Special Report: President Obama’s Fiscal Year 2017 Budget Request

By Jennifer Zeitzer and Benjamin Krinsky

On February 9, President Barack Obama released his fiscal year (FY) 2017 budget, providing more detail about the proposals he outlined in his State of the Union speech last month. The final request of the Obama administration includes new investments in research and development in order to accelerate the pace of innovation and sustain economic growth and competitiveness. A summary document notes that, “Innovation depends on robust investments in research and development (R&D)” and adds, “Today, we look to engineering and science to address our biggest challenges: creating jobs; improving the health of all Americans; enhancing access to clean energy, water, and food; addressing global climate change; managing competing demands on environmental resources; and ensuring the security of the Nation.”

President Obama’s request adheres to the revised FY 2017 discretionary spending level ($1.07 trillion) that was agreed to in the Bipartisan Budget Act Congress passed in October 2015. However, the budget also proposes billions in new mandatory funding for a variety of agencies and initiatives. The inclusion of mandatory dollars suggests that despite an increase in the budget cap for next year, there is still not enough money available to support the administration’s priorities. It remains to be seen whether Congress will accept more spending on the mandatory side of the budget but the initial reaction is not encouraging. Senate Appropriations Committee Chairman Thad Cochran (R-MS) said in a press release, “President Obama’s final budget proposal contains all manner of new spending and tax increases, and a troubling reliance on mandatory spending to skirt spending limits. There will be little appetite in Congress for mandatory spending that diminishes fiscal discipline and congressional oversight.”

Overall funding for R&D would rise to $152 billion, an increase of $6 billion (4 percent) over enacted FY 2016 levels. The majority ($4 billion) of the growth would come from mandatory dollars. Within the total R&D budget, $73 billion (a 6 percent increase over FY 2016) is provided for “basic and applied research.”
All of the federal science agencies would receive overall increases under the Obama proposal through a combination of both mandatory and discretionary funds. The chart below illustrates total funding for each agency as follows:

<table>
<thead>
<tr>
<th>Agency</th>
<th>FY 2017 President’s Budget</th>
<th>Change (Compared to FY 2016 Level)</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Institutes of Health (NIH)</td>
<td>$33.1 billion</td>
<td>+$825 million (+2.5%)</td>
</tr>
<tr>
<td>National Science Foundation (NSF)</td>
<td>$7.96 billion</td>
<td>+$500.5 million (+6.7%)</td>
</tr>
<tr>
<td>Department of Energy Office of Science (DOE DC)</td>
<td>$5.67 billion</td>
<td>+$350 million (+6%)</td>
</tr>
<tr>
<td>Veterans Administration (VA) Medical &amp; Prosthetic Research</td>
<td>$663.4 million</td>
<td>+$32.7 million (+5.2%)</td>
</tr>
<tr>
<td>Agriculture and Food Research Initiative (AFRI)</td>
<td>$700 million</td>
<td>+$350 million (+100%)</td>
</tr>
<tr>
<td>Agricultural Research Service (ARS)</td>
<td>$1.16 billion</td>
<td>+$30 million (+2.65%)</td>
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The Federation of American Societies for Experimental Biology (FASEB) issued a press release acknowledging the increases for research and science in the 2017 budget request. “Scientific research is vital to addressing important national priorities, such as the development of tomorrow’s technologies and the treatment of complex, pervasive diseases,” said FASEB President, Parker B. Antin, PhD. "But innovation is difficult without investment. The most rapid way to reach our nation’s goals is through sustained, predictable increases in research funding," he added.

More details about the individual agency budgets are included below. Additional factsheets about the R&D proposals are available on the White House Office of Science and Technology website.

**NATIONAL INSTITUTES OF HEALTH (NIH)**

The President’s request of $33.1 billion for NIH represents an $825 million (2.5 percent) increase in discretionary funding over the FY 2016 level. A summary of the proposed NIH budget notes that the agency will focus on four priority areas including basic research, precision medicine, big data, and “stewardship to inspire public trust.”

In FY 2017, NIH will continue to focus on funding investigator-initiated Research Project Grants (RPGs). The agency estimates that the budget will support:

- 9,946 new and competing RPGs, a decrease of 807 below the projected FY 2016 total
- 24,608 non-competing RPGs, an increase of 1,241 above the FY 2016 estimate
- A total of 36,440 RPGs, an increase of 600 above the projected FY 2016 estimate
The average cost of new and competing RPGs is $469,000 – nearly the same as the FY 2016 estimate. In his presentation of the FY 2017 request, NIH Director, Francis Collins, MD, PhD said that the proposed increase of $825 million would “allow the highest total number of RPG’s (competing and noncompeting) in seven years.”

Although overall support for RPGs will increase, NIH proposed to remove $1 billion in discretionary funding for the 27 individual institutes and centers (I/Cs) and replace that money with mandatory funds. The net effect of this change is that there is no increase in the budgets for the I/Cs. In addition, the success rate is projected to drop to 17.5 percent (from 19.2 percent).

Obama’s request expands funding for several other areas of the NIH budget, including:

- A $18 million increase for research and training to support an additional 225 full-time training positions
- A two percent increase above the FY 2016 level for trainee stipends
- A $33 million increase for intramural research
- A $145 million increase for the Office of the Director, including additional funding for the Precision Medicine Initiative (PMI) Cohort Program and the Brain Research Through Advancing Innovative Neurotechnologies (BRAIN) Initiative
- A $129 million increase for buildings and facilities

NIH is also seeking $1 billion in mandatory funding to support three targeted projects:

1. National Cancer Moonshot Program – $680 million to accelerate research on new approaches for cancer prevention, screening, diagnosis, and treatment. Elements of this initiative will focus on improving techniques to develop cancer earlier, developing new vaccines to prevent cancer-causing infections, expanding cancer immunotherapy studies, accelerating progress on treating pediatric cancers, enhanced data sharing, single cell genome analysis, and launching an Exceptional Opportunities Fund
2. PMI Cohort – $100 million to continue recruitment of one million volunteer participants and support several related activities including building a biorepository, enrolling and consenting participants, and performing genome analysis and core phenotyping
3. BRAIN Initiative – $45 million to continue support for basic neuroscience research, neuroimaging, and training initiatives, and potential collaborations with industry to develop novel devices to map and tune brain circuitry and new methods to utilize big data from the brain

The budget request for NIH highlights other areas the agency will focus on in FY 2017 including reducing administrative burden, implementing new guidelines to enhance rigor and reproducibility, and continuing to enforce policies mandating that all NIH-funded clinical trials submit results to ClinicalTrials.gov. NIH will also strengthen and sustain the biomedical research workforce by continuing to invest in the High Risk High Reward Program and funding programs to enhance diversity. More information about the NIH budget proposal can be found here. Individual NIH institute and center summaries are also available on the NIH Budget Office website.
NATIONAL SCIENCE FOUNDATION (NSF)
In the FY 2017 budget, the President has requested $7.964 billion for the National Science Foundation (NSF), a $500.53 million (or 6.7 %) increase over FY 2016 enacted levels. In an interesting twist, this total includes a new, one-year mandatory fund totaling $400 million (leaving approximately $7.56 billion for NSF in the discretionary portion of the budget). According to the agency’s budget request, this mandatory fund: “. . .will support more scientists and engineers at the early stages of their careers – who bring particular expertise in data- and computationally-intensive activities – to quicken the pace of discovery and advance the leading edge of research and education”(NSF Funding Request, p. 2). The budget summary goes on to state that this mandatory spending would fund highly-rated proposals that would otherwise be declined due to lack of funding, and consequently boost the NSF-wide funding rate to 23 percent in FY2017.

The specific budget allocations across NSF are outlined below.

- Research and Related Activities: $6.43 billion (+6.5%)
- Education and Human Resources: $953 million (+8.3%)
- Major Research Equipment and Facilities: $193 million (-3.6%)
- Agency Operations and Award Management: $373 million (+13%)
- National Science Board: $4.38 million (+0.2%)
- Office of Inspector General: $15.2 million (+0.3%)

As in previous years, the budget highlights a number of large cross-Foundation investments, including:

- Understanding the Brain*: $142 million
- Risk and Resilience: $43 million
- Innovations at the Nexus of Food, Energy, and Water Systems (INFEWS): $62 million
- Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering in Science (NSF INCLUDES): $16 million

With regard to the Directorate for the Biological Sciences (BIO), the President’s budget allocates $790.5 million, constituting a $46.35 million increase (or 6.2%) over FY 2016. Of this, a majority ($44.79 million) would come from the proposed mandatory fund. Research priorities within BIO highlighted in the budget include the initiative entitled Understanding the Rules of Life, as well as the contribution of BIO to Foundation-wide efforts in areas such as clean energy and the microbiome.

In a breakout session during the rollout of the NSF budget, Assistant Director Jim Olds, PhD, emphasized that core research funding in biology is of the utmost importance. The mandatory funding for BIO is specifically designated for this purpose, and in particular, would provide funding to support early-career investigators.

The full NSF FY 2017 budget request can be found HERE. A summary brochure is also available, including a few research and educational highlights.

*This includes programs at NSF that are part of the multi-agency BRAIN Initiative.
**VETERANS ADMINISTRATION (VA) MEDICAL AND PROSTHETIC RESEARCH PROGRAM**

The VA research program would receive $663.4 million, an increase of $32.7 million (5.2 percent) over the FY 2016 level. VA estimates that this funding level will support 2,234 research projects in FY 2017, a slight decrease from the current estimate.

VA is also reprioritizing program spending to provide an additional $65 million to support the Million Veteran Program (MVP). Approximately $50 million of the total will be used to conduct genomic sequencing on up to 100,000 veterans enrolled in MVP. The remaining $15 million will fund research on the impact of pharmacogenomic strategies for drug selection in up to 21,500 Veterans with Post Traumatic Stress Disorder (PTSD), depression, pain and/or substance abuse. Other studies will “evaluate the effectiveness of providing pharmacogenomic information to patients and providers for improving treatment.”

According to a [summary of the VA budget request](#), priority research areas in FY 2017 include:

- **Improving Women Veterans’ Health** – to study how VA provides general and gender-specific health care for women, to understand military experiences of women veterans, and analyze health risk factors
- **Understanding Military Occupational Exposures** – VA will launch a study of the long-term health of effects of deployment-related exposures in military personnel who service in Iraq and Afghanistan between 2001-2014 who were at risk for exposure to high levels of airborne particulate matter from burn pits
- **Research Consortia for Traumatic Brain Injury and PTSD** – funds will be used to conduct joint programmatic reviews with NIH and the Department of Defense to coordinate research efforts under the National Research Action Plan

Additional [highlights from the VA budget are available here](#). The [complete budget request](#) is also on the VA website.

**AGRICULTURE & FOOD RESEARCH INITIATIVE (AFRI)/ AGRICULTURAL RESEARCH SERVICE (ARS)**

The FY 2017 budget for USDA includes approximately $1.16 billion for Salaries and Expenses at the Agricultural Research Service (ARS) and $700 million for the Agriculture and Food Research Initiative (AFRI). As with other parts of the President’s budget, funding for AFRI includes $325 million in mandatory funding to bring the program up to its full, authorized level. Research areas highlighted in the budget that may be of interest to members of FASEB societies include:

- **Combating Antimicrobial Resistance** (ARS: $22 million)
- **Avian Influenza and Foreign Animal Disease** Research (ARS: $10 million)
- **Sustainable Bioenergy Research** ($25 million)

The complete USDA budget request can be found [HERE](#). A [brief summary](#) from USDA is also available.

**DEPARTMENT OF ENERGY OFFICE OF SCIENCE (DOE SC)**

The President’s budget includes $5.67 billion for the Department of Energy Office of Science (DOE SC), a $325 million (or approximately 6%) increase over FY 2016 enacted levels. This budget includes a $100 million mandatory fund specifically for competitive grants targeted at university-based researchers.
The overall DOE SC budget includes the following specific funding levels that might be of particular interest to the members of FASEB societies:

- Advanced Scientific Computing: $663 million (+6.8%)
- Basic Energy Sciences: $1.94 billion (+4.7%)
- Biological and Environmental Research: $662 million (+8.7%)
- Science Laboratories Infrastructure: $130 million (+14.4%)

In addition, the proposed DOE SC budget includes funding for upgrades of large-scale equipment, including the Linac Coherent Light Source-II (LCLS-II) at the SLAC National Accelerator Laboratory and the Advanced Photon Source (APS) at Argonne National Laboratory. The full DOE SC budget request can be found HERE. A brief overview is also available.