

Biological Science: An Investment in America's Future



Biological research and education contribute to the development of sustainable and cost-effective solutions for society's most pressing issues.

- **Economic Growth:** Research creates jobs, drives innovation, increases productivity, and yields an economic return of 20% or more.
- **Food Security:** New varieties of crops are needed to sustainably produce higher yields under changing environments.
- **Climate Change:** Unprecedented environmental changes warrant research on the impacts to human health, agriculture, and natural resources.

- **Human Health:** Fundamental cell and molecular research leads to the development of medical innovations.

- **Clean Energy:** The green economy of the future can be fueled with cleaner, more sustainable energy sources.

- **Environment:** Pollution, loss of biodiversity, and invasive species threaten the natural resources that underpin the livelihoods of communities.

- **Security:** Research enables us to prevent, detect, and recover from agro- or bio-terror attack.

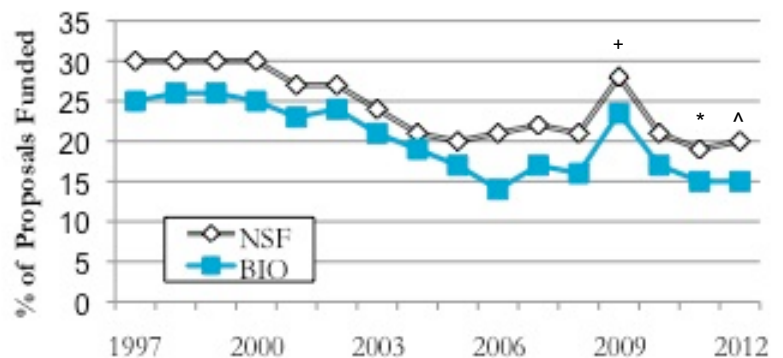
Federal support for research is essential to ensure our nation's competitiveness in a global market.

Research is not a short-term expense It is an investment for the future

Federal support for competitive, peer-reviewed grant programs that fund biological research, such as the National Science Foundation's (NSF) Biological Sciences Directorate (BIO), the U.S. Department of Agriculture's (USDA) Agriculture and Food Research Initiative (AFRI), the National Oceanic and Atmospheric Administration (NOAA), and the Environmental Protection Agency's (EPA) Office of Research and Development, are vital components of the nation's research enterprise.

NSF BIO provides approximately 68% of extramural, competitive grant funding for basic biological and environmental research conducted at our nation's universities and nonprofit research centers. Awards are made via a competitive process and proposals are peer-reviewed by scientists, resulting in the most promising research being funded.

Funding for BIO, however, has not kept pace with the demand for research grants. Despite the large number of highly competitive and potentially transformative grant proposals submitted to BIO, **83% of applications were rejected in 2010.**



+ includes ARRA
* estimated
^ President's request

Funding Shortfall

Awards for extramural, competitive research have stagnated at other agencies. In 2009, only 19% of AFRI proposals were funded. The rate of awards at the National Institutes of Health (NIH) has been below 20% for several years. NOAA's support of extramural research and development (R&D) fell from 46% of the agency's R&D portfolio in FY 2009 to 34% in FY 2010.

The American Recovery and Reinvestment Act allowed NSF and other agencies to award grants to high-quality proposals, some of which had gone unfunded because of limited budget resources. These funds directly supported scientific research, trained graduate students, eased a backlog of scientific equipment and instrumentation needs, and allowed for needed repairs and construction of research facilities. However, **a sustained federal investment is required to maintain the progress generated by ARRA funding and to prevent another buildup of unfunded, but competitive grants.**

“Scientific discovery takes far more than the occasional flash of brilliance – as important as that can be. Usually, it takes time and hard work and patience; it takes training; it requires the support of a nation. But it holds promise like no other area of human endeavor.”

-President Barack Obama

“One of the great engines of our growing economy is our nation's capacity to innovate. Through America's investments in science and technology, we have revolutionized our economy and changed the world for the better. Groundbreaking ideas generated by innovative minds in the private and public sectors have paid enormous dividends—improving the lives and livelihoods of generations of Americans.”

-President George W. Bush

The President's budget request for NSF BIO and other agencies will enable these programs to fund highly competitive research grants in fiscal year (FY) 2012.

Please help to ensure that federal investments in the biological sciences are sustained.

- **Fund NSF at \$7.767 billion in FY 2012, the amount requested the agency.** This would allow NSF to fund BIO on a trajectory more on par with other research directorates, and would support important research on disease ecology, food security, and other critical biology-based research.
- **Support the funding levels in the President's budget for other important biological science programs,** including programs administered by the NIH, NOAA, USDA AFRI, EPA, and Department of Energy Office of Science.

Thank you for your consideration of this request. We greatly appreciate the support of Congress.



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