Research for the 21st Century

Federal investment in scientific research and development fuels innovation and supports jobs. Biological research funded by the National Science Foundation (NSF) and other federal agencies helps generate solutions to national challenges, such as the need to improve food security, combat new diseases, and wisely manage natural resources. This federal support also helps the country to attract and educate the next generation of scientists by providing them with real life research opportunities.

Biological Research: Meeting Society’s Needs

Federally funded research increases our fundamental understanding of the living world, and provides solutions to many societal problems:

- **Increasing food security** by developing crops that adapt to and grow in changing environments.
- **Improving human health** with individualized and predictive medicine.
- **Fueling the economy** of the future by providing the understanding needed to develop and use energy with as little environmental impact as possible.
- **Maintaining healthy ecosystems** that underpin the livelihoods of communities by sustaining biodiversity and ecosystem services.
- **Protecting people, plants, and animals** from agro- and bio-terrorism.
- **Predicting, mitigating, and preparing for the impacts of environmental changes and natural disasters.**

Growing the Economy

The National Science Foundation is a vital engine for our nation’s economic growth.

- Public investments in research yield a positive rate of economic return and support jobs in every state.
- NSF-funded research contributed to the generation of more than 80,000 patents in the last decade.
- Research funding from the NSF has given rise to numerous successful companies, including Google.
- Investments in research equipment and facilities enable our nation to innovate and compete globally.
- NSF’s education and training programs reached 143,000 K-12 students and 40,000 teachers in 2014.
RESEARCH IS NOT A SHORT-TERM EXPENSE. IT IS AN INVESTMENT FOR THE FUTURE.

The NSF's Biological Sciences Directorate (BIO) provides about 66% of federal grant support for non-medical, fundamental biological research conducted at our universities and nonprofit research centers. Awards are made through 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, the vast majority of applications were rejected in 2014.

Awards for extramural competitive research have stagnated at other federal agencies. The success rate at the National Institutes of Health was 18% in 2014. Only 11% of proposals are funded within the USDA's Agriculture and Food Research Initiative.

Sustained federal investment is required to prevent another build-up of unfunded, high-quality grants.

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

Fund NSF at $7.7 billion in FY 2016. This would allow NSF to continue to support important research on disease ecology, energy and food security, and other critical biology-based research.

Support the funding levels in the President's budget for other important biological science programs, including the Agriculture and Food Research Initiative and programs administered by the National Institutes of Health, the Department of Energy, the U.S. Geological Survey, and the National Oceanic and Atmospheric Administration.

Biological and Ecological Sciences Coalition
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NSF-Funded Innovation

Recent examples of scientific discoveries resulting from NSF-funded research include:

- Research on the development of blue mussel larvae is providing information that could improve yields and commercial prospects for shellfish aquaculture.
- Scientists are studying the natural immunity of bacteria to invading viruses. The results could transform our ability to improve the health and resilience of plants and animals.
- Studies on the impacts of bark beetles on forests in the western U.S. have provided insights into changes in stream flows and water quality.