

DEPARTMENT OF HEALTH AND HUMAN SERVICES

NATIONAL INSTITUTES OF HEALTH

Fiscal Year 2017 Budget Request

Witness appearing before the

Senate Appropriations Subcommittee on Labor, HHS, Education, and Related Agencies

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Good morning, Chairman Blunt, Ranking Member Murray, and distinguished Members of the Subcommittee. As you know, I am Francis S. Collins, M.D., Ph.D., and I am the Director of the National Institutes of Health (NIH). It is an honor to appear before you today to present the Administration's fiscal year (FY) 2017 budget request for the NIH, and provide an overview of our central role in enhancing the nation's health through scientific discovery.

Before I discuss our diverse investments in biomedical research and the exciting scientific opportunities on the horizon, I want to thank this Subcommittee for the recent \$2 billion boost in the FY 2016 Omnibus Appropriation bill. This investment comes at a time of unprecedented scientific opportunity and we are truly grateful for your leadership.

As the nation's premier biomedical research agency, NIH's mission is to seek fundamental knowledge about the nature and behavior of living systems, and to apply that knowledge to enhance human health, lengthen life, and reduce illness and disability. I can report to you today that NIH leadership, employees, and grantees continue to believe passionately in our mission.

As a federal research agency, we are acutely aware that in order to achieve our mission we must be effective and efficient stewards of the resources we have been given by the American public. In December 2015, we released the *NIH-Wide Strategic Plan, Fiscal Years 2016-2020: Turning Discovery into Health*, an overarching, strategic plan that reflects the rapid progress in bioscience. This plan ensures our agency remains well positioned to capitalize on new opportunities for scientific exploration and address new challenges for human health. Developed after hearing from hundreds of stakeholders and scientific advisers, and in collaboration with leadership and staff of NIH's Institutes, Centers, and Offices (ICOs), the plan is designed to

complement the ICOS' individual strategic plans that are aligned with their specific congressionally mandated missions.

The plan focuses on four essential, interdependent objectives that will help guide NIH's priorities over the next five years as it pursues its mission and optimizes return on public investment. The objectives are to:

- 1) advance opportunities in biomedical research, from basic science to prevention and treatment;
- 2) use all available information to set NIH priorities nimbly and wisely;
- 3) enhance stewardship of the resources provided by the American people; and
- 4) excel as a federal science agency by managing for results.

Our strategic plan concludes with a bold vision of advances we will strive to deliver over the next five years including: enhanced survival of cancer patients from applications of precision medicine, critical steps toward universal flu and HIV vaccines, and crucial progress on the artificial pancreas that will lead to better management of diabetes. NIH will pursue these and many other forward-looking measures to enhance our role as a visionary steward of the resources entrusted to us by the American people. Such actions will ensure that the U.S. biomedical research enterprise remains on the pathway to a bright and sustainable future.

Today, I want to share with you a few of the many promising opportunities before us that will lead to that healthier future for all. First, of all, many recent breakthroughs stem from our nation's commitment to investing in basic science research. Basic science lays the foundation for advances in disease diagnosis, treatment, and prevention by providing the building blocks for clinical applications. Basic science is generally not supported in the private sector, and NIH's focus on understanding fundamental biological processes not only has led to no less than 145

Nobel Prizes to our grantees, but fosters innovation and ultimately leads to effective ways to treat complex medical conditions.

A compelling example of how we are trying to unravel life's mysteries through basic science is with the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative, which continues to address basic neuroscience questions. We are grateful to this subcommittee for its support of this initiative since its launch in FY 2014, and we look forward to ramping this up further in FY 2017. This bold, multi-agency effort to revolutionize our understanding of the human brain will enable the development and use of innovative technologies to produce a clearer, more dynamic picture of how individual cells and neural circuits interact in both time and space. By measuring activity at the scale of neural networks in living organisms, we can begin to decode sensory experience and, potentially, even memory, emotion, and thought. Ultimately, the technologies developed under the BRAIN Initiative may help reveal the underlying pathology in a vast array of brain disorders and provide new therapeutic avenues to treat, cure, and prevent neurological and psychiatric conditions such as Alzheimer's disease, autism, schizophrenia, epilepsy, traumatic brain injury, and addiction.

Scientific advances are also accelerating progress toward a new era of personalized medicine. President Obama announced the Precision Medicine Initiative (PMI) in January 2015, and we are thrilled to have a lead role in this multi-agency effort. As a long-term goal of this Initiative, NIH is building a national research cohort of one million or more volunteers who will play an active role in how their genetic, environmental, and medical information is used for the prevention of illness and management of a wide array of chronic diseases. Capitalizing on the alignment of scientific opportunities created by advances in genomics, the widespread adoption of electronic health records, the recent revolution in mobile health technologies, and the

emergence of computational tools for analyzing large biomedical data sets, precision medicine is poised to usher in a new era in how we treat and diagnose disease. Ramped up funding in FY 2017 will support several activities that are critical to the scope of the PMI Cohort Program, including enrolling and consenting participants, core phenotyping, expanded informatics, building a biorepository, and incorporating the use of wearable sensors.. A cohort of this size will capture data on a wide range of diseases and be large enough to detect genetic and environmental effects that are difficult to discern from research on smaller groups. Scientists will be able to use data from this cohort to identify trends and understand health and disease on a much larger scale, and that will lead to new ideas for diagnostic tests, treatments, and prevention strategies.

A final area of exceptional scientific opportunity I want to highlight today involves one of our nation's most feared killers: cancer. During his 2016 State of the Union Address, President Obama announced the establishment of the National Cancer Moonshot—a bold initiative to tackle this often life-threatening disease. Too many American families know all too well the devastation cancer can bring. More than 1.6 million new cases of cancer will be diagnosed and cancer will kill an estimated 600,000 Americans in 2016. With passionate and principled leadership from Vice President Biden, and in partnership with the Food and Drug Administration (FDA) and other Federal agencies, NIH's National Cancer Institute (NCI) is launching a bold and promising cancer research initiative to accelerate research to prevent, diagnose, and treat cancer. In FY 2017, \$755 million in mandatory funds for new cancer-related activities are proposed at the Department of Health and Human Services (HHS). Within NIH, investments of \$680 million will support cutting-edge opportunities, such as prevention and cancer vaccine development, early cancer detection, cancer immunotherapy, genomic analysis of

tumor cells, enhanced data sharing, and new approaches to pediatric cancer. Our sister agency, the FDA, will develop a virtual Oncology Center of Excellence to expedite the development of new diagnostics and therapeutics that will be safe and effective. We are at an inflection point in cancer research, and the science is ready for the concerted new effort this initiative will bring.

While all of these exciting research efforts and scientific opportunities are leading to a much deeper understanding of health and human disease, much more work needs to be done.

To this end, the President's FY 2017 budget request for the NIH is \$33.136 billion, \$825 million or 2.5 percent above the enacted FY 2016 level. This budget request reflects the President's and the Secretary's commitment to improving the health of the nation and to maintaining our nation's leadership in the life sciences. The request highlights investments in innovative research that will advance fundamental knowledge, and speed the development of new therapies, diagnostics, and preventive measures to improve public health, including an additional \$100 million to ramp up the PMI Cohort Program to a total of \$230 million, an increase of \$45 million for the BRAIN Initiative, bringing the total to \$195 million, and \$680 million for the National Cancer Moonshot.

The FY 2017 budget request will enhance NIH's ability to support cutting-edge research and training of the scientific workforce. Within this budget, we will increase Research Project Grants (RPGs), NIH's funding mechanism for investigator-initiated research. NIH expects to support 36,440 total RPGs in FY 2017, an increase of 600 above the FY 2016 estimate. The budget request allocates resources to areas of the most extraordinary promise for biomedical research, while maintaining the flexibility to pursue unplanned scientific opportunities and address unforeseen public health needs.

I have provided you with examples of how investments in biomedical research through NIH are advancing human health, spurring innovations in science and technology, stimulating economic growth, and laying the groundwork for the future of the United States biomedical research enterprise. We have never witnessed a time of greater promise for advances in medicine than right now. With your support, the future of medicine can be very bright.

This concludes my testimony, and I look forward to answering your questions.