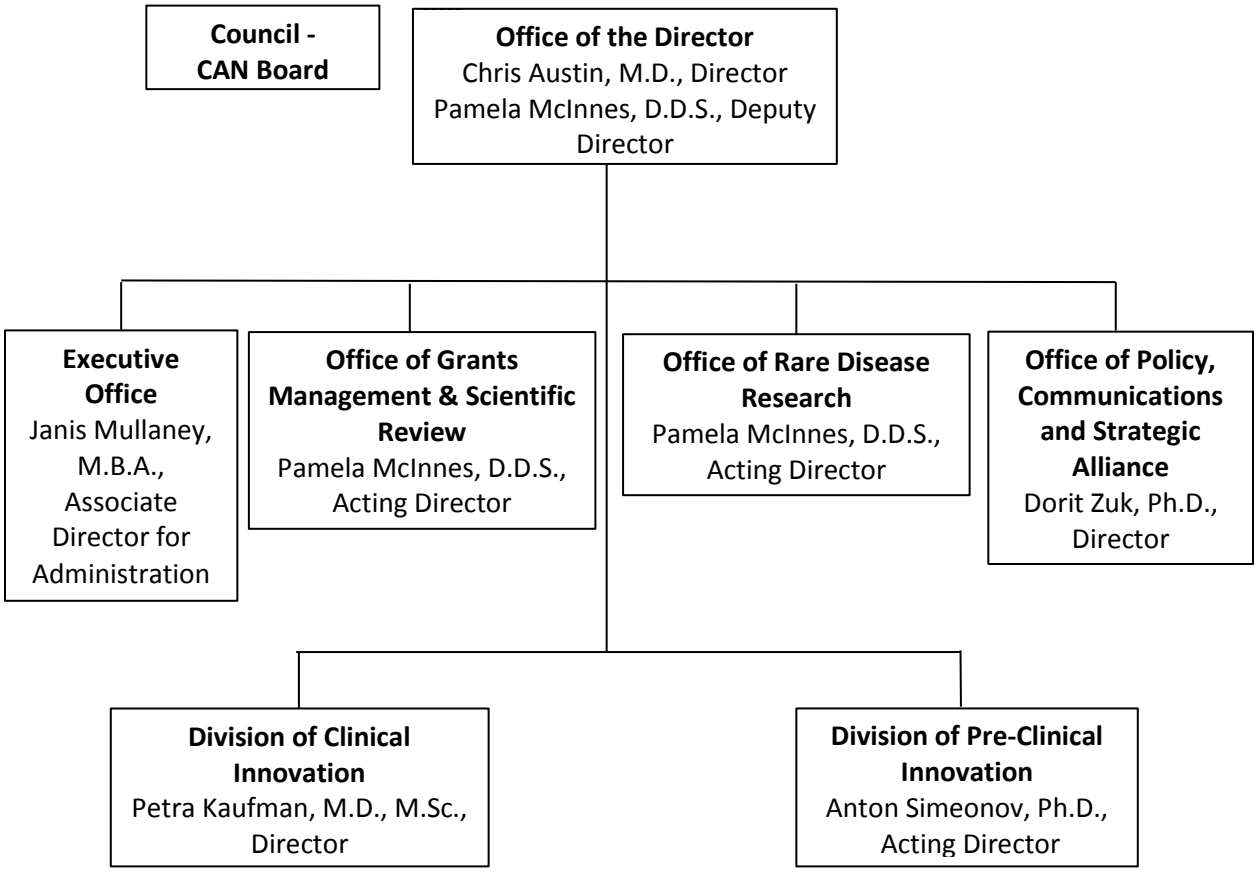
DEPARTMENT OF HEALTH AND HUMAN SERVICES

NATIONAL INSTITUTES OF HEALTH

National Center for Advancing Translational Sciences (NCATS)

NATIONAL INSTITUTES OF HEALTH
National Center for Advancing Translational Sciences



For carrying out section 301 and title IV of the PHS Act with respect to translational sciences, [$632,710,002]*$660,131,000*: *Provided,* That up to [$9,835,000]*$25,835,000* shall be available to implement section 480 of the PHS Act, relating to the Cures Acceleration Network[:*Provided further*, That at least $474,746,000 is provided to the Clinical and Translational Sciences Awards program].

Amounts Available for Obligation[1]
(Dollars in Thousands)

Source of Funding	FY 2014 Actual	FY 2015 Enacted	FY 2016 President's Budget
Appropriation	$633,267	$635,230	$660,131
Type 1 Diabetes	0	0	0
Rescission	0	0	0
Sequestration	0	0	0
FY 2014 First Secretary's Transfer	-1,590	0	0
FY 2014 Second Secretary's Transfer	-124	0	0
Subtotal, adjusted appropriation	$631,553	$635,230	$660,131
OAR HIV/AIDS Transfers	0	-2,520	0
National Children's Study Transfers	2,081	0	0
Subtotal, adjusted budget authority	$633,634	$632,710	$660,131
Unobligated balance, start of year	0	0	0
Unobligated balance, end of year	0	0	0
Subtotal, adjusted budget authority	$633,634	$632,710	$660,131
Unobligated balance lapsing	-64	0	0
Total obligations	$633,571	$632,710	$660,131

[1] Excludes the following amounts for reimbursable activities carried out by this account:
FY 2014 - $20,187 FY 2015 - $20,228 FY 2016 - $20,298

NATIONAL INSTITUTES OF HEALTH
National Center for Advancing Translational Sciences

Budget Mechanism - Total[1]
(Dollars in Thousands)

MECHANISM	FY 2014 Actual		FY 2015 Enacted		FY 2016 President's Budget		FY 2016 +/- FY 2015	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
Research Projects:								
Noncompeting	8	$22,407	9	$22,725	7	$20,520	-2	-$2,205
Administrative Supplements	*(6)*	1,696	*(2)*	945	*(2)*	334	*(0)*	-611
Competing:								
Renewal	1	4,856	6	4,745	8	7,360	2	2,615
New	0	0	0	0	9	16,000	9	16,000
Supplements	0	0	0	0	0	0	0	0
Subtotal, Competing	1	$4,856	6	$4,745	17	$23,360	11	$18,615
Subtotal, RPGs	9	$28,959	15	$28,415	24	$44,214	9	$15,799
SBIR/STTR	26	12,080	26	12,640	30	14,453	4	1,813
Research Project Grants	35	$41,039	41	$41,055	54	$58,667	13	$17,612
Research Centers:								
Specialized/Comprehensive	7	$30,214	8	$29,811	8	$30,424	0	$612
Clinical Research	50	393,655	50	391,258	50	391,258	0	0
Biotechnology	0	0	0	0	0	0	0	0
Comparative Medicine	0	198	0	198	0	198	0	0
Research Centers in Minority Institutions	0	0	0	0	0	0	0	0
Research Centers	57	$424,067	58	$421,267	58	$421,879	0	$612
Other Research:								
Research Careers	53	$45,580	42	$45,322	42	$45,322	0	$0
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	8	900	4	1,015	4	1,015	0	0
Other Research	61	$46,480	46	$46,337	46	$46,337	0	$0
Total Research Grants	153	$511,586	145	$508,659	158	$526,884	13	$18,224
Ruth L Kirchstein Training Awards:	FTTPs		FTTPs		FTTPs		FTTPs	
Individual Awards	0	$0	0	$0	0	$0	0	$0
Institutional Awards	270	10,769	294	11,711	294	11,865	0	154
Total Research Training	270	$10,769	294	$11,711	294	$11,865	0	$154
Research & Develop. Contracts	102	$26,541	86	$25,907	86	$29,543	0	$3,637
(SBIR/STTR) (non-add)	*(11)*	*(5,329)*	*(11)*	*(5,329)*	*(11)*	*(5,500)*	*(0)*	*(171)*
Intramural Research	35	53,127	35	54,190	35	59,273	0	5,084
Res. Management & Support	90	31,611	91	32,243	91	32,566	0	322
Res. Management & Support (SBIR Admin) (non-add)	*(0)*	*(218)*	*(0)*	*(218)*	*(0)*	*(0)*	*(0)*	*(-218)*
Construction		0		0		0		0
Buildings and Facilities		0		0		0		0
Total, NCATS	125	$633,634	126	$632,710	126	$660,131	0	$27,421

[1] All items in italics and brackets are non-add entries.

Major Changes in the Fiscal Year 2016 President's Budget Request

Major changes by budget mechanism and/or budget activity 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 2016 budget request for NCATS, which is $27.421 million more than FY 2015, for a total of $660.131 million.

Cures Acceleration Network (CAN): (+$16.000 million; total $25.835 million): CAN will fund initiatives designed to address scientific and technical challenges that impede translational research, including support for the Tissue Chips for Drug Screening Program, and other new initiatives that will accelerate the development of treatments and cures and utilize the unique funding authorities under CAN.

Research Project Grants (RPGs): (+$17.612 million; total $58.667 million): In FY 2016, NCATS will award up to an additional 11 competing RPGs at a total increase of $18.615 million over FY 2015. These CAN and Discovering New Therapeutic Uses for Existing Molecules Program related investigator-initiated projects will play a significant role in the mission of NCATS. Additionally, NCATS will support an additional 4 SBIR/STTR awards at a total increase of $1.813 million over FY 2015.

Translational Research Resources (+$3.691 million; total $21.607 million): The FY 2016 budget includes an increase in funding for Translational Research Resources. This increase will allow NCATS to support the proposed launch of the Precision Medicine Cohort Initiative, a national research cohort of one million or more Americans designed to propel the understanding of health and disease, and set the foundation for a new way of doing research through engaged participants and open, responsible data sharing.

Intramural Research (+$5.084 million; total $59.273 million): The FY 2016 budget includes an increase in funding for Intramural Research in NCATS. This increase will enable NCATS to meet the increased demand for collaborative research efforts in the areas of drug development for rare and neglected diseases, and drug repurposing and screening, including recently-initiated efforts to repurpose existing pharmaceutical compounds and therapies for the Ebola epidemic. Additionally, increased efforts will be directed at the development of cutting-edge translational technologies such as 3D tissue models, and gene editing tools. The increase will also support NCATS collaboration with the NIH Clinical Center.

Summary of Changes
(Dollars in Thousands)

FY 2015 Enacted	$632,710
FY 2016 President's Budget	$660,131
Net change	$27,421

CHANGES	FY 2016 President's Budget FTEs	FY 2016 President's Budget Budget Authority	Change from FY 2015 FTEs	Change from FY 2015 Budget Authority
A. Built-in:				
1. Intramural Research:				
a. Annualization of January 2015 pay increase & benefits		$6,354		$14
b. January FY 2016 pay increase & benefits		6,354		44
c. One more day of pay (n/a for 2015)		6,354		24
d. Differences attributable to change in FTE		6,354		0
e. Payment for centrally furnished services		4,703		4,017
f. Increased cost of laboratory supplies, materials, other expenses, and non-recurring costs		48,216		756
Subtotal				$4,855
2. Research Management and Support:				
a. Annualization of January 2015 pay increase & benefits		$12,366		$28
b. January FY 2016 pay increase & benefits		12,366		84
c. One more day of pay (n/a for 2015)		12,366		47
d. Differences attributable to change in FTE		12,366		0
e. Payment for centrally furnished services		448		11
f. Increased cost of laboratory supplies, materials, other expenses, and non-recurring costs		19,751		313
Subtotal				$483
Subtotal, Built-in				$5,338

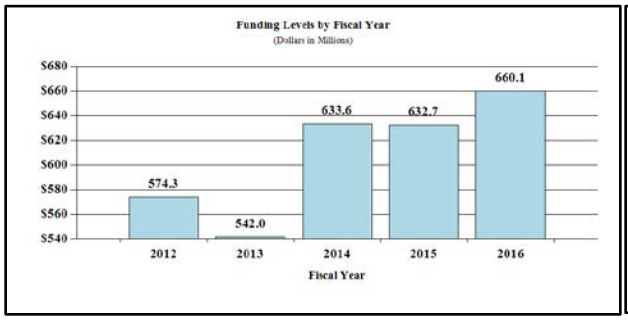
Summary of Changes
(Dollars in Thousands)

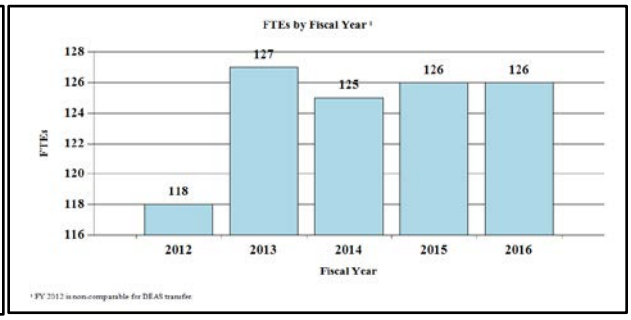
CHANGES	FY 2016 President's Budget No.	FY 2016 President's Budget Amount	Change from FY 2015 No.	Change from FY 2015 Amount
B. Program:				
1. Research Project Grants:				
a. Noncompeting	7	$20,854	-2	-$2,816
b. Competing	17	23,360	11	18,615
c. SBIR/STTR	30	14,453	4	1,813
Subtotal, RPGs	54	$58,667	13	$17,612
2. Research Centers	58	$421,879	0	$612
3. Other Research	46	46,337	0	0
4. Research Training	294	11,865	0	154
5. Research and development contracts	86	29,543	0	3,637
Subtotal, Extramural		$568,292		$22,015
	FTEs		FTEs	
6. Intramural Research	35	$59,273	0	$229
7. Research Management and Support	91	32,566	0	-161
8. Construction		0		0
9. Buildings and Facilities		0		0
Subtotal, Program	126	$660,131	0	$22,083
Total changes				$27,421

NATIONAL INSTITUTES OF HEALTH
National Center for Advancing Translational Sciences

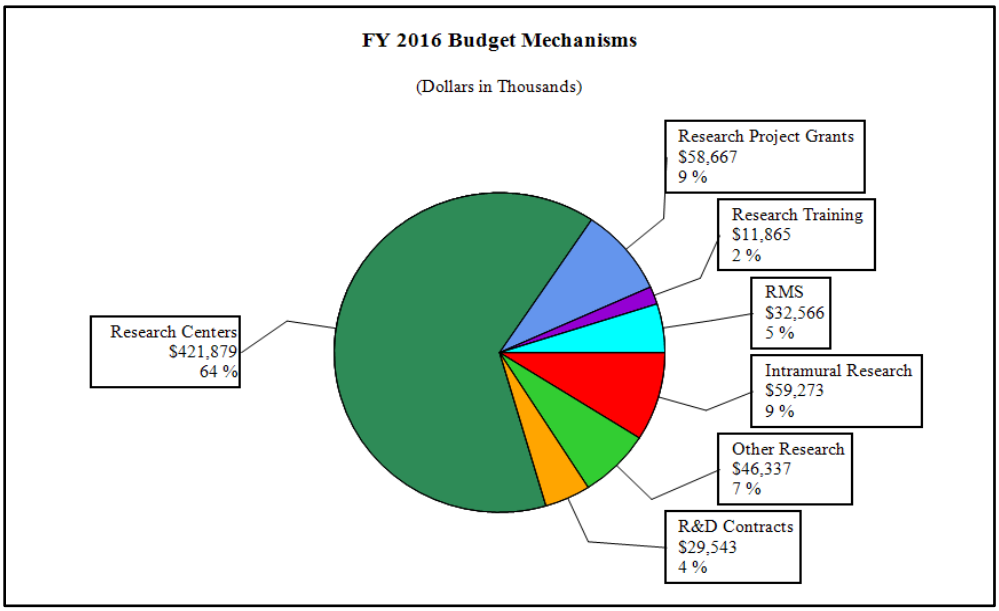
Fiscal Year 2016 Budget Graphs

History of Budget Authority and FTEs:

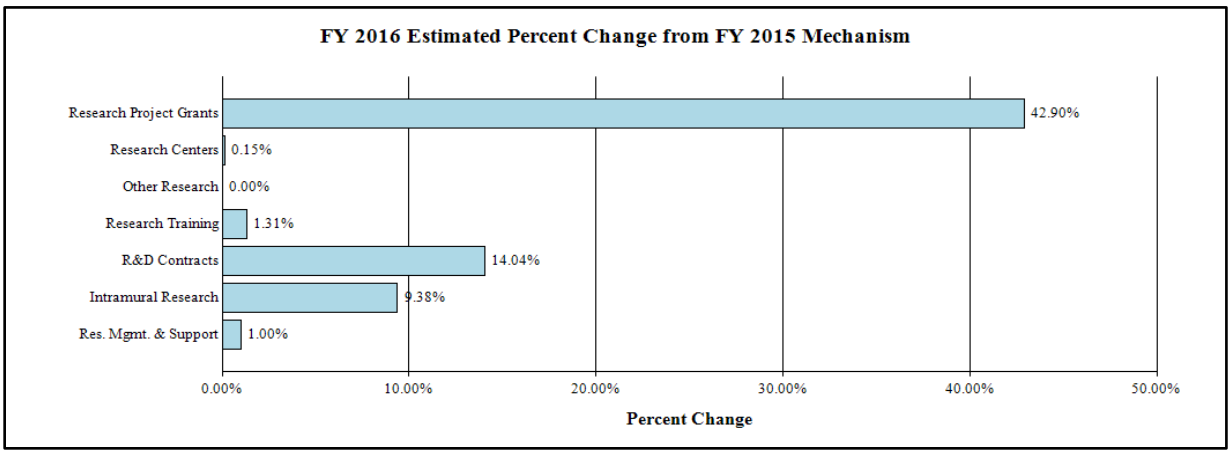




Distribution by Mechanism:



Change by Selected Mechanism:



Budget Authority by Activity[1,2]
(Dollars in Thousands)

	FY 2014 Actual		FY 2015 Enacted		FY 2016 President's Budget		FY 2016 +/- FY 2015	
Research	**FTE**	**Amount**	**FTE**	**Amount**	**FTE**	**Amount**	**FTE**	**Amount**
Detail								
Clinical and Translational Science Activities		$473,554		$472,226		$472,766		$540
Rare Disease Research and Therapeutics		39,608		38,541		43,008		$4,467
Reengineering Translational Sciences		61,051		61,949		64,350		$2,400
Cures Acceleration Network		9,810		9,835		25,835		$16,000
Translational Research Resources		18,000		17,916		21,606		$3,691
Subtotal, Research		**$602,023**		**$600,467**		**$627,565**		**$27,099**
Intramural Research (non-add)	**35**	***$53,127***	**35**	***$54,190***	**35**	***$59,273***	**0**	***$5,084***
Research Management & Support	**90**	**$31,611**	**91**	**$32,243**	**91**	**$32,566**	**0**	**$322**
TOTAL	**125**	**$633,634**	**126**	**$632,710**	**126**	**$660,131**	**0**	**$27,421**

[1] Includes FTEs whose payroll obligations are supported by the NIH Common Fund.
[2] Items in italics are "non-adds"; for reference only

Authorizing Legislation

	PHS Act/ Other Citation	U.S. Code Citation	2015 Amount Authorized	FY 2015 Operating Level	2016 Amount Authorized	FY 2016 President's Budget
Research and Investigation	Section 301	42§241	Indefinite	$632,710,000	Indefinite	$660,131,000
National Center for Advancing Translational Sciences	Section 401(a)	42§281	Indefinite		Indefinite	
Total, Budget Authority				$632,710,000		$660,131,000

Appropriations History

Fiscal Year	Budget Estimate to Congress	House Allowance	Senate Allowance	Appropriation
2006				
Rescission				$0
2007				
Rescission				$0
2008				
Rescission				$0
2009				
Rescission				$0
2010				
Rescission				$0
2011				
Rescission				$0
2012	$721,601,000		$582,326,000	$576,456,000
Rescission				($1,089,502)
2013	$639,033,000		$631,346,000	$575,366,498
Rescission				($1,150,733)
Sequestration				($28,879,442)
2014	$665,688,000		$661,264,000	$633,267,000
Rescission				$0
2015	$657,471,000			$635,230,000
Rescission				$0
2016	$660,131,000			

Justification of Budget Request

Authorizing Legislation: Section 301 and title IV of the Public Health Service Act, as amended and Section 480 of the PHS Act, relating to the Cures Acceleration Network.

Budget Authority (BA):

	FY 2014 Actual	FY 2015 Enacted	FY 2016 President's Budget	FY 2016 +/- FY 2015
BA	$633,634,275	$632,710,000	$660,131,000	+27,421,000
FTE	125	126	126	

Program funds are allocated as follows: Competitive Grants/Cooperative Agreements; Contracts; Direct Federal/Intramural and Other.

Director's Overview

Our growing understanding of human biology and the increased availability of innovative technologies have generated unprecedented potential for advancing the translation of basic and clinical discoveries into new and more effective medical interventions that improve human health. However, the current process of developing and deploying new interventions is slow, complex, and costly. As a result, thousands of diseases remain untreatable despite advances in our understanding of their underlying causes. The National Center for Advancing Translational Sciences (NCATS) develops solutions to this problem. NCATS is "disease-agnostic"; it seeks system-wide insights into what is common among diseases and the accompanying translational science process. This approach takes advantage of the increasing appreciation that seemingly disparate conditions can share underlying molecular causes and has the potential to accelerate the development of interventions to treat more than one disease.

NCATS defines translation as the process of turning observations in the laboratory and clinic into interventions that improve the health of individuals and the public – from diagnostics and therapeutics to medical procedures and behavioral changes. Translational science is the field of investigation focused on understanding the scientific and operational principles underlying each step of the translational process. NCATS studies translation on a system-wide level as a scientific and operational problem.

In all its projects, NCATS develops new approaches, technologies, resources, and models; demonstrates their usefulness in specific diseases or use cases; and disseminates the data, analyses, and methodologies to the community so that the lessons learned can benefit the entire scientific community. Thus, NCATS aims to catalyze the generation of innovative methods and technologies that will enhance the development, testing, and implementation of interventions to tangibly improve human health across a wide range of human diseases and conditions.

NCATS' programs span the entire translational research spectrum, from early therapeutic development through clinical research to deployment of interventions that improve individual and ultimately public health. Because biomedical research is an iterative process, translational research builds on the biological understanding from basic research, and the insights gained from translational research can, in turn, inform our understanding of basic biological principles.

For example, the NCATS Tissue Chip for Drug Screening initiative supports the development of three-dimensional (3-D) human tissue "chips" that model the structure and function of human organs, such as the lung, liver, and heart. This initiative was developed in collaboration with the Defense Advanced Research Projects Agency (DARPA) and the Food and Drug Administration (FDA) to address the long-standing problem of needing better models to predict drug safety (~30 percent of all drugs fail due to toxicity issues). The program scientists have developed 3-D chips that model specific biological systems, and they currently are collaborating to combine the chips into integrated systems that can mimic the complex functions of the human body. Once fully developed and integrated, these systems will be able to predict whether a candidate drug, vaccine, or biologic agent is toxic in humans in a faster and more cost-effective way than current methods that use animal model and cell systems.

Several scientists have begun applying these systems to understand basic biological principles and disease states. In particular, scientists developed a 3-D model of heart cells developed from patients with Barth Syndrome (a mitochondrial heart disease) and demonstrated the basic molecular mechanism by which the mutated gene in those patients leads to defective heart cell function. Technological advances such as these 3-D microchips that successfully address significant barriers in biomedical research can have far-reaching effects on the research enterprise as a whole and ultimately lead to improved human health.

The Therapeutics for Rare and Neglected Diseases (TRND) program is another example of how NCATS accelerates the process of turning discovery into health. The TRND program is grounded in partnerships with academic, government, pharmaceutical, and patient advocacy groups. NCATS researchers work with collaborators to advance potential treatments for rare and neglected diseases to first-in-human trials, an approach known as "de-risking." This strategy is aimed at making potential new drugs more commercially viable and attractive to outside partners, who then can invest in their further development. Four TRND projects already have resulted in successful applications to the FDA and currently are in first-in-human trials. In July 2014, NCATS announced that biopharmaceutical company Baxter International acquired a drug candidate developed by NCATS researchers and collaborators to complete its clinical development. The small molecule (Aes-103) is designed to treat sickle cell disease, a genetic blood disorder that affects millions worldwide, including approximately 100,000 people in the United States. This acquisition is an important milestone for the TRND program and for NCATS as a whole, as it demonstrates the validity of the "de-risking" approach.

NCATS' largest program, the Clinical and Translational Science Awards (CTSA) program, is building on its past accomplishments to form a collaborative, national network to transform the translational science process so that new treatments for disease can be developed in a more systematic and rigorous manner and delivered to patients faster. NCATS released a new CTSA funding opportunity announcement in September 2014 and has plans for additional funding solicitations in FY 2015 and subsequent years to build network capacity for the conduct of multisite clinical trials and to support innovative collaborative projects. Innovative training in the particular skills required for translation is a hallmark of the CTSA program and is fundamental for progress in translational science research. Diversity of project teams brings both depth and fresh approaches that lead to discoveries, treatments, and ultimately, cures.

As a young and relatively small center at the NIH, NCATS is uniquely positioned to leverage opportunities, streamline efforts, and lead catalytic change. Whether a drug is being explored for

a new therapeutic use or a multi-site clinical trial for a rare disease is being designed, solutions to bottlenecks for these different types of research are more rapidly and efficiently realized by breaking down programmatic silos and sharing resources and knowledge. In this vein, the CTSA network represents a testbed for potential solutions, and leveraging the strengths of this program through integration with other NCATS programs will result not only in scientific and operational efficiencies but also in increased scientific rigor and higher quality clinical and translational research. These efforts constitute the next step in transforming the CTSA program to address the nation's translational science and health opportunities and challenges in the 21st Century.

Program Descriptions and Accomplishments

(1) Clinical and Translational Science Awards (CTSA) Program

Turning basic science discoveries into clinical advances that improve public health is a long and inefficient process, and there is a national need to accelerate this process. The CTSA program is a unique national resource aimed at transforming the full range of translation, from laboratory to clinical and community-engaged research in order to get more treatments to more patients more efficiently.

The CTSA program continues to evolve since its launch in 2006. In 2012, Congress requested that the Institute of Medicine (IOM) assess the CTSA Program and its contributions to the acceleration and dissemination of advances in the prevention, diagnosis and treatment of human illness. The IOM Committee issued its June 2013 report that concluded the CTSA Program had been successful in creating academic focal points for clinical and translational research at many medical research centers. The following were the main recommendations from the IOM Committee on the CTSA Program:

1. Strengthen NCATS leadership of the CTSA Program.
2. Reconfigure and streamline the CTSA Consortium.
3. Build on the strengths of individual CTSAs across the spectrum of clinical and translational research.
4. Formalize and standardize evaluation processes for individual CTSAs and the CTSA Network.
5. Advance innovation in education and training programs.
6. Ensure community engagement in all phases of research.
7. Strengthen clinical and translational research relevant to child health.

To provide guidance on the IOM's recommendations, an NCATS Advisory Council Working Group issued a report in May 2014 that provided advice on changes to the CTSA program with a focus on establishing measurable goals and objectives.

1. Workforce Development - The translational science workforce has the skills and knowledge necessary to advance translation of discoveries.
2. Collaboration and Engagement - Stakeholders are engaged in collaborations to advance translation.
3. Integration - Translational science is integrated across its multiple phases and disciplines within complex populations and across the individual lifespan.
4. Methods and Processes - The scientific study of the process of conducting translational science itself enables significant advances in translation.

NCATS continues to catalyze changes in the CTSA program to meet the opportunities in translational science research and the needs of clinical and translational investigators as well as the communities they serve. On September 12, 2014, NCATS released a new funding opportunity announcement for the CTSA program, which was developed after NCATS fully considered the thoughtful input on the CTSA program from the Institute of Medicine, CTSA investigators, a working group of the NCATS Advisory Council, patient groups, and the broader clinical and translational research community.

A critical step in the development of better treatments for patients is the efficient implementation of multisite clinical trials that take advantage of resources and participants available at more than a single institution. In addition to soliciting applications for the core resources at each hub, this funding announcement alerts the research community to upcoming NCATS plans for the creation of CTSA Clinical Trial Innovation Centers (TICs) and CTSA Recruitment Innovation Centers (RICs). The TICs are intended to minimize two of the major roadblocks to rapidly launching clinical trials by establishing institutional review board (IRB) reliance agreements (building on previous regional efforts - see the CTSA Program Portrait) and master subcontract agreements for multisite studies. The RICs are designed to assist CTSA hubs in the identification and recruitment of potential research participants, an impediment in many clinical trials. In addition, the CTSA program also will solicit applications for innovative collaboration projects to address system-wide challenges to the translational and clinical research process. The additional funding announcements for building network capacity and for innovative collaboration projects will be released in FY 2015, with awards anticipated in early FY 2016. The continued development of the CTSA network and additional funding announcements to support CTSA hubs in the coming years will collectively serve to improve the quality and efficiency of clinical and translational science research for greater impact. These efforts have been recognized by and facilitated the clinical and translational research efforts of many NIH Institutes and Centers, which have developed funding announcement opportunities with NCATS that encourage collaboration with CTSA resources to more efficiently advance translational research projects that improve human health.

Program Portrait: CTSA IRB Reliance: A New Model for Accelerating Translational Research

FY 2015 Level:	$472.2 million
FY 2016 Level:	$472.8 million
Change:	$0.6 million

Launching multisite clinical trials can be complicated and lengthy, in part, due to the institutional review board (IRB) review and approval process to ensure the safety of the study participants. Traditionally, each institution's review board separately reviews a study or trial protocol. If one review board requests changes to the protocol, then each review board at the other sites must also review and approve those changes, a process that can be time-consuming and inefficient. This complicated review process may discourage some researchers from initiating important studies.

With Clinical and Translational Science Awards (CTSA) support, several institutions have made significant progress in overcoming the IRB roadblock using a concept called reliance. In the IRB reliance model, each of the IRBs in a multisite study agrees to rely on a single IRB to review, approve and monitor the study. That review board is designated as the "IRB of Record," and it takes on most or all of the human subjects protection responsibilities for the study. So far, CTSA grantees have formed regional IRB reliance agreements in Massachusetts, Ohio, California, Texas, Wisconsin, and Minnesota.

The participating institutions have shown that efficient and centralized oversight can speed translational science. For example, after the April 2013 Boston Marathon bombing, dozens of patients sustained blast-related ear injuries, and Boston-area clinicians found themselves attempting to treat large numbers of patients with injuries rarely seen outside combat zones. Doctors at Massachusetts Eye and Ear Infirmary (Mass. Eye and Ear) realized that studying these patients' injuries could provide an opportunity to develop improved treatments and better prepare the medical community to respond to such tragedies.

The doctors quickly formed a team with four other Harvard-affiliated hospitals and three additional sites to design a high-quality multisite study. They also needed rapid IRB approval due to the unusual opportunity to study a large number of ear injuries from the same blast and to observe patients as they healed. The review boards at each of the seven research sites agreed to follow the Harvard CTSA-supported IRB reliance agreement and rely on the Mass. Eye and Ear as the IRB of Record for the study. The Mass. Eye and Ear IRB immediately reviewed and approved the study, and patients began enrolling at all sites soon thereafter. Study investigators rapidly collected data on the characteristics of blast trauma ear injuries, how they heal, how they respond to treatments such as steroids, and how hearing loss persists or improves over time. Without the Harvard CTSA's IRB reliance agreement, launching the study in a timely manner would have been challenging, if not impossible.

Budget Policy:

The FY 2016 President's Budget request is $472.766 million, an increase of $0.540 million or 0.1 percent above the FY 2015 Enacted level. This reflects an increase in AIDS research funds to expand NIH support for research directed toward a cure for HIV.

(2) Rare Diseases Research and Therapeutics Program

Rather than focusing on a single type of condition or biological system, NCATS looks for what is common among diseases. This systematic approach is especially important when investigating rare diseases, which number in the thousands, only a few hundred of which have FDA-approved treatments. Though rare diseases by definition affect relatively small numbers of people (commonly defined as fewer than 200,000 in the United States), together, these diseases affect an estimated 25 million Americans and are the source of enormous suffering, premature death, and lost economic activity. Most rare diseases are caused by mutations in single genes, but they typically affect many different organ systems simultaneously. Both the large number of

currently untreatable rare diseases, and the fact that they each affect multiple organs, make the typical one-disease-at-a-time, one-organ-at-a-time translational model untenable.

To address this problem, NCATS is approaching rare diseases in a holistic way, proactively discovering previously unrecognized commonalities among diseases and interventions that may treat them. It accomplishes this through new collaborative models which bring together patient constituency groups, academia, industry, and government. Partners work together to address roadblocks to understanding or treatment of rare diseases via scientific discovery and technological innovation, demonstrate the utility of these innovations in specific rare diseases, and then disseminate the lessons learned to the entire rare diseases community.

- The Therapeutics for Rare and Neglected Diseases (TRND) Program

The TRND program speeds the development of new drugs for rare and neglected diseases via collaborations with NIH and academic scientists, nonprofit organizations, and pharmaceutical and biotechnology companies. The program gives partners access to NCATS drug development capabilities, expertise, and clinical/regulatory resources in a collaborative environment, with the goal of generating sufficient proof-of-principle data in first-in-human studies to make the projects attractive for adoption by biopharmaceutical companies for completion of clinical development – a process termed “de-risking”. Four projects, targeting Chronic Lymphocytic Leukemia (CLL), Niemann-Pick disease Type C1, sickle cell disease, and hereditary inclusion body myopathy have already resulted in successful IND applications and currently are in first-in-human trials. The effectiveness of the TRND model has been demonstrated by the acquisition in June 2014 of a TRND-developed compound by a pharmaceutical company (see Program Portrait on sickle cell disease).

In 2014, TRND researchers began work on three new multiyear, pre-clinical drug development projects aimed at finding treatments for rare blood disorders and infectious diseases. This work is aimed at developing treatments for malaria and Lassa fever, two infectious diseases that affect hundreds of thousands of people each year around the world, predominantly in developing countries. Malaria is a parasitic disease that spreads through the bite of an infected mosquito, and Lassa fever is a viral hemorrhagic virus, one of a group of viruses that also includes Ebola. The third project is designed to develop a drug candidate with the potential to treat two blood disorders: beta-thalassemia and sickle cell disease, which are caused by defects in hemoglobin, the protein in red blood cells that carries oxygen throughout the body.

Program Portrait: Therapeutics for Rare and Neglected Diseases (TRND): Drug Discovery in Sickle Cell Disease

FY 2015 Level: $23.3 million
FY 2016 Level: $27.8 million
Change: $4.5 million

NCATS' Therapeutics for Rare and Neglected Diseases (TRND) program speeds the development of new treatments for unmet medical needs. The TRND program operates via research collaborations with NIH and academic scientists, nonprofit organizations, and pharmaceutical and biotechnology companies.

One TRND project addressed the challenge of treating sickle cell disease (SCD), a genetic blood disorder. The disease affects millions worldwide and about 100,000 patients in the United States, in particular, one in every 500 African American births. A genetic mutation in hemoglobin causes red blood cells to become rigid and take on a crescent (sickle) shape, blocking small blood vessels and causing inflammation, pain, and strokes in children, leading to premature death.

To date, the only drug approved by FDA to treat SCD is hydroxyurea, an anticancer drug that is indicated for use only in adults. Hydroxyurea is only moderately effective and has undesirable side effects that limit its use.

TRND researchers partnered with a small biotechnology company, AesRx, LLC, to complete preclinical and early clinical development of a novel compound, Aes-103, that directly targets the underlying cause of SCD by maintaining the abnormal hemoglobin molecule in a conformation that does not undergo polymerization and sickling. Despite promising data on Aes-103, prior to partnering with TRND scientists, the company could not secure private financing because potential investors lacked interest in funding an early-stage project that was considered too risky. As a result of the TRND-AesRx collaboration that advanced Aes-103 into clinical trials for SCD, AesRx was recently acquired by Baxter International, which will continue the clinical development activities required for regulatory approval and commercialization of Aes-103.

- Office of Rare Diseases Research (ORDR)

The NCATS ORDR supports and coordinates rare diseases research, responds to research opportunities for rare diseases, and provides information on rare diseases. ORDR serves the needs of patients who have any of the thousands of rare diseases known today. Through programs such as the Genetic and Rare Diseases Information Center and the Rare Diseases Clinical Research Network, ORDR coordinates and fosters relationships with a variety of stakeholders, from patient advocacy groups to academic institutions as well as other NIH Institutes and Centers.

- Genetic and Rare Diseases Information Center (GARD)

Through GARD, NCATS provides the public with access to current, reliable, and easy-to-understand information about genetic and rare diseases in English and Spanish. The program also features the dissemination of research findings – a key part of the translational process – by helping patients, their families, health care providers, researchers, and the public find information on thousands of rare diseases via the GARD website, email, telephone, and traditional mail.

- Rare Diseases Clinical Research Network (RDCRN)

The RDCRN is an NCATS-led initiative with the aim of addressing many of the distinct challenges in developing rare disease therapies, including difficulties in diagnosis, widely dispersed patients and scientific experts, and a perceived high risk and cost for developing such treatments. Established in 2003 by the NIH Office of Rare Diseases, the RDCRN is a

collaborative model of rare diseases research that includes NIH partners as well as patient advocacy groups as full research partners. The network facilitates clinical research in rare diseases through support of:

- Collaborative clinical research in rare diseases, including longitudinal studies of individuals with rare diseases, clinical studies, and trials;
- Training clinical investigators in rare diseases research;
- Pilot and demonstration clinical research projects; and
- Access to information related to the specific rare diseases under study for basic and clinical researchers, academic and practicing physicians, patients, patient families and friends, and the public.

Since the program's launch, nearly 29,000 participants have been enrolled in network clinical studies. Currently, the network is composed of about 2,600 researchers, including NIH scientific program staff, academic investigators, and members of 98 patient advocacy groups. Ninety-one studies are underway. In October 2014, the RDCRN consortium expanded to 22 institutions through the addition of six new consortia, which will study rare diseases associated with bone, nervous system, immune system, and lungs. As research progresses, the teams may tap into the larger national CTSA network to gain efficiencies and utilize expertise for design of clinical trials and assistance with study participant recruitment.

Budget Policy:
The FY 2016 President's Budget request is $43.008 million, an increase of $4.467 million or 11.6 percent above the FY 2015 Enacted level. This reflects an increase in Intramural program funding for the TRND program to help speed development of new drugs for rare and neglected diseases. The increase will also support NCATS collaboration with the NIH Clinical Center.

(3) Reengineering Translational Sciences

- Bridging Interventional Development Gaps (BrIDGs)

Academic investigators often lack the expertise and resources necessary to obtain pre-clinical data that are needed to support IND applications to FDA. BrIDGs researchers collaborate with investigators to conduct preclinical studies at no cost to the investigator. This program has supported 12 IND applications that have been cleared by FDA, including drugs to treat Parkinson's disease, Alzheimer's disease, sickle cell anemia, and beta-thalassemia. One clinical trial application for treating spinal cord injury has been cleared by Health Canada. Twelve projects were evaluated in clinical trials, with three agents entering phase two clinical trials to evaluate safety and effectiveness in patients. Third-party investors have licensed seven agents during or after their development by BrIDGs researchers.

- Toxicology in the 21st Century (Tox21)

The Tox21 program, a Federal collaboration involving NIH, Environmental Protection Agency (EPA), and FDA, is designed to develop methods of assessing the potential toxicity of drugs and environmental chemicals. The Tox21 consortium leverages its partners' resources and expertise to predict how a collection of 10,000 compounds composed of environmental chemicals and approved drugs will affect human health and the environment.

NCATS scientists are using a high-throughput (large-scale), robotic screening system to test the compounds in cellular and biochemical assays for their potential to disrupt biological pathways that may result in toxicity. This system provides unparalleled speed, reliability, and high-quality reproducible data. The millions of data points generated from this screening process are transformed into *in vitro* chemical signatures that may be used to study the mechanism of action of compounds, predict toxicity, and minimize traditional animal toxicity testing. All data from the Tox21 program are made freely available to the public via NIH and EPA databases.

In July 2014, NCATS launched a Tox21 program competition to develop computational models that can better predict chemical toxicity. The competition draws on the power of "crowdsourcing," the practice of soliciting ideas from a large group of people – in this case, the scientific community. Tox21 scientists currently are testing a library of more than 10,000 chemical compounds in NCATS' high-throughput robotic screening system. To date, the team has produced nearly 50 million data points from screening the library against cell-based assays (tests). Such a large amount of information is more than Tox21 scientists realistically can analyze and understand without additional collaboration. Thus, data generated from 12 of the assays were included in the challenge. All Tox21 data were made available to the public through chemical toxicity databases, and scientists from around the world were encouraged to participate. Submissions were received in November 2014, and NCATS showcased the winning models in January 2015.

- Discovering New Therapeutic Uses for Existing Molecules (New Therapeutic Uses)

Therapeutics development is a costly, complex, and time-consuming process. The average duration from target discovery to approval of a new drug is more than 13 years, at a cost per successful drug of $1 billion or more and a failure rate of over 95 percent. NCATS' New Therapeutic Uses (NTU) program facilitates partnerships between pharmaceutical companies and academic researchers to explore the utility of investigational pharmaceutical compounds in treating a variety of different diseases.

Since a principal roadblock to such public-private partnerships is the cumbersome nature of collaborative agreements, the program developed template agreements that shortened the time required to establish collaborations in the pilot phase of the program to about three months from the more typical nine to twelve months. These templates, available to all on the NCATS website, streamline legal and administrative processes required for establishing research collaborations, and thus allow translational science to advance more efficiently.

The NTU program has already achieved successes. For example, within three months of receiving funds, investigators tested three compounds in humans for new therapeutic uses including Alzheimer's disease and schizophrenia. In May 2014, NCATS issued four new funding opportunity announcements that built on the pilot phase of the program. NCATS established collaborations with AstraZeneca, Janssen Research & Development, L.L.C., Pfizer Inc., and Sanofi to make 26 compounds available. For the first time, the participating pharmaceutical companies have made available compounds that are suitable for exploring pediatric indications. For those compounds, NCATS will provide an extra year of support – as compared with compounds for adult indications – to complete additional studies evaluating safety, dosage, and side effects, as well as juvenile toxicity studies, which are required before pediatric clinical trials can begin. Awards are anticipated in FY 2015 and early FY 2016.

- The Small Business Innovation Research and Small Business Technology Transfer Programs

The Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs are resources for small businesses to further expand upon NCATS' mission of catalyzing "the generation of innovative methods and technologies that will enhance the development, testing, and implementation of diagnostics and therapeutics across a wide range of human diseases and conditions." Since the main goal of the SBIR/STTR programs is to assist small businesses in developing and commercializing novel technologies and products, NCATS has developed various funding opportunities and specialized SBIR contract topics that address the development of innovative tools, technologies, and intervention platforms that would support the creation of novel therapeutics and/or diagnostics. NCATS is one of four NIH Institutes participating in the NIH SBIR I-Corps that helps train NIH SBIR/STTR Phase 1 grantees overcome key obstacles along the path of innovation and commercialization. The NCATS SBIR/STTR program also conducts outreach to minority owned and women owned small businesses about NCATS topics of interest and how to apply to the program.

Budget Policy:
The FY 2016 Budget request is $64.350 million, an increase of $2.400 million from the FY 2015 Enacted level. The increase reflects the increased proportion of research funding that is statutorily set-aside for Small Business Innovation Research, as well as increased funding for intramural programs focused on collaborative research.

(4) Cures Acceleration Network (CAN)

CAN was authorized to advance the development of "high-need cures" and reduce significant barriers between research discovery and clinical trials. To achieve these objectives, CAN provides NCATS with new flexibilities in its funding authorities. Under CAN, NCATS may award large grants of up to $15 million per fiscal year, partnership awards that require 1:3 matching funds, and flexible research awards that allow projects to be actively and aggressively managed by using mechanisms similar to those used by DARPA. CAN investments are guided by the NCATS CAN Review Board.

CAN will fund the second phase of the Tissue Chip for Drug Screening Program and other new initiatives that will accelerate the development of treatments and cures and utilize the unique funding authorities under CAN. CAN Review Board members have approved the following concepts that could benefit from targeted CAN initiatives:

1) *Micro-Awards for Researchers Who Need to Get Past a Small Hurdle*: This concept would provide proof-of-principle (PoP) micro-awards to investigators conducting translational science projects that have unsuccessfully undergone NIH review to quickly fund the generation of a key piece of pre-clinical data needed to make a project more competitive or otherwise move the project forward. Measures of success could include receipt of funding, or achievement of relevant milestones such as the creation of intellectual property or the preparation of an Investigational New Drug package. If PoP awards are successful, the approach could be expanded across the entire translational research spectrum or beyond NIH.
2) *Devices and Sensors to Detect Clinical Outcomes*: This concept would focus on integrating real-time data from multiple sources in order to characterize patients or

disease status in a clinically meaningful way. The emphasis would be on devices that are already available and the data would be made publicly available at the end of the program.

3) *Access to Compounds, Toxicology/Pharmacokinetics Data, Patient Populations*: The concept entails collaboration with pharmaceutical firms, the FDA, and researchers to leverage the vast amount of existing toxicology data to develop predictive toxicology tools. Measurable outcomes could include the number of compounds brought into the program and the number of toxicity mechanisms elucidated.

- Tissue Chip for Drug Screening

More than 30 percent of promising treatments fail in human clinical trials because they are determined to be toxic despite promising and costly pre-clinical studies in animal models. In an effort to overcome this major translational roadblock, NCATS, DARPA, and FDA are leading the Tissue Chip for Drug Screening program, an initiative to revolutionize the process for predicting drug safety. The program aims to develop three-dimensional human "tissue chips" that accurately model the structure and function of human organs, such as the lung, liver, and heart. The intent is for researchers to use these models to predict, faster and more cost-effectively (compared to current methods), whether a candidate drug, vaccine, or biologic agent is safe in humans.

On September 23, 2014, NCATS announced a second phase of awards for this program. Scientists now are collaborating to combine tissue chips into integrated systems that can mimic the complex functions of the human body, and teams of scientists are working together to ensure that their organ systems will function together. This multi-chip/multi-organ integration phase represents an exponential leap in complexity and technology as both tissue biology and chip technology must be able to function at multiple levels. Two project teams funded by DARPA will work with NIH-funded researchers to develop platforms that mimic the human body's natural environment and that can support ten organ systems. Some of the supported projects include:

- Integrated heart-liver-blood circulation systems for drug testing in human health and disease: This system also could be personalized to model specific genetic and disease states to test therapeutics for effectiveness and toxicity in the heart or liver.
- Human cardio-pulmonary system-on-a-chip: This model not only will mimic the human system in both diseased and healthy states, it also will enable the testing of new drugs for effectiveness and toxicity in drug development studies.
- All-human microphysical model of metastasis therapy: Researchers are building a model of human metastatic liver cancer by combining a human liver model with cells from various human cancers. This approach will enable both the study of liver toxicity due to chemotherapy and the testing of new cancer therapies in a metastatic cancer environment.
- Human-induced pluripotent stem cell and embryonic stem cell-based models for predictive neural toxicity and teratogenicity: This research team is assembling various types of human brain and blood vessel cells into a three-dimensional model of the developing human brain to predict developmental neural toxicity.

- Female reproductive tract in a three-dimensional microphysiological system: An integrated model of the human female reproductive system is being designed within a functioning circulatory system. The integrated model will enable further study of female reproductive physiology, the effects of endocrine disruptors, and the toxicology and effectiveness of new drugs before their first use in women.
- A tissue-engineered human kidney microphysiological system: A functional model of the human kidney that could be combined with other functional human organ models to study drug effectiveness and toxicity.
- Neurovascular unit on a chip: Chemical communication, drug, and toxin responses: This group of investigators will assemble a multicompartmental model of a human brain with functioning circulatory systems that mimic the blood-brain and blood-cerebrospinal fluid barriers.

Program Portrait: Heart-on-a-Chip Serves as Model for an Inherited Syndrome

FY 2015 Level:	$1.2 million
FY 2016 Level:	$1.2 million
Change:	$0.0 million

Barth syndrome is an inherited condition in which defective mitochondria (the energy powerhouses of cells) damage the functioning of heart muscle cells. The syndrome is caused by a mutation in *TAZ*, the gene that tells the body to produce the enzyme tafazzin. This enzyme helps make a protein called cardiolipin, which is essential for producing normal mitochondria. Characteristics of Barth syndrome include a weak and enlarged heart, vulnerability to infections, muscle weakness, fatigue, and growth delays. Currently, no treatment exists, and scientists need a better understanding of the condition to develop effective therapies.

In a study published in the June 2014 issue of *Nature Medicine*, scientists supported by NCATS' Tissue Chip for Drug Screening program transformed adult stem cells from Barth syndrome patients into heart cells and grew them on a microchip. The resulting heart tissue contained abnormally structured cells and exhibited weak contraction, characteristics that simulated the condition. Using genetic engineering, the researchers demonstrated the molecular mechanism by which the *TAZ* mutation leads to a lack of cardiolipin in the mitochondria of heart muscle. When the team applied a compound to boost production of cardiolipin, the heart muscle cells' function improved.

The innovative organ-on-a-chip Barth syndrome model enabled scientists to gain a better understanding of the underlying disease mechanisms and to identify potential new treatment approaches. The findings also may apply more broadly than Barth syndrome because cardiolipin deficits appear to underlie other more common heart conditions as well. As this project shows, applications for the work of the scientists supported by the Tissue Chip for Drug Screening program already are extending beyond the originally anticipated scope of toxicity testing, providing the scientific community not just with ways to study novel drugs, but with systems in which to uncover new principles of how organs function in health and disease.

Budget Policy:

The FY 2016 Budget request is $25.835 million, an increase of $16.000 million, or 162.7 percent above the FY 2015 Enacted level. Funding for this program will be used to support the Tissue Chip for Drug Screening program and other new concepts, as approved by the CAN Review Board and described above.

(5) Translational Research Resources (TRR)

The TRR program funds specialized programs and initiatives that provide support to NIH researchers. Additionally, TRR funds are for management and administration of the NCATS portion of the NIH Extramural Loan Repayment Program (LRP).

Budget Policy:
The FY 2016 President's Budget request is $21.606 million, an increase of $3.691 million or 20.1 percent above the FY 2015 Enacted level. This increase is primarily due to support of the proposed launch of the Precision Medicine Initiative. The Precision Medicine Initiatve plans to build a national research cohort of one million or more Americans – to propel our understanding of health and disease and set the foundation for a new way of doing research through engaged participants and open, responsible data sharing. Participants who voluntarily choose to join this effort will be able to share their genomic data, biological specimens, and behavioral data, and, if they choose, link it to their electronic health records (EHRs), taking advantage of the latest in social media and mobile applications, and with appropriate privacy protections in place. Bona fide researchers from across the country will have access to data voluntarily provided, thereby crowdsourcing rich data to the brightest minds in biomedical research. The cohort will be built largely by linking existing cohorts together taking advantage of infrastructure, data security and expertise already in place. NIH will help to connect these existing cohorts, but the current sponsors of the cohorts will maintain their ownership and management. Research on this scale promises to lead to new prevention strategies, novel therapeutics and medical devices, and improvements in how we prescribe drugs – on an *individual* and *personalized basis.* NCATS will contribute $2.226 million to this initiative.

(6) Research Management and Support (RMS)

NCATS RMS activities provide administrative, budgetary, logistical, and scientific support in the review, award, and monitoring of research grants, training awards, and research and development contracts.

Budget Policy:
The FY 2016 President's Budget request is $32.566 million for RMS, an increase of $0.322 million or 1.0 percent above the FY 2015 Enacted level. These resources will be used to support the above activities, and to promote sound stewardship of our resources.

(7) Intramural Research (IR)

Translation is a "team sport". Therefore, all NCATS programs operate via collaborations and team science. Accordingly, NCATS' intramural program has a completely unique model, different from any other NIH Institute or Center (IC). Because preclinical translation requires highly specialized but disease-agnostic expertise, NCATS IR is made up of a series of programs, each addressing a different roadblock in the preclinical translational process, and each operating via competitive access by extramural investigators. Successful access to an NCATS IR program results in pairing of the collaborator with NCATS IR scientists on a joint project team that develops an individualized, milestone-driven project development plan to advance the collaborator's translational goals while also providing generalizable information which improves the efficiency of the translational process. NCATS programs such as Therapeutics for Rare and

Neglected Diseases, Bridging Interventional Development Gaps, and NCATS Chemical Genomics Center, match NCATS' unique intramural scientific expertise and technology resources with the research priorities of NIH IC-supported extramural or intramural, nonprofit, or biopharma investigators. NCATS provides highly specialized technological and operational resources, including generation of novel pharmacological tools, large public datasets for target validation and toxicity assessment, leads for drug development, de-risking of drug development projects for rare diseases, creation of novel partnership structures, and provision of contract services and project management for generation of data needed for regulatory approval. NCATS intramural programs therefore serve as a collaborative bridge between the research efforts of the private sector and those of the NIH Institutes and Centers. These collaborations frequently involve co-funding and in-kind contributions from the other ICs and biopharma, and the programs all have formal processes for project selection, milestone establishment, progress assessment, and reporting.

Budget Policy:

The FY 2016 President's Budget request is $59.273 million for Intramural Research, an increase of $5.084 million or 9.4 percent above the FY 2015 Enacted level. These resources will be used to support the increased demand for collaborative research efforts in the areas of drug development for rare and neglected diseases, and drug repurposing and screening, including recently-initiated efforts to repurpose existing pharmaceutical compounds and therapies for the Ebola epidemic. Additionally, increased efforts will be directed at the development of cutting-edge translational technologies such as 3D tissue models, and gene editing tools. The increase will also support NCATS collaboration with the NIH Clinical Center.

Budget Authority by Object Class[1]
(Dollars in Thousands)

		FY 2015 Enacted	FY 2016 President's Budget	FY 2016 +/- FY 2015
Total compensable workyears:				
	Full-time employment	126	126	0
	Full-time equivalent of overtime and holiday hours	0	0	0
	Average ES salary	$181	$183	$2
	Average GM/GS grade	12.9	12.9	0.0
	Average GM/GS salary	$125	$126	$1
	Average salary, grade established by act of July 1, 1944 (42 U.S.C. 207)	$123	$124	$1
	Average salary of ungraded positions	$158	$160	$2
	OBJECT CLASSES	**FY 2015 Enacted**	**FY 2016 President's Budget**	**FY 2016 +/- FY 2015**
	Personnel Compensation			
11.1	Full-Time Permanent	$9,006	$9,131	$125
11.3	Other Than Full-Time Permanent	4,474	4,536	62
11.5	Other Personnel Compensation	300	304	4
11.7	Military Personnel	191	194	3
11.8	Special Personnel Services Payments	488	494	7
11.9	**Subtotal Personnel Compensation**	**$14,459**	**$14,659**	**$200**
12.1	Civilian Personnel Benefits	$3,853	$3,891	$39
12.2	Military Personnel Benefits	167	170	2
13.0	Benefits to Former Personnel	0	0	0
	Subtotal Pay Costs	**$18,479**	**$18,720**	**$241**
21.0	Travel & Transportation of Persons	$229	$233	$4
22.0	Transportation of Things	52	53	1
23.1	Rental Payments to GSA	0	0	0
23.2	Rental Payments to Others	0	0	0
23.3	Communications, Utilities & Misc. Charges	336	341	5
24.0	Printing & Reproduction	4	4	0
25.1	Consulting Services	$1,779	$1,808	$28
25.2	Other Services	35,541	36,115	574
25.3	Purchase of goods and services from government accounts	32,085	40,800	8,715
25.4	Operation & Maintenance of Facilities	$2,078	$2,078	$0
25.5	R&D Contracts	11,924	11,236	-688
25.6	Medical Care	546	560	14
25.7	Operation & Maintenance of Equipment	1,590	1,616	25
25.8	Subsistence & Support of Persons	0	0	0
25.0	**Subtotal Other Contractual Services**	**$85,545**	**$94,214**	**$8,669**
26.0	Supplies & Materials	$3,629	$3,687	$58
31.0	Equipment	4,064	4,129	65
32.0	Land and Structures	0	0	0
33.0	Investments & Loans	0	0	0
41.0	Grants, Subsidies & Contributions	520,371	538,749	18,378
42.0	Insurance Claims & Indemnities	0	0	0
43.0	Interest & Dividends	0	0	0
44.0	Refunds	0	0	0
	Subtotal Non-Pay Costs	**$614,231**	**$641,411**	**$27,180**
	Total Budget Authority by Object Class	**$632,710**	**$660,131**	**$27,421**

[1] Includes FTEs whose payroll obligations are supported by the NIH Common Fund.

Salaries and Expenses
(Dollars in Thousands)

OBJECT CLASSES	FY 2015 Enacted	FY 2016 President's Budget	FY 2016 +/- FY 2015
Personnel Compensation			
Full-Time Permanent (11.1)	$9,006	$9,131	$125
Other Than Full-Time Permanent (11.3)	4,474	4,536	62
Other Personnel Compensation (11.5)	300	304	4
Military Personnel (11.7)	191	194	3
Special Personnel Services Payments (11.8)	488	494	7
Subtotal Personnel Compensation (11.9)	**$14,459**	**$14,659**	**$200**
Civilian Personnel Benefits (12.1)	$3,853	$3,891	$39
Military Personnel Benefits (12.2)	167	170	2
Benefits to Former Personnel (13.0)	0	0	0
Subtotal Pay Costs	**$18,479**	**$18,720**	**$241**
Travel & Transportation of Persons (21.0)	$229	$233	$4
Transportation of Things (22.0)	52	53	1
Rental Payments to Others (23.2)	0	0	0
Communications, Utilities & Misc. Charges (23.3)	336	341	5
Printing & Reproduction (24.0)	4	4	0
Other Contractual Services:			
Consultant Services (25.1)	1,779	1,808	28
Other Services (25.2)	35,541	36,115	574
Purchases from government accounts (25.3)	15,244	15,611	367
Operation & Maintenance of Facilities (25.4)	2,078	2,078	0
Operation & Maintenance of Equipment (25.7)	1,590	1,616	25
Subsistence & Support of Persons (25.8)	0	0	0
Subtotal Other Contractual Services	**$56,234**	**$57,228**	**$995**
Supplies & Materials (26.0)	$3,629	$3,687	$58
Subtotal Non-Pay Costs	**$60,485**	**$61,548**	**$1,063**
Total Administrative Costs	**$78,964**	**$80,267**	**$1,304**

Details of Full-Time Equivalent Employment (FTE)

OFFICE/DIVISION	FY 2014 Actual			FY 2015 Est.			FY 2016 Est.		
	Civilian	Military	Total	Civilian	Military	Total	Civilian	Military	Total
Division of Clinical Innovation									
Direct:	12	1	13	13	1	14	13	1	14
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	12	1	13	13	1	14	13	1	14
Division of Pre-Clinical Innovation									
Direct:	31	-	31	31	-	31	31	-	31
Reimbursable:	4	-	4	4	-	4	4	-	4
Total:	35	-	35	35	-	35	35	-	35
Executive Office									
Direct:	22	-	22	22	-	22	22	-	22
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	22	-	22	22	-	22	22	-	22
Office of Grants Management and Scientific Review									
Direct:	31	-	31	31	-	31	31	-	31
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	31	-	31	31	-	31	31	-	31
Office of Policy, Communications, and Strategic Alliances									
Direct:	11	-	11	11	-	11	11	-	11
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	11	-	11	11	-	11	11	-	11
Office of Rare Diseases Research									
Direct:	6	-	6	6	-	6	6	-	6
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	6	-	6	6	-	6	6	-	6
Office of the Director									
Direct:	7	-	7	7	-	7	7	-	7
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	7	-	7	7	-	7	7	-	7
Total	124	1	125	125	1	126	125	1	126
Includes FTEs whose payroll obligations are supported by the NIH Common Fund.									
FTEs supported by funds from Cooperative Research and Development Agreements.	0	0	0	0	0	0	0	0	0

FISCAL YEAR	Average GS Grade
2012	12.8
2013	12.6
2014	12.9
2015	12.9
2016	12.9

Detail of Positions[1]

GRADE	FY 2014 Actual	FY 2015 Enacted	FY 2016 President's Budget
Total, ES Positions	1	1	1
Total, ES Salary	179,462	181,257	183,070
GM/GS-15	16	16	16
GM/GS-14	25	25	25
GM/GS-13	27	28	28
GS-12	7	7	7
GS-11	5	5	5
GS-10	1	1	1
GS-9	3	3	3
GS-8	3	3	3
GS-7	2	2	2
GS-6	0	0	0
GS-5	0	0	0
GS-4	0	0	0
GS-3	1	1	1
GS-2	0	0	0
GS-1	0	0	0
Subtotal	90	91	91
Grades established by Act of July 1, 1944 (42 U.S.C. 207)	0	0	0
Assistant Surgeon General	0	0	0
Director Grade	1	1	1
Senior Grade	0	0	0
Full Grade	0	0	0
Senior Assistant Grade	0	0	0
Assistant Grade	0	0	0
Subtotal	1	1	1
Ungraded	33	33	33
Total permanent positions	91	92	92
Total positions, end of year	125	126	126
Total full-time equivalent (FTE) employment, end of year	125	126	126
Average ES salary	179,462	181,257	183,070
Average GM/GS grade	12.9	12.9	12.9
Average GM/GS salary	123,582	124,818	126,066

[1] Includes FTEs whose payroll obligations are supported by the NIH Common Fund.