Table of Contents

Introduction .................................................. 2
Proposal Fast Facts ........................................ 4
Award Fast Facts ........................................... 8
International Collaborations ............................ 12
Technology Ventures ...................................... 14
Forward Thinking & Strategic Initiatives .......... 18
INTRODUCTION

The Johns Hopkins University was the first university in the Western Hemisphere based on the European research institution model. Founded in 1876 with a mission to both teach and advance human knowledge through hands-on discovery, its establishment revolutionized U.S. higher education. Comprised of nine academic divisions, over 100 multidisciplinary centers and institutes, and the Applied Physics Laboratory and located on eleven campuses including those in Nanjing, China and Bologna, Italy, the university is a world leader in education, research, and patient care.

JHU has faced many challenges in the research environment recently: growing regulatory and compliance requirements require awardees to do more with less, increasing administrative burdens on faculty take time away from important research, and instability in the government resulted in a budget sequestration in October 2013, during which all federal awards were reduced by 10% and funding decisions were considerably delayed. Despite these obstacles, JHU faculty have remained tenacious and resourceful and have diversified their sponsor portfolios by seeking out additional research funding from private foundations as well as for-profits. As a result, FY2014 brought with it over $1.9 billion in research dollars across the nine academic divisions. In addition, JHU faculty have won prestigious research awards during the year, such as the Wiley Prize in Biomedical Sciences, the Pierce Prize, NSF Early CAREER Awards, and Sloan Fellowships, and have initiated many high-impact projects including a $6.5 million research collaboration between Johns Hopkins and MedImmune.

To build on these successes, President Daniels has developed the 10x20 Initiative, which will forge a roadmap for our future with a particular emphasis on growing the research milieu. As One University, we look to enhance the impact of Johns Hopkins Medicine, the Bloomberg School of Public Health, and the School of Nursing as the world’s preeminent academic health sciences enterprise by deepening collaboration among these entities as well as with disciplines in other parts of the university and across the globe. As we strive for Individual Excellence, we aim to attract the very best faculty and staff in the world through a welcoming and inclusive environment that values performance and celebrates professional achievement. We offer a Commitment to Our Communities, enhancing and enriching our ties to Baltimore, the nation, and the world, so that Johns Hopkins becomes the exemplar of a globally-engaged, urban university, and finally, with Institution Building, we will reinforce our position as the leading university recipient of competitively funded federal research support while increasing the amount of annual research investment from other sources. The collaborative effort of the 10x20 Initiative reinforces that Johns Hopkins has been and will remain a place of remarkable collaboration across world class disciplines. We continue to seek out new and innovative ideas from all across the globe and as we look ahead, it’s clear that Johns Hopkins research programs and academics will continue to grow and persevere.
Proposal submissions at the University have increased by 9% from FY2013 to FY2014. With greater competition for federal awards than in the past, our faculty have continued to seek alternative avenues for research funding.

*Note: FY2013 includes $500M USAID “Global RMNCH” proposal.
FY2014 Proposals Submitted By Division (6,962 Total)*

- School of Medicine
- Bloomberg School of Public Health
- Whiting School of Engineering
- Krieger School of Arts & Sciences
- JHPIEGO
- School of Education
- Other (excluding APL)

FY2014 Amount Requested By Division ($5.1 Billion Total)*

- School of Medicine
- Bloomberg School of Public Health
- Whiting School of Engineering
- Krieger School of Arts & Sciences
- JHPIEGO
- School of Education
- Other (excluding APL)

FY2014 Number of Proposals By Sponsor Type ($5.1 Billion Total)

- Foundation/Non-Profit
- DHHS
- Institution of Higher Learning
- Private Profit
- Foreign
- NSF
- DOD
- Other Federal
- State/Local Government
- Other Federal
- NSF
- DOD
- State/Local Government

Total number of proposals submitted in FY2014 separated by JHU division

Total amount requested for all proposals submitted in FY2014 separated by JHU division

Total number of proposals submitted in FY2014 separated by sponsor type

Total amount requested of all proposals submitted in FY2014 separated by sponsor type
AWARD FAST FACTS

Awards at the University have increased by 7% from FY2011 to FY2014 and the proposal success rate university-wide increased from 42% in FY2011 to 45% in FY2014.

Total Dollars Proposed vs. Approved ($ billion)
JHU was awarded 91.4% of the total requested in FY2014 awards, 87.6% in FY2013, 90.1% in FY2012 and 71.4% in FY11.

<table>
<thead>
<tr>
<th># of Awards per PI</th>
<th># of PIs</th>
<th># of Awards</th>
<th>Avg. $ FY2014 Proposed Award</th>
<th>% of PIs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>802</td>
<td>802</td>
<td>563,004</td>
<td>61%</td>
</tr>
<tr>
<td>2</td>
<td>290</td>
<td>580</td>
<td>455,080</td>
<td>22%</td>
</tr>
<tr>
<td>3</td>
<td>97</td>
<td>291</td>
<td>664,698</td>
<td>7%</td>
</tr>
<tr>
<td>4-6</td>
<td>89</td>
<td>419</td>
<td>478,484</td>
<td>7%</td>
</tr>
<tr>
<td>7-9</td>
<td>22</td>
<td>169</td>
<td>533,693</td>
<td>2%</td>
</tr>
<tr>
<td>10+</td>
<td>14</td>
<td>198</td>
<td>1,141,798</td>
<td>1%</td>
</tr>
<tr>
<td>Total</td>
<td>1,314</td>
<td>2,459</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Award notifications have not yet been received for all FY2014 proposals.*
FY2014 Award Amount Received By Division ($1.4 Billion Total)*

<table>
<thead>
<tr>
<th>Division</th>
<th>FY2014 Award Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>School of Medicine</td>
<td>51.8%</td>
</tr>
<tr>
<td>Bloomberg School of Public Health</td>
<td>21.8%</td>
</tr>
<tr>
<td>Jhpiego</td>
<td>12.9%</td>
</tr>
<tr>
<td>Krieger School of Arts &amp; Sciences</td>
<td>12.9%</td>
</tr>
<tr>
<td>Whiting School of Engineering</td>
<td>11.5%</td>
</tr>
<tr>
<td>School of Nursing</td>
<td>11.5%</td>
</tr>
<tr>
<td>School of Education</td>
<td>11.5%</td>
</tr>
<tr>
<td>Others</td>
<td>5%</td>
</tr>
</tbody>
</table>

FY2014 Number of Awards By Sponsor Type ($1.4 Billion Total)*

<table>
<thead>
<tr>
<th>Sponsor Type</th>
<th>FY2014 Number of Awards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal</td>
<td>56%</td>
</tr>
<tr>
<td>Foreign</td>
<td>5%</td>
</tr>
<tr>
<td>Foundation</td>
<td>12%</td>
</tr>
<tr>
<td>Private Non-Profit</td>
<td>13%</td>
</tr>
<tr>
<td>Private Profit</td>
<td>11%</td>
</tr>
<tr>
<td>Other</td>
<td>4%</td>
</tr>
</tbody>
</table>

FY2014 Award Amount Received By Sponsor Type ($1.4 Billion Total)

<table>
<thead>
<tr>
<th>Sponsor Type</th>
<th>FY2014 Award Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal</td>
<td>$731,641,536</td>
</tr>
<tr>
<td>Department of Health and Human Services (DHHS)</td>
<td>$731,641,536</td>
</tr>
<tr>
<td>United States Agency for International Development (USAID)</td>
<td>$207,166,141</td>
</tr>
<tr>
<td>Bill and Melinda Gates Foundation</td>
<td>$46,570,072</td>
</tr>
<tr>
<td>National Aeronautics and Space Administration (NASA)</td>
<td>$41,287,230</td>
</tr>
<tr>
<td>National Science Foundation (NSF)</td>
<td>$39,676,966</td>
</tr>
</tbody>
</table>

TOP FIVE SPONSORS IN FY2014

<table>
<thead>
<tr>
<th>Sponsor Type</th>
<th>FY2014 Award Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal</td>
<td>$731,641,536</td>
</tr>
<tr>
<td>Department of Health and Human Services (DHHS)</td>
<td>$731,641,536</td>
</tr>
<tr>
<td>United States Agency for International Development (USAID)</td>
<td>$207,166,141</td>
</tr>
<tr>
<td>Bill and Melinda Gates Foundation</td>
<td>$46,570,072</td>
</tr>
<tr>
<td>National Aeronautics and Space Administration (NASA)</td>
<td>$41,287,230</td>
</tr>
<tr>
<td>National Science Foundation (NSF)</td>
<td>$39,676,966</td>
</tr>
</tbody>
</table>

*excluding APL
INTERNATIONAL COLLABORATIONS

With field offices in 46 countries and a presence in over 154 countries in FY2014, our faculty, staff, and students are able to apply and share their knowledge globally.

Johns Hopkins University researchers have collaborations world-wide in areas of focus such as:

- HIV/AIDS
- Cardiology
- Malaria
- Immunology
- Hepatitis
- Cancer
- Meningitis
- Family Planning
- Geology
- Autism
- Vaccines
- Astronomy
- Sociology
- Influenza
- Maternal and Child Health
- Nutrition

TOP FIVE COUNTRIES RECEIVING SUBWARDS FROM JHU IN FY2014

- Uganda
- Malawi
- South Africa
- Bangladesh
- Kenya
In FY2014, Johns Hopkins Technology Ventures (JHTV) boasted an impressive portfolio including 2,324 Active Patents, 92 new U.S. Patents, 3,898 Material Transfer Agreements and 159 signed licenses and options. The projected 10 year value of the license fees and minimum annual royalties is $21 million. JHTV license revenue, including equity sales, was $16.5 million against a budget of $15.1 million.
WORKING IN INDUSTRY HIGHLIGHTS: MEDIMMUNE

Johns Hopkins University and Maryland-based MedImmune have teamed up for a five year, $6.5 million research collaboration, focusing on oncology; infectious diseases; respiratory, inflammation and autoimmunity issues; antibody discovery and protein engineering. Each organization is contributing funding, personnel and materials as part of the joint research effort.

“We look forward to working alongside a company that embodies our own commitment to novel research and to bringing the benefits of drug discovery to patients in need,” said Johns Hopkins University President Ron Daniels. “Our relationship with MedImmune will provide our scientists and students with new opportunities to play a leading role in advancing science and improving global health outcomes.”

JHU faculty members who are participating in the research included Bradley Undem, Felipe Andrade, Jeff Rothstein, Peter Calabresi, Kenneth Pienta, Lloyd Miller, and Michael Betenbaugh.

WORKING IN INDUSTRY HIGHLIGHTS: TOSHIBA

A ribbon-cutting ceremony accompanied the installation of an advanced scanner from Toshiba, the Aquilion ONE VISION CT Scanner, at the Sheikh Zayed Tower in the Johns Hopkins Hospital Complex in July. On hand were Johns Hopkins University President Ronald Daniels, School of Medicine Dean Paul Rothman, President of the Johns Hopkins Hospital and Health System Ron Peterson as well as Toshiba executives and staff of both organizations. The project represents a collaboration between the Japanese corporation and JHU to use Big Data in medical applications. Johns Hopkins and Toshiba have partnered for over a decade to develop more advanced CT scanners for the heart.

The collaboration was championed by Myron Weisfeldt, longtime chair of the Department of Medicine. Currently, cardiologist Joao Lima is among those working closely with Toshiba scientists and engineers. Hopkins is proud to not only have the most advanced CT scanner made by Toshiba in the new hospital but also to be partnering with Toshiba on a Big Data project.
FORWARD THINKING & STRATEGIC INITIATIVES

The Johns Hopkins University and Health System is currently hosting a fundraising campaign to support interdisciplinary research called "Rising to the Challenge: The Campaign for Johns Hopkins." The Initiatives will help to promote and encourage innovative collaborations on many of the world’s most pressing problems such as economics, sociology, disease, learning, patient care, and water preservation.

The 21st Century City (21CC) Initiative at Johns Hopkins University is a bold, new endeavor that brings together the civic leadership of Baltimore and the nation’s revitalizing cities with top researchers from across JHU and universities worldwide.

Its goal is to catalyze the potential and confront the pressing needs of these cities that are poised for renaissance and renewal. 21CC seeks to spark and test innovative solutions to the challenges of creating wealth, expanding opportunity, transforming education, promoting wellbeing and health, strengthening infrastructure, and cultivating the arts. The Initiative will build on and support Baltimore’s legacy of resilience and transformation. It will embrace a broad cohort of sister cities, both from the U.S. and around the globe, that face or have faced similar opportunities and challenges. It will bring the most talented cohort of urban scholars and applied researchers in the nation together with civic leaders from Baltimore and elsewhere to identify and test promising approaches to urban development. Cross-disciplinary research, engagement with Baltimore and other revitalizing metropolitan areas, and on-the-ground initiatives to improve the wellbeing and life chances of all citizens of the 21st Century City will be hallmarks of this Initiative.

rising.jhu.edu/cities
Today’s global health problems are formidable and spreading, including cancer, infant mortality, malaria, diabetes, HIV/AIDS, obesity, and cardiovascular disease. At Johns Hopkins University, we possess many of the capabilities needed to take on these multi-faceted problems.

We have built long and intensive partnerships with health care organizations around the world. Our faculty members are renowned experts in research, implementation, and evaluation of health care programs and systems. We consistently succeed in winning grants to support our work. Our extensive education program produces and places new generations of global leaders who share our enduring commitment to social justice and human rights. To create health solutions that address these factors will require a diverse yet unified approach, engaging and uniting our best minds not only in medicine, nursing, and public health, but also international relations, engineering, education, business, the social sciences, and bioethics. Successfully developing and executing such a deeply multidisciplinary approach, while harnessing the full power of our historic capabilities, is the mission of the Johns Hopkins Global Health Initiative.

www.hopkinsglobalhealth.org

To expand understanding of how we learn, Johns Hopkins University established the Science of Learning Institute. We will build on our renowned capacity in neuroscience, genetics, psychology, education and computer science to promote new discoveries in basic research, and to translate that knowledge into powerful and effective applications for life-long education.

This work has the potential to revolutionize the way we educate children and adults, and the way we treat stroke, brain injuries and neurological disease. Over the past century, we have made enormous strides in understanding the brain, yet we still don’t know what factors generate these abilities and accomplishments—how genetics, environment, brain chemistry or other influences work together to foster learning. We also don’t know precisely how our ability to learn changes over time—why, for example, language acquisition is easier at 10 than it is at 50; why cognition declines as we reach our later years; how experience allows us to compensate. Johns Hopkins seeks the answers to these questions. Learning is, after all, the very currency of human capital. It determines who we are; it allows us to solve problems and to adapt in a constantly changing world. It is fundamental to our quality of life, as individuals and as a society.

scienceoflearning.jhu.edu
In individualized health care, the continuous aggregation of data from individual patients builds large datasets that, in turn, create a foundation for health care decisions to benefit both the individual and the population.

The paradigm is a dialectical one: the health experiences and outcomes of individuals inform population health interventions, such as health promotion and disease prevention programs; in turn, health data from populations inform the care of each individual.

The Johns Hopkins inHealth Initiative is a University-wide, collaborative venture to:

- Discover new ways of more precisely defining, measuring, and communicating each person’s unique health state and the trajectory along which it is changing;
- Develop these discoveries into new methods that can be used in clinical practice, so as to better inform patients and their clinicians—resulting in better decisions regarding medical care, and enhancement of health; and
- Apply new knowledge gained from the delivery of individualized care to produce better health outcomes at more affordable costs for whole populations.

Water, food, energy, climate, and human health are intimately connected and interdependent. These relationships are extremely complex, encompassing factors that include climate change, air quality, ecosystem disruption, the built environment, transportation, energy, population growth, and social behavior. Water, however, is a critical common thread.

The Johns Hopkins Water Institute will enable Hopkins to be a leader in solving global water challenges in the context of the related climate, energy, health, social, and political aspects. We will provide our faculty and students with the resources needed to tackle these interdisciplinary problems. We will attract the most qualified faculty and students, build a flexible information infrastructure to support cross-cutting research, enhance students’ multidisciplinary education while maintaining quality and depth, engage policy makers, and support innovative thinking and technology. We will systematically deploy the diverse assets of the university to research and develop solutions that will provide efficient and effective use of limited resources; reduce negative impacts; advocate intelligent, evidence-based policies; educate future leaders; and implement programs on the ground—at home in the rivers of Baltimore, in the Chesapeake Bay and in countries around the world where Johns Hopkins University is already a valued partner.
A Sample of Research Awards Received in FY2014

School of Medicine
Dr. Gail Daumit, Trial of Integrated Smoking Cessation, Exercise, and Weight Management in SMI (TRIUMPH)
Dr. Daumit was awarded a grant from the NIMH for a randomized trial of a tobacco smoking cessation program integrating exercise and weight management for persons with serious mental illness.

Bloomberg School of Public Health
Susan Krenn, e-Enhanced Social Marketing Initiative-Ghana
ESMI aims to revive the commercial market for long-lasting insecticidal nets (LLINs), providing households across southern Ghana with the option to purchase a net of their choice at an affordable price.

Krieger School of Arts and Sciences
Dr. Marc Kamonkowski, Fossils from beyond the Big Bang
This grant from the John Templeton Foundation will be used to develop new ideas about the origins of the universe and ways to test those ideas. It will also be used to support a post-doctoral program for young scientists in theoretical research and to create a visitors program to bring notable scientists in the field to the university to collaborate with researchers.

Whiting School of Engineering
Dr. Natalia Trayanova, NIH Director’s Pioneer Award
This award will provide for a patient-specific heart modeling system that will assist in the delivery of personalized diagnoses and treatment.

ACKNOWLEDGMENTS
THE JOHNS HOPKINS UNIVERSITY
ANNUAL RESEARCH REPORT
web.jhu.edu/administration/provost/bios/wirtz

Denis Wirtz
Vice Provost for Research
wirtz@jhu.edu

Alexandra Albinak McKeown
Associate Vice Provost for Research Administration
amckeown@jhu.edu

Susannah Porterfield
Assistant Vice Provost for Research Initiatives
sporterfield@jhu.edu

Tracy Smith
Senior Administrative Coordinator
tracysmith@jhu.edu

PHOTO CREDITS
JHTV
Bonnie Gillespie, Courtesy of Photoshare
Mary Spiro
David Alexander