**Outside Witness Testimony in Support of FY 2026 Funding for the National Science Foundation**

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House Committee on Appropriations
Subcommittee on Commerce, Justice, Science and Related Agencies

The American Institute of Biological Sciences (AIBS) appreciates the opportunity to provide testimony in support of fiscal year (FY) 2026 appropriations for the National Science Foundation (NSF). We encourage Congress to reject the President's budget request and instead provide NSF with **at least $9.9 billion** in FY 2026.

*AIBS is a scientific association dedicated to promoting informed decision-making that advances biological research and education for the benefit of science and society. AIBS works to ensure that the public, legislators, funders, and the community of biologists have access to information that can guide informed decision-making.*

## Importance of Biological Research

Biological research is a national imperative. It deepens our understanding of the living world and drives innovative solutions to critical challenges. Advancing knowledge of genes, cells, organisms, and ecosystems is essential to improving the human condition. From food security and public health to national defense, economic growth, and environmental stewardship, the biological sciences provide a foundational framework for informed decision-making and meaningful progress. Importantly, biological research supports biodiversity and sustains healthy ecosystems that are vital to community livelihoods and resilience. NSF-funded research not only expands our scientific understanding but also fuels the development of new tools, technologies, and entire industries.

Biological research is also a powerful engine for economic growth. Research funding from NSF powers the expansion of the bioeconomy and has given rise to successful companies, such as Genentech, Ekso Bionics, and Ginkgo BioWorks, as well as new industries that provide more robust food crops or disease detection tools and techniques. The translation of biological knowledge into formal and informal education programs fosters the development of the

scientifically and technically skilled workforce needed by employers. Data show that employers continue to seek workers with scientific and technical skills. Over the past decade, the U.S. science, technology, engineering, and mathematics (STEM) workforce grew both in number and in the percentage of the total U.S. workforce – from 22% to 24% between 2011 and 2021. In fact, in 2021, the U.S. STEM workforce comprised 36.8 million people in diverse occupations that require STEM knowledge and expertise, making up 24% of the total U.S. workforce.

**Importance of NSF-Funded Biological Research**

The cornerstone of NSF excellence is a competitive, merit-based review system that underpins the highest standards of excellence. Through its research programs, NSF invests in the development of new knowledge and tools that solve the most challenging problems facing society.

- **Combating emerging diseases**: NSF-funded research played a crucial role in our response to the COVID-19 pandemic. Fundamental research supported by NSF led to the development of critical diagnostic tools and medical devices to combat the outbreak. NSF supported the discovery of bacteria from thermal pools at Yellowstone National Park that contain thermostable enzymes that allow for the rapid copying of genetic material through a process called Polymerase Chain Reaction (PCR). This process was integral to manufacturing a widely used clinical test for determining whether a patient has been infected with the virus that causes COVID-19.
- **Mobilizing big data**: Access to and analysis of vast amounts of data are driving innovation. NSF enables integration of big data across scientific disciplines, including applications in the biological sciences. Digitization of biodiversity and natural science collections involves multi-disciplinary teams, which have put more than 147 million specimens and their associated data online for use by researchers, educators, and the public.
- **Enabling synthetic biology:** DNA editing has become more advanced and targeted with techniques such as CRISPR-CAS9, allowing scientists to modify genetic code and redesign biological systems. NSF funds research on how these techniques can be used to bio-manufacture new materials, treat diseases, and accelerate growth of the bioeconomy.

NSF is the primary federal funding source for biological research at our nation's universities and colleges, providing 65 percent of extramural federal support for non-medical, fundamental biological and environmental research at academic institutions.

**Strengthening Biological Research Infrastructure**

NSF is also an important supporter of biological research infrastructure, such as field stations, natural history museums, and living stock collections. These place-based research centers enable studies that take place over long periods of time and variable spatial scales to provide insights into our nation's most pressing issues.

Scientific collections are an important component of our nation's research infrastructure. Recent reports have highlighted the value of mobilizing biodiversity specimens and data in spurring new scientific discoveries that grow our economy, improve our public health and well-being, and

increase our national security.

In 2019, the Biodiversity Collections Network released their report, "Extending U.S. Biodiversity Collections to Promote Research and Education," outlining a national agenda that leverages digital data in biodiversity collections for new uses and calling for building an Extended Specimen Network.

A 2020 report by the National Academies of Science, Engineering and Medicine (NASEM), "Biological Collections: Ensuring Critical Research and Education for the 21st Century," argued that collections are a critical part of our nation's science and innovation infrastructure and a fundamental resource for understanding the natural world. The NASEM report's recommendations for establishing an action center for biological collections and requiring specimen management plans for research generating new specimens, underscore the importance of collections and have been supported by the CHIPS and Science Act.

Both reports articulate a common vision of the future of biological collections and define the need to broaden and deepen collections and associated data to realize their full potential to inform 21st century science. This endeavor requires robust investments in our nation's scientific collections, whether they are owned by a federal or state agency or are part of an educational institution, free-standing natural history museum, or another research center.

While many federal agencies have a role in supporting the establishment of an action center for biological collections and the development of the Extended Specimen Network, NSF has a central role to play. The agency has been a leader in this space through the Advancing Digitization of Biodiversity Collections program, and is now supporting critical advancements through the Infrastructure Capacity for Biological Research: Biological Collections program.

**Building the STEM Workforce**

NSF supports recruitment and training of our next generation of scientists. Support for undergraduate and graduate students is critically important to our research enterprise. Students learn science by doing science, and NSF programs engage students in the research process.

NSF awards reached 1,850 colleges, universities, and other public and private institutions across the country in FY 2024. Initiatives such as the Graduate Research Fellowship and the Faculty Early Career Development program are important parts of our national effort to attract and retain the next generation of researchers. In FY 2024, nearly 358,000 people, including researchers, postdoctoral fellows, trainees, teachers and students, were supported directly by NSF.

**Investing in NSF is Critical for U.S. Global Leadership in Science**

Unfortunately, federal research and development (R&D) investments are shrinking as a share of the U.S. economy. In the mid-1960s, federal R&D spending as a share of the Gross Domestic Product was approximately 2%. Since then, that share has steadily declined to less than 1%. While our economy has grown, our country has not prioritized federal R&D as it once did.

The U.S. is still the largest performer of R&D globally, but our share of worldwide scientific activity has declined considerably over the past two decades, while countries in East and Southeast Asia, especially China, have been rapidly increasing their investments in science. From 2000 to 2020, China's share of total global R&D expenditures increased from 4.9% to 24.8%, while the U.S. share fell from 39.9% to 30.7%. Over the last decade, the annual rate of increase of China's R&D was almost double that of the U.S.

To remain at the global forefront of innovation and to fully realize the benefits of NSF-supported research, the government must make bold and sustained investments in NSF. Unpredictability in funding disrupts research programs, creates uncertainty in the research community, and stalls the development of the next great idea.

Enacting robust funding increases for NSF will allow for critical federal investments in scientific and educational research, as well as support for the development of the scientific workforce. For example, the prestigious Graduate Research Fellowship Program—widely viewed as a career-defining award for aspiring scientists—has supported more than 70,000 students since 1952. Unfortunately, due to ongoing funding uncertainties, only 1,000 early-career researchers received the fellowship this year—down from 2,037 in 2024 and a peak of 2,555 in 2023. New investments will allow NSF to increase the number of new graduate research fellowships it awards to nurture the human capital needed to ensure U.S. leadership in scientific innovation.

**Conclusion**

Providing NSF with at least $9.9 billion in FY 2026 is necessary to undo the harmful effects of years of underinvestment in research. The requested funding will grow and sustain the U.S. bioeconomy and empower NSF to accelerate work on important initiatives at the frontiers of science and engineering. This investment will enable NSF to support research in a number of important priority areas such as biotechnology, artificial intelligence, climate change, and advanced biomanufacturing. Importantly, these increases will advance research on infectious disease emergence and transmission, prevent future pandemics, and fill gaps in our knowledge about the spread and evolution of biological threats.

Despite its essential role, NSF received an 8% budget cut in FY 2024 and only flat funding in FY 2025—figures that fall far short of the bipartisan vision outlined in the CHIPS and Science Act. That landmark legislation provided an exciting framework for growing federal investments in research and authorized NSF funding to grow to $17.8 billion in FY 2026. Yet, current funding remains well below this target. Even more concerning, the President's FY 2026 budget proposal calls for a devastating 57% cut to NSF, along with plans to drastically reduce the agency's workforce and cap indirect cost rates at 15%. If enacted, these measures would severely diminish NSF's ability to support research and innovation, jeopardize decades of scientific progress, and weaken our global competitiveness at a time of mounting international challenges.

We urge Congress to reject the President's proposal and instead provide at least $9.9 billion for NSF in FY 2026—restoring the agency to its FY 2023 funding level and reaffirming our national commitment to scientific excellence. Thank you for your thoughtful consideration of this request and for your prior efforts on behalf of science and the National Science Foundation.