interagency collaboration, NEI and NASA scientists developed a new diagnostic technology that pre-symptomatically identifies those at risk for cataract development. The device uses dynamic light scattering to measure the amount of alpha crystallin in the lens. Alpha crystallin retards cataract development. Humans are born with a fixed amount of alpha crystallins, and cataract formation begins when the supply of alpha crystallin is exhausted. This new clinical tool allows clinicians to monitor lens health and study preventive or therapeutic actions that may delay or eliminate the onset of cataract formation and blindness.

Putting Science to Work for the Benefit of Health Care Reform
NEI investigators are conducting several comparative effectiveness clinical trials to improve ophthalmic care. Laser treatment is a standard of care for diabetic eye disease where abnormal blood vessel growth damages the retina. However, recent evidence suggests that treatment with various drugs may deliver a better outcome. The Diabetic Retinopathy Clinical Research Network (DRCR.net) will initiate three new clinical trials comparing the safety and efficacy of drug therapies as an alternative to laser treatment for diabetic macular edema and proliferative diabetic retinopathy.

The Comparison of Age-Related Macular Degeneration Treatments Trials (CATT) is a multi-center study evaluating the efficacy of Lucentis and Avastin. Lucentis was approved by the FDA in 2006 for treatment of AMD. Retinal specialists frequently use a far less costly alternative, Avastin, off-label and have evidence that it is safe and

effective. CATT is the only controlled, well-designed comparison of the two drugs. Results from the CATT study are expected in FY 2011.

Encouraging a Greater Focus on Global Health

Trachoma is a leading cause of blindness in the developing world affecting an estimated 8 million people. Repeated infections cause scarring of the transparent cornea, leading to irreversible blindness. Intervention programs with the oral antibiotic azithromycin have been successful in eradicating the disease in areas with moderate levels of trachoma. However, in severely affected communities, infection returns rapidly after treatment. In a recent NEI-supported clinical trial, investigators observed eradication of trachoma in severely affected communities after a multi-dose treatment course. They also found that azithromycin led to a sharp reduction in childhood mortality, likely through concomitant treatment of respiratory infections, gastrointestinal diseases, malaria and other endemic diseases. These results provide strong rationale for intervention in areas severely affected by trachoma.

Reinvigorating and Empowering the Biomedical Research Community

The increasingly quantitative nature of the biomedical sciences and the explosive growth of genomic, transcriptomic, proteomic, metabolomic, neurophysiological and clinical data require that investigators work at the interface of biology and computational sciences. The NEI is committed to developing the next generation of vision researchers and has expanded its institutional training grant program with a program in ocular statistical genetics at several universities. This program will partner researchers with expertise in mathematics, modeling and computation, fields that are not usually affiliated with ocular research, with researchers in all areas of vision science to provide state-of-the art training for a new breed of researchers. The program parallels the establishment of the NEI's intramural program of Computational Medicine and Biology (see program portrait).

Overall Budget Policy: The FY 2011 request for NEI is $724.360 million, an increase of $17.595 or +2.5% over the FY 2010 Enacted level. NEI will continue to support new investigators and to maintain an adequate number of competing RPGs. NEI will provide a 2 percent inflationary increase for non-competing and competing grants. The first priority will continue to be funding the highest quality investigator-initiated research applications, determined by the scientific and technical merit of the application as evaluated through the peer review system. Intramural Research and Research Management and Support will receive modest increases to help offset the cost of pay and other increases.

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

FY 2011 JUSTIFICATION BY PROGRAM

Program Descriptions and Accomplishments

Retinal Diseases Research:
The light-sensitive retina of the eye is susceptible to many sight-threatening conditions including age-related macular degeneration, diabetic retinopathy, retinopathy of prematurity, retinitis pigmentosa, Usher's syndrome, ocular albinism, retinal detachment, uveitis (inflammation), and eye cancer. The goals of this program are to increase the understanding of disease mechanisms that cause vision loss and to develop improved methods of prevention, diagnosis, and treatment. To meet these goals, NEI supports research on the cell biology, physiology, and immunology of the retina and on the role of gene expression, gene regulation, and the environment in retinal health and disease. NEI investigators have identified gene variants for many of these diseases and have made significant progress in discovering the underlying biological mechanisms of vision loss. Some gene variants are associated with higher risk while others appear to confer a protective effect. With this knowledge, efforts are now increasingly focused on translational research to advance novel gene-based therapies to clinical trials.

Budget Policy:
The FY 2011 budget estimate for these activities is $270.501 million, an increase of $6.103 million or 2.3 percent over the FY 2010 Enacted. FY 2011 program plans will focus on an acceleration of research on the genetic and environmental basis for AMD, including the role of possible immunological factors. This will include an expansion of genome wide association studies and related efforts in bioinformatics. NEI will support projects that address the possible restoration of vision in retinal degenerative diseases by building on recent advances in gene transfer, cell transplantation and precursor cell biology. Research will continue in efforts to control abnormal new blood vessel growth (angiogenesis) in a number of eye diseases, and will include the conduct of clinical trials in this area. Program plans also include the continuation of the Age-Related Eye Disease Study 2 (AREDS2), a multi-center study to evaluate the use of additional oral supplements for the treatment of AMD and cataract. NEI also plans to continue collaborating with the National Heart Lung and Blood Institute on the follow-up ocular component of the Multi-Ethnic Study of Atherosclerosis (MESA) study.

Corneal Diseases, Cataract, and Glaucoma Research:
Corneal diseases, cataract, and glaucoma—disorders of the anterior segment (front) of the eye—cause more visits to ophthalmologists than any other vision disorders. Corneal injuries, infections and diseases can be extremely painful and require immediate medical attention. NEI grantees are exploring how infectious, inflammatory, and immunological processes affect the cornea, and how the cornea heals after a wound. Important proteins that promote and deter wound healing have been identified, providing an opportunity to develop therapies that prevent or ameliorate corneal disease. Worldwide, cataracts are the leading cause of blindness. NEI cataract research seeks to understand the physiological basis of lens transparency at the

cellular and molecular levels and investigates strategies to prevent cataract formation and progression. Glaucoma is a blinding disease that most often results from increased intraocular pressure. NEI investigators aim to understand the complex genetic and biological factors that cause the disease and to develop treatments that protect optic nerves from the damage that leads to vision loss.

Budget Policy:
The FY 2011 budget estimate for these activities is $184.296 million, an increase of $4.159 million or 2.3 percent over the FY 2010 Enacted. FY 2011 program plans include following up on a recent finding that certain receptors that bind to vascular endothelial growth factor may play an important role in maintaining the normal transparency of the cornea. NEI expects to fund new projects to identify therapeutic approaches to limit and/or reduce corneal pain. Projects will be funded to examine the possible contribution of defects in gap junctions in the development of cataracts. Genome wide association studies and related bioinformatics efforts will be launched to explore further the role of genetics and the environment on the development of glaucoma and to understand better the differential response of individuals to glaucoma medications.

The Genetics of Glaucoma

FY 2010 Level: $ 3.400 million
FY 2011 Level: $ 2.500 million
Change $-0.900 million

Glaucoma is a family of diseases characterized by progressive vision loss due to degeneration of the optic nerve. It is the leading cause of blindness among Hispanic and African Americans and is the third most prevalent cause of visual impairment and blindness among Caucasian Americans. The most common form of glaucoma, primary open angle glaucoma (POAG) occurs primarily in adults. POAG has a significant genetic predisposition, i.e., sibling risk is about ten times that of the general population. Traditional genetic approaches using large pedigrees affected by POAG have led to the identification of 14 major genetic loci associated with the disease. Genes that contribute to rare (Mendelian) forms of glaucoma have been identified in three of these regions. To identify common genetic variants that are associated with this genetically complex disease, large-scale genome-wide association studies (GWAS) are needed.

To acquire meaningful information for GWAS studies, large numbers of patients are required to obtain enough data for statistical power. This requires a coordinated effort by researchers working closely with clinicians who identify patients. NEI recently established the NEI Human Genetics Collaboration (NEIGHBOR), a consortium of clinicians and geneticists at 12 institutions throughout the United States dedicated to identifying the genetics of glaucoma. The NEIGHBOR consortium will combine data from more than 4000 individuals (2000 cases and 2000 controls) to initiate large-scale GWAS for identifying genetic variants associated with glaucoma. These efforts will greatly aid in the understanding of glaucoma and in the ultimate goal of developing more effective treatments for this blinding disease.

Sensorimotor Disorders and Rehabilitation Research:
Strabismus (misalignment of the eyes) and amblyopia (known as "lazy eye") are common sensorimotor disorders that develop during childhood. Program goals center on gaining a better understanding of the neuromuscular control of gaze and the development of the visual system in children at high risk for these disorders. Refractive errors, such as nearsightedness (myopia), farsightedness (hyperopia) and astigmatism, are commonly correctable with eye glasses or contact lenses in the US but remain a tremendous economic and personal burden globally. The major goal of this program is to discover the biochemical pathways that govern eye growth to uncover the risk factors associated with refractive errors. Much of the cerebral cortex is devoted to processing the visual information that floods our eyes. Vision scientists seek to understand how the brain processes visual information, how neural activity is related to visual perception, and how the visual system interacts with cognitive and motor systems. Low vision is the term used to describe chronic visual conditions that are not correctable by eye glasses or contact lenses. The NEI supports rehabilitation research on improving the quality of life of persons with visual impairments by helping them maximize the use of remaining vision and by devising improved aids and strategies to assist those without useful vision.

Budget Policy:
The FY 2011 budget estimate for these activities is $170.692 million, an increase of $3.851 million or 2.3 percent over the FY 2010 Enacted. FY 2011 program plans include pursuing research to find the genes involved in strabismus, myopia, and Leber's Hereditary Optic Neuropathy, a genetic disease that frequently results in a substantial loss of central vision. The newly formed Neuro-Ophthalmology Research Disease Investigator Consortium will expand greatly to include many new sites to facilitate recruitment and the conducting of clinical trials. Investigators will also pursue new findings about how the activity of certain brain cells allows us to perceive a stable view of our surroundings despite constant head and eye movements, as highlighted in NEI's strategic plan.

Intramural Research:
Program activities include: clinical and translational studies concerned with the cause, prevention, and treatment of major eye diseases and vision disorders; basic research on cellular and molecular mechanisms of eye development, including the expression and function of genes within the eye; research in immunology and infectious diseases of the eye; understanding the mechanisms of visual perception by the brain, and developing a better understanding of our critical ability to guide movements under sensory control. The National Ophthalmic Disease Genotyping Network (eyeGENE), a collaboration of patients, clinicians, and investigators throughout the U.S., has expanded its operations by collecting more than 1200 patient DNA samples. eyeGENE enables patients to receive a genetic diagnosis for many rare eye diseases in exchange for donating DNA samples for research and participating in a clinical trial registry. Through this unique collaboration, eyeGENE is enhancing patient care, education and research.

Budget Policy:
The FY 2011 budget estimate for this program is $73.818 million, an increase of $2.289 million or 3.2 percent over the FY 2010 Enacted. In FY 2011, NEI will continue recruiting investigators for the recently established Laboratory of Neurobiology, Neurodegeneration and Repair to integrate basic, pre-clinical, and translation research in developing and testing therapeutic interventions in neurodegenerative eye diseases. NEI is building its capacity in pre-clinical animal model evaluation and development, expanding its Genetic Engineering Facility in support of a new initiative to develop human embryonic stem cells for therapeutic use in retinal degenerative and other ocular diseases, and developing a new visual function facility with expertise in electroretinography and optical coherence tomography. NEI is also creating a new laboratory in computational medicine and plans to enhance the Ophthalmic Genetics and Visual Function Branch and expand the eyeGENE network to facilitate research on the genetic causes of ocular diseases.

Establishment of the NEI Laboratory of Computational Medicine and Biology

FY 2010 Level: $3.000 million
FY 2011 Level: $3.500 million
Change $0.500 million

The nature of medicine and biomedical investigation is changing rapidly. There is an urgent need to integrate physical, chemical and mathematical sciences with biology to uncover cell mechanisms and pathways that, once fully characterized, can be modulated for medical purposes. New technologies are evolving rapidly, leading to an exponential increase in the volume of available data generated in fields such as genomics, proteomics, and metabolomics. These data need to be matched to genetic information (genotype) and disease characteristics from patients (phenotype). This requires a large body of knowledge in well-designed databases that are readily accessible to vision researchers. Further, our understanding of individual biochemical pathways in cells and their interactions with other pathways and systems is just beginning. The immense quantity of information and numbers of interactions will require novel and sophisticated mathematical and statistical methods to help uncover the nature of these complex interactions in disease and health states.

To meet these challenges, the NEI intramural research program (IRP) will initiate a new program in Computational Medicine and Biology that will integrate the disciplines of systems biology and informatics within the NEI IRP. The NEI program will begin by leveraging the computational resources currently available at NIH and will design a collaborative program that interfaces with the larger NIH-wide effort. This program will provide the NEI IRP with increased ability to meld biological information to clinical care, based on rapidly evolving knowledge of the genetic basis of disease, including gene expression, protein structure, protein-protein interaction and biological networks.

Research Management and Support:
Research Management and Support (RMS) sustains, guides, and monitors the extramural and intramural research programs. Included in these funds are the support necessary for personnel to carry out leadership and management functions, human resource support, training, travel, purchasing, facilities, budget, planning, information technology, and extramural grant award and management. NEI currently oversees more than 1,300 grants and contracts, including research project grants, core center grants, research career development awards, cooperative clinical research agreements, and research and development contracts.

Budget Policy:
The FY 2011 budget estimate for these activities is $25.053 million, an increase of $1.193 million or 5.0 percent over the FY 2010 Enacted. This increase reflects NIH policy and will be used to help offset the cost of pay and other increases.

Recovery Act Implementation
Recovery Act Funding: $ 174.097 million

In FY 2009, NEI received $174.1 million under the Recovery Act. Of this amount, $97.8 million was obligated in FY 2009 and $76.3 million will be obligated in FY 2010. The scientific impact of NEI Recovery Act investments already encompasses several significant accomplishments:

In the area of Comparative Effectiveness Research, vision scientists have applied a new analytic technique, mixed treatment comparison meta-analysis (MTC), to data from published phase III clinical trials of various therapies for primary open angle glaucoma. MTC allows investigators to compare the therapeutic merits of multiple interventions without having to conduct additional multi-armed clinical trials. MTC results will have a substantial impact on clinical practice.

The economic impact of blindness in the U.S. is estimated at nearly $50 billion annually. NEI Recovery Act funding is supporting a clinical study of the Argus II retinal prosthesis. This implanted electrode array, used with a spectacle-supported video camera and a small computer, already has achieved the important milestone of home use for a few profoundly blind subjects. A successful outcome of this pre-market study will provide evidence for regulatory approval that could lead to delivery of this therapy to tens of thousands of blind Americans, allowing increased independence and mobility.

NEI's signature ARRA project, the NEI Human Genetics Collaboration (NEIGHBOR) is described in the Genetics of Glaucoma program portrait.

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Budget Authority by Object

	FY 2010 Enacted	FY 2011 PB	Increase or Decrease
Total compensable workyears:			
Full-time employment	244	255	11
Full-time equivalent of overtime and holiday hours	0	0	0
Average ES salary	$161,800	$164,100	$2,300
Average GM/GS grade	12.1	12.1	0.0
Average GM/GS salary	$101,900	$103,300	$1,400
Average salary, grade established by act of July 1, 1944 (42 U.S.C. 207)	$77,900	$79,000	$1,100
Average salary of ungraded positions	$127,900	$129,700	$1,800
OBJECT CLASSES	FY 2010 Estimate	FY 2011 Estimate	Increase or Decrease
Personnel Compensation:			
11.1 Full-time permanent	$15,155,000	$16,128,000	$973,000
11.3 Other than full-time permanent	10,622,000	11,269,000	647,000
11.5 Other personnel compensation	828,000	879,000	51,000
11.7 Military personnel	284,000	301,000	17,000
11.8 Special personnel services payments	3,026,000	3,207,000	181,000
Total, Personnel Compensation	29,915,000	31,784,000	1,869,000
12.0 Personnel benefits	7,284,000	7,740,000	456,000
12.2 Military personnel benefits	205,000	217,000	12,000
13.0 Benefits for former personnel	0	0	0
Subtotal, Pay Costs	**37,404,000**	**39,741,000**	**2,337,000**
21.0 Travel and transportation of persons	760,000	777,000	17,000
22.0 Transportation of things	53,000	54,000	1,000
23.1 Rental payments to GSA	2,000	2,000	0
23.2 Rental payments to others	7,000	7,000	0
23.3 Communications, utilities and miscellaneous charges	492,000	514,000	22,000
24.0 Printing and reproduction	184,000	191,000	7,000
25.1 Consulting services	39,000	41,000	2,000
25.2 Other services	7,997,000	8,137,000	140,000
25.3 Purchase of goods and services from government accounts	57,364,000	60,398,000	3,034,000
25.4 Operation and maintenance of facilities	181,000	185,000	4,000
25.5 Research and development contracts	25,113,000	25,832,000	719,000
25.6 Medical care	118,000	119,000	1,000
25.7 Operation and maintenance of equipment	4,432,000	4,532,000	100,000
25.8 Subsistence and support of persons	0	0	0
25.0 Subtotal, Other Contractual Services	**95,244,000**	**99,244,000**	**4,000,000**
26.0 Supplies and materials	4,727,000	4,788,000	61,000
31.0 Equipment	2,186,000	2,237,000	51,000
32.0 Land and structures	0	0	0
33.0 Investments and loans	0	0	0
41.0 Grants, subsidies and contributions	565,703,000	576,802,000	11,099,000
42.0 Insurance claims and indemnities	0	0	0
43.0 Interest and dividends	3,000	3,000	0
44.0 Refunds	0	0	0
Subtotal, Non-Pay Costs	**669,361,000**	**684,619,000**	**15,258,000**
Total Budget Authority by Object	**706,765,000**	**724,360,000**	**17,595,000**

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

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Salaries and Expenses

OBJECT CLASSES	FY 2010 Enacted	FY 2011 PB	Increase or Decrease
Personnel Compensation:			
Full-time permanent (11.1)	$15,155,000	$16,128,000	$973,000
Other than full-time permanent (11.3)	10,622,000	11,269,000	647,000
Other personnel compensation (11.5)	828,000	879,000	51,000
Military personnel (11.7)	284,000	301,000	17,000
Special personnel services payments (11.8)	3,026,000	3,207,000	181,000
Total Personnel Compensation (11.9)	**29,915,000**	**31,784,000**	**1,869,000**
Civilian personnel benefits (12.1)	7,284,000	7,740,000	456,000
Military personnel benefits (12.2)	205,000	217,000	12,000
Benefits to former personnel (13.0)	0	0	0
Subtotal, Pay Costs	**37,404,000**	**39,741,000**	**2,337,000**
Travel (21.0)	760,000	777,000	17,000
Transportation of things (22.0)	53,000	54,000	1,000
Rental payments to others (23.2)	7,000	7,000	0
Communications, utilities and miscellaneous charges (23.3)	492,000	514,000	22,000
Printing and reproduction (24.0)	184,000	191,000	7,000
Other Contractual Services:			
Advisory and assistance services (25.1)	39,000	41,000	2,000
Other services (25.2)	7,997,000	8,137,000	140,000
Purchases from government accounts (25.3)	38,400,000	39,257,000	857,000
Operation and maintenance of facilities (25.4)	181,000	185,000	4,000
Operation and maintenance of equipment (25.7	4,432,000	4,532,000	100,000
Subsistence and support of persons (25.8)	0	0	0
Subtotal Other Contractual Services	**51,049,000**	**52,152,000**	**1,103,000**
Supplies and materials (26.0)	4,713,000	4,774,000	61,000
Subtotal, Non-Pay Costs	57,258,000	58,469,000	1,211,000
Total, Administrative Costs	**94,662,000**	**98,210,000**	**3,548,000**

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Authorizing Legislation

	PHS Act/ Other Citation	U.S. Code Citation	2010 Amount Authorized	FY 2010 Estimate	2011 Amount Authorized	FY 2011 PB
Research and Investigation	Section 301	42§241	Indefinite	$706,765,000	Indefinite	$724,360,000
	Section 402(a)	42§281	Indefinite		Indefinite	
National Eye Institute						
Total, Budget Authority				706,765,000		724,360,000

NATIONAL INSTITUTES OF HEALTH
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Appropriations History

Fiscal Year	Budget Estimate to Congress	House Allowance	Senate Allowance	Appropriation 1/
2002	571,126,000	566,725,000	614,000,000	581,366,000
Rescission				(653,000)
2003	625,666,000	625,666,000	637,290,000	637,290,000
Rescission				(4,142,000)
2004	652,738,000	648,299,000	657,199,000	657,199,000
Rescission				(4,147,000)
2005	671,578,000	671,578,000	680,300,000	674,578,000
Rescission				(5,508,000)
2006	673,491,000	673,491,000	693,559,000	673,491,000
Rescission				(6,735,000)
2007	661,358,000	661,358,000	666,898,000	667,166,000
2008	667,820,000	677,039,000	681,962,000	678,978,000
Rescission				(11,862,000)
Supplemental				3,548,000
2009	667,764,000	690,721,000	687,346,000	688,276,000
2010	695,789,000	713,072,000	700,158,000	707,036,000
2011	724,360,000			

1/ Reflects enacted supplementals, rescissions, and reappropriations.

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Details of Full-Time Equivalent Employment (FTEs)

OFFICE/DIVISION	FY 2009 Actual	FY 2010 Enacted	FY 2011 PB
Office of the Director	77	78	81
Division of Intramural Research	124	125	130
Division of Epidemiology and Clinical Applications	12	12	12
Division of Extramural Research	28	29	32
Total	241	244	255
Includes FTEs which are reimbursed from the NIH Roadmap for Medical Research			
FTEs supported by funds from Cooperative Research and Development Agreements	(0)	(0)	(0)

FISCAL YEAR	Average GM/GS Grade
2007	12.2
2008	12.0
2009	12.1
2010	12.1
2011	12.1

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Detail of Positions

GRADE	FY 2009 Actual	FY 2010 Enacted	FY 2011 PB
Total, ES Positions	1	1	1
Total, ES Salary	157,963	161,800	164,100
GM/GS-15	34	35	35
GM/GS-14	17	17	17
GM/GS-13	30	30	31
GS-12	24	25	26
GS-11	38	38	38
GS-10	0	0	0
GS-9	9	9	9
GS-8	7	7	7
GS-7	4	4	4
GS-6	2	2	2
GS-5	0	0	0
GS-4	3	3	3
GS-3	0	0	0
GS-2	0	0	0
GS-1	0	0	0
Subtotal	168	170	172
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	2	2	2
Full Grade	0	0	0
Senior Assistant Grade	1	1	1
Assistant Grade	0	0	0
Subtotal	3	3	3
Ungraded	80	81	85
Total permanent positions	168	169	172
Total positions, end of year	252	255	260
Total full-time equivalent (FTE) employment, end of year	241	244	255
Average ES salary	157,963	161,800	164,100
Average GM/GS grade	12.1	12.1	12.1
Average GM/GS salary	99,467	101,900	103,300

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

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New Positions Requested

	FY 2011		
	Grade	Number	Annual Salary
Health Science Administrator	GS-15	1	$150,000
Senior Investigator, Tenured	AD	1	190,000
Genetic Counselor	AD	1	130,000
Postdoctoral Fellow	AD	3	150,000
Computational Biologist	AD	1	100,000
Grants Management Specialist	GS-12	1	74,000
Program Analyst	GS-11	1	62,000
Program Assistant	GS-7	2	84,000
Total Requested		11	