



BIOLOGICAL SCIENCES: AN INVESTMENT IN AMERICA'S FUTURE

Research for the 21st Century

Public investment in scientific research and development fuels innovation and creates jobs. Biological research helps generate solutions to national challenges, such as the need to improve food security, combat new diseases, and wisely manage natural resources. Federal and state support also helps the country attract and educate the next generation of scientists by providing them with real life research opportunities.

Biological Research: Meeting Society's Needs

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



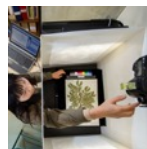
Improving **human health** with individualized and predictive medicine.



Sustaining **biodiversity and healthy ecosystems** that underpin the livelihoods of communities.



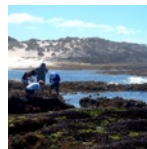
Increasing **food security** by developing crops that grow in changing environments.



Developing **new tools for data analysis** to stimulate development of new research fields.



Fueling the **economy** by improving the sustainability of domestic energy sources.



Predicting, mitigating, and preparing for the **impacts of environmental changes**.

“As never before, advances in biological sciences hold tremendous promise for surmounting many of the major challenges confronting the United States and the world.... Scientific efforts based on meeting societal needs have laid the foundation for countless new products, industries, even entire economic sectors that were unimagined when the work began.”

- Dr. Thomas Connelly, Chief Innovation Officer for Dupont, and
Dr. Phillip Sharp, professor at the Massachusetts Institute of Technology and Nobel laureate

RESEARCH IS AN INVESTMENT IN OUR FUTURE.

50%

Economic growth at private businesses due to R&D in last 50 years

2,000

Number of NSF-funded institutions across the country

44%

Percentage of fundamental research funding provided by the federal government

55,700

Students supported by NSF Graduate Research Fellowships since 1952

3%

Average annual increase in science and engineering employment since 1960, compared to 2% growth rate in total employment

1 in 5

Proportion of biological research proposals funded by NSF, NIH, USDA

Federal support for competitive merit-reviewed grant programs that fund biological research are vital components of the nation's research enterprise. Awards are made via a competitive process and proposals are peer-reviewed by scientists, resulting in the most promising research being funded.

The National Science Foundation's (NSF) Biological Sciences Directorate (BIO) provides about 69% of federal grant support for non-medical, fundamental biological research conducted at our universities and nonprofit research centers.

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, **77% of applications were rejected in 2017.**

Research programs that support fundamental biological research have very low funding rates. Roughly one in five research proposals are funded by NSF, the National Institutes of Health, and USDA's Agriculture and Food Research Initiative. **These funding rates are lower than a decade ago.**

Sustained investment is required to ensure that the nation is positioned to remain a global leader in science and innovation. Please ensure that federal investments in the biological sciences are sustained.

