Testimony of
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On
FY 2011 Appropriations for the National Institutes of Health (NIH)

Submitted to the
House Committee on Appropriations
Subcommittee on Labor, Health and Human Services, Education and Related Agencies
Representative David Obey, Chair
Representative Todd Tiahrt, Ranking Member

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On behalf of the **Federation of American Societies for Experimental Biology (FASEB), I respectfully request an appropriation of $37 billion for the National Institutes of Health (NIH) in FY 2011**. Sustained and predictable public support for biomedical research is needed to accelerate the pace of discovery, improve the health of our nation's citizens, and contribute to the economic revitalization of our country.

As a Federation of 23 scientific societies, FASEB represents more than 90,000 life scientists and engineers, making us the largest coalition of biomedical research associations in the United States. FASEB's mission is to advance health and welfare by promoting progress and education in biological and biomedical sciences, including the research funded by NIH, through service to its member societies and collaborative advocacy. FASEB enhances the ability of scientists and engineers to improve—through their research—the health, well-being, and productivity of all people.

Due to the prior federal investment in NIH, researchers have made critical advances that have saved and improved the lives of millions of Americans and provided doctors with cutting-edge tools to prevent and treat costly and devastating diseases including:

- ***Type 2 Diabetes:*** In the United States, about 11 percent of adults—24 million people—have diabetes, and up to 95 percent of them have type 2 diabetes. An additional 57 million overweight adults have glucose levels that are higher than normal but not yet in the diabetic range, a condition that substantially raises the risk of a heart attack or stroke and of developing type 2 diabetes in the next 10 years. Researchers have recently demonstrated, based on a decade of data collection, that intensive lifestyle changes aimed at modest weight loss reduced the rate of developing type 2 diabetes by 34 percent in people at high risk for the disease. Intensive lifestyle changes consisted of lowering fat and calories in the diet and increasing regular physical activity to 150 minutes per week. Participants received training in diet, exercise (most chose walking), and behavior modification skills

- ***Melanoma***: Drawing on the power of DNA sequencing, NIH researchers identified a new group of genetic mutations involved in the deadliest form of skin cancer, melanoma. This discovery is particularly encouraging because some of the mutations, which were found in nearly one-fifth of melanoma cases, reside in a gene already targeted by a drug approved for certain types of breast cancer. In the United States and many other nations, melanoma is becoming increasingly more common. A major cause of melanoma is thought to be sun exposure; the ultraviolet radiation in sunlight can damage DNA and lead to cancer-causing genetic changes within skin cells

- ***Seasonal and Pandemic Flu***: Scientists have identified a small family of lab-made proteins that neutralize a broad range of influenza A viruses, including the H1N1 flu viruses, the 1918 pandemic influenza virus, and H5N1 avian virus. These human monoclonal antibodies, identical to infection-fighting proteins derived from the same cell lineage, also were found to protect mice from illness caused by H5N1 and other influenza A viruses. Because large quantities of monoclonal antibodies can be made relatively quickly, these influenza-specific monoclonal antibodies potentially could be used in combination with antiviral drugs to prevent or treat the flu during an influenza outbreak or pandemic

- ***Stroke***: Scientists have identified a previously unknown connection between two genetic variants and an increased risk of stroke, providing strong evidence for the existence of specific genes that help explain the genetic component of stroke

- ***Heart Disease*****:** There has been a 63 percent reduction in deaths from heart disease, and more than one million lives are saved each year by therapies developed to prevent heart attack and stroke

- ***Cancer:*** Since 2002, the number of deaths from cancer has decreased steadily. In the past 30 years, survival rates for childhood cancers have increased from less than 50 percent to over 80 percent.

- ***HIV/AIDS***: This disease has been transformed from an acute, fatal illness to a chronic condition; the prophylactic use of anti-virals prevented almost 350,000 deaths worldwide in 2005. In the U.S., deaths from AIDS dropped nearly 70 percent between 1995 and 2000. Life expectancy for those infected with HIV has increased by ten years.

The completion of the Human Genome Project and the resulting reductions in genome sequencing costs are another example of how the prior investment in research has both dramatically increased the pace of discovery and harnessed the power of technology. Genome sequencing brings us to the threshold of personalized medicine, where knowledge of our own individual genetic makeup can be used to target cures and identify the most effective therapies for individuals. Researchers are at the beginning of a whole new era of pharmacogenomics that will identify methods to tailor treatments and scientifically match therapies to individual circumstances in ways that were inconceivable a few years ago.

Knowledge of an individual's genetic make-up has already been effective in determining which drugs work best with certain cases of AIDS, breast cancer, acute lymphoblastic leukemia, and

colon cancer. The number of new research proposals is expected to expand dramatically as researchers exploit this exciting line of inquiry, yet continued progress toward that goal depends on sustained and predictable funding support for the NIH.

Sustainable Budget Growth Will Maximize the Return on Investment

Additional funding is needed to fully develop the knowledge we have gathered to date and to apply that knowledge in clinical settings. The research engine needs a predictable, sustained investment in science to maximize our return on investment. The discovery process—while producing tremendous value—often takes a lengthy and unpredictable path. Recent experience has demonstrated how cyclical periods of rapid funding growth followed by periods of stagnation are disruptive to training, careers, long range projects, and ultimately to scientific progress. In 2011 and beyond, we need to make sure that the total funding available to NIH does not decline and that we can resume a steady, continuous growth that will enable us to complete President Obama's vision of doubling our investment in basic research.

The most painful consequence of failing to continue the robust investment in research will be the delay in relief to those suffering from the burdens of disease. Long-term plans for federal investment in science facilitate coordination and planning, encourage investments by the private sector, attract new talent, reduce the startup costs of projects, and eliminate the possibility of waste that could result from abrupt termination of valuable scientific investigations.

Prosperity and Quality of Life Are Shaped By Investments in Science

As a nation, we currently find ourselves confronting a number of unprecedented social and economic challenges, and once again our leaders have turned to research in the quest for solutions to these vexing problems. Funds from the *American Recovery and Reinvestment Act* (ARRA) have inspired the creative energies of research teams across the nation. These new resources, coming after many years during which our capacity for research was eroded by flat budgets, are a lifeline for new ideas, research personnel, and progress.

ARRA funding was only appropriated for a two year period, and we face a major shortfall when these funds have been spent. Returning to pre-ARRA funding levels presents a frightening prospect for those whose hopes for a brighter future rest with medical research. It will also be a setback for the scientists who have contributed so much of their time and talent to this quest. It is critical that we invest now to sustain the excitement in research, maximize the return on our prior investments, and continue the innovative pipeline of medical and technological advancements that federal science agencies have always fostered.

Despite the fragile economy, now is not the time to pull back from our historic commitment to investigation and discovery. Our leadership in science and engineering has made us the envy of the world. However, we must nurture our research investment to benefit from the knowledge that we have gained and ensure that continued progress is not curtailed. President Obama has recognized the importance of continuing support for the NIH in his proposed budget for FY2011.

A half-century of public investment in NIH has dramatically advanced the health and improved the lives of Americans and of people around the globe. Unfortunately, millions of Americans and

their families still suffer from the ravages of disease and cannot wait for new treatments, therapies, and prevention strategies. Sustained and predictable public support for biomedical research is needed now more than ever. We recognize that this subcommittee has the especially difficult task of providing funding for a wide range of critical human service programs and thank you for your prior support of the research enterprise. Nonetheless, additional resources are needed to pursue the unprecedented level of scientific opportunities available today and uphold the nation's role as a leader in medical research. **Therefore, FASEB recommends an appropriation of $37 billion for the National Institutes of Health (NIH) FY 2011.**