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**Testimony of the American Society for Biochemistry and Molecular Biology to the
Senate Committee on Appropriations
Hearing on “*Driving Innovation through Federal Investments*”
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The American Society for Biochemistry and Molecular Biology is a nonprofit scientific and educational organization that was established in 1906 by 28 biochemists and has since grown to an organization with more than 12,000 members worldwide. Most members conduct research and teach at colleges and universities, government laboratories, nonprofit research institutions and industry. We are proud to include 102 Nobel Prize winners among our members.

The ASBMB is pleased that the Senate Committee on Appropriations is examining how federal investments in basic scientific research drive innovation. ASBMB members are constantly making profound discoveries that improve our understanding of fundamental biology and enable us to develop new tools to fight the many diseases that afflict us. This amazing work is most often funded by grants from federal agencies such as the National Institutes of Health and the National Science Foundation. Historically, federal investments in biomedical research through the NIH and the NSF have resulted in a steadily increasing life expectancy for Americans. From the invention of vaccines to the most recent advances in molecular medicine, federally funded biomedical research saves lives. Research that saves the lives of cancer, HIV and Alzheimer’s patients; prevents heart attacks, strokes and diabetes; and treats congenital disorders, sickle-cell anemia, and bacterial infections, was, at one point, funded by the federal government and conducted in American laboratories.

The American scientific research enterprise is comprised of dedicated people using cutting-edge technologies to answer important scientific questions. This, combined with a strong, sustained federal investment in scientists and their research, has established the U.S. as the global leader in scientific and technological advancement. However, over the past 10 years, the federal investment in research has faltered, failing to keep pace with inflation. Furthermore, sequestration and other austerity measures, such as the recent U.S. House vote on the fiscal 2015 budget, have eroded the nation’s ability to invest in the next generation of scientists to continue the groundbreaking research the U.S. is known for. These trends must be reversed in order for American scientists to continue to make the discoveries that improve our lives. **As such, the ASBMB urges Congress to fund the NIH at a level of \$32 billion for FY15 and the NSF at a level of \$7.6 billion.**

The ASBMB understands the nation is facing difficult budgetary decisions, and scientists across the country recognize the need for targeted cuts to federal spending. However, the negative effect of flat budgets and sequestration on research funding agencies has been felt across the country. Over 1,000 scientists lost all NIH funding in FY13, undoubtedly a result of 10 years of stagnant

budgets and austerity measures. What is the cost of the loss of these scientists to our national health and economy? We can't know the fantastic discoveries these scientists would have made, what diseases they may have cured or what technological advances they would have spurred had the federal government maintained a robust commitment to funding American scientists.

And nothing is certain for those scientists who currently receive federal funding for their research. Due to the hypercompetitive funding environment, scientists are spending more time writing grant applications while receiving fewer federal grant dollars. Private companies and organizations have neither the funds nor the inclination to fill the void caused by this reduction in the federal investment in research. Thus, insufficient funding from the federal government threatens to shutter the labs that serve as the incubators of discovery thereby putting even more scientists out of work.

Research labs are to the national scientific enterprise what small businesses are to the American economy. Individual labs, funded by federal grants, employ young scientists and make the discoveries that tech companies capitalize on. Corporations like Pfizer, Merck and Bristol-Myers Squibb, to name a few, have built their success on pioneering discoveries made by federally funded basic biomedical researchers working at American universities. This pipeline of discovery and commercialization pays real dividends for the American taxpayer—research in American labs and commercialized by American companies leading to a 1 percent drop in the yearly cancer mortality rate saves the U.S. \$500 billion per year in health care costs. This one year's savings is equivalent to the cumulative NIH budget since 1995. Thus, the federal investment in scientific research has been, and continues to be, repaid to the U.S. government and the American taxpayer many times over.

When setting budgetary priorities, it is important to remember that technological innovation will be a key component for our future economic security and international competitiveness. Each NIH grant, on average, supports approximately seven high-tech, high-paying jobs. These are the types of jobs that contribute to a 21st century technology- and information-based economy. Finally, investment in research will continue to modernize our nation's research laboratories and facilities, spur innovation and provide an immediate boost in employment for our nation's workforce.

Other countries are increasing their investments in scientific research while the American investment is declining. The governments of China, Brazil, Singapore and South Korea, among others, are increasing their investments and devoting increasing percentages of their GDP to scientific research. While the U.S. still outspends them in total dollars, these international competitors are building a modern research infrastructure that will soon challenge America's global preeminence in biomedical research.

Scientists from all over the world still come to the U.S. to learn how to conduct groundbreaking scientific research. However, many foreign scientists that trained in the U.S. are returning to their home countries to conduct research and compete against American scientists, and this will continue as long as the funding environment in the U.S. remains poor. Thus, all of the time,

effort and money invested in these scientists by the federal government is lost. Only by increasing the budgets of federal science funding agencies will the federal government ensure that American and foreign scientists alike are conducting their innovative research, establishing businesses and commercializing their discoveries in the U.S.

Over the past 15 years, funding for scientific research has been on a roller coaster. The doubling of the NIH budget from 1998 to 2003 was eroded over the ensuing six years by budgets that failed to keep pace with inflation. In 2009, funding from the American Recovery and Reinvestment Act boosted scientific research, but this was almost entirely counteracted by sequestration in 2013. Scientific research cannot survive this up-and-down, stop-and-start funding environment; pauses in research funding cause scientific results to become unusable sets of data and discourage bright young investigators from pursuing scientific careers. An enduring federal investment in scientific research is essential to continue to enrich the lives of Americans for decades to come.

Today, the U.S. stands proud as the world's leader in biomedical research. Biomedical research plays a critical role in creating high-tech, high-paying jobs, that help keep America the global leader in innovation and discovery. But it cannot do so without a reliable and robust federal investment. American scientists are willing and able to explore new scientific frontiers and use their discoveries for the betterment of their country. All that is needed is for the federal government to overturn sequestration, fund the NIH at \$32 billion and the NSF at \$7.6 billion for FY15 and maintain a strong, sustained investment in American scientists, research and discovery.