Testimony of the American Society for Biochemistry and Molecular Biology to the House Appropriations Committee Subcommittee on Commerce, Justice, Science and Related Agencies

Testimony in support of the National Science Foundation

Submitted by:
Ann West, Ph.D.
Chair, Public Affairs Advisory Committee Member
American Society for Biochemistry and Molecular Biology

May 09, 2025

The American Society for Biochemistry and Molecular Biology (ASBMB) is a nonprofit professional society that builds and empowers a broad community of molecular life scientists to advance discovery. Its community comprises 11,000 members, including researchers and scientist educators, ranging from senior scientists to students. ASBMB strongly advocates for strengthening the science, technology, engineering and mathematics (STEM) workforce, and supporting sustainable funding for the U.S. research enterprise.

Our members conduct ground-breaking foundational research in all 50 states that leads to medical, agricultural, and technological advancements that make American lives better. With each basic science breakthrough, the scientific enterprise grows, adding new therapies, interventions, and solutions to the most pressing issues inflicting the country. To grow and sustain the American research ecosystem, **the ASBMB strongly recommends policymakers appropriate $9.9 billion to the National Science Foundation** to maintain the agency's pivotal role in laying the foundational research needed to drive cures and innovation and secure this country's global leadership in science and technology.

Federally funded research, such as those conducted by our members, has led to the development of life-saving treatments and foundational discoveries that have propelled the scientific enterprise including:

- Studies on the connection between a high fat diet and atherosclerosis.
- Research on proteins involved in Parkinson's Disease.
- Research that studies microbes involved in enhancing heat resistance in plants.

Similarly, my research at University of Oklahoma focuses on studying foundational understanding of biochemical and molecular biological mechanisms that can lead to new discoveries. In my lab, we study the pathways in bacteria and yeast that are integral to microbial adaptation to environmental stress, which has been supported by an NSF grant. By studying these pathways, we seek to understand how proteins interact and regulate key processes within the cell, make these proteins potential targets for antimicrobial therapy development, which is desperately needed as we see the rising toll of drug-resistant infections.

For biochemists like myself, NSF funding supports basic research into intricacies of biological systems and processes that lay the foundation for innovations in therapies, crop development, imaging, and computational algorithms. Basic scientific research is the first step in this process;

without it, scientists would not have the vital information to translate into cures or innovations that help the American people.

NSF plays a unique role in basic science as the only federal agency that funds research in all fields. These investments in foundational research led to many groundbreaking technologies including Magnetic Resonance Imaging (MRI), Artificial Intelligence (AI), and LASIK eye surgery – all of which have a tremendous impact on the health and lives of Americans.

The agency is able to achieve such success through continued and sustained investments in high-risk research throughout the years.

Congress has recognized NSF's unique position as the epicenter for driving scientific breakthroughs through authorizing the Technology, Innovation and Partnerships (TIP) directorate. TIP houses the America's Seed Fund programs that support small business research and development, the Innovation Corps (I-corps) entrepreneurship training program that empowers scientists to translate their discoveries to the marketplace, and other programs that foster partnerships and workforce development. To date, the TIP directorate has launched over 2,000 startups, created over 6,000 jobs, and trained over 14,000 future innovators.

Often initial funding from NSF leads to discoveries that are ripe for translational investment from other federal agencies and the private sector. For example, publicly supported investments such as the Dartmouth College-Generate Biomedicines, Inc., University of Alaska Fairbanks-Be Cool Pharmaceuticals and the Old Dominion University-Pulse Biosciences partnerships all started from NSF funding.

Importantly, NSF funds research in all 50 states, contributing tens of millions of dollars to state economies each year. The awards to research institutions support research personnel, small businesses, and laboratory supplies fueling the economies of surrounding communities.

In addition to bolstering the country's economy, a key strength of the NSF is the agency's role in training the next generation of scientists. NSF supports future innovators through summer research experiences (REUs) that prepare undergraduate students for graduate school, and merit-based Graduate Research Fellowships (GRFs) that support master's and doctoral students with exceptional potential. While the GRF program typically awards around 2,000 GRFs a year, in 2025 only 1,000 were announced.

These programs not only prepare the next generation for independent research positions, they train creative, innovative thinkers who drive change across sectors.it ensures that the next generation has the appropriate scientific fitness to succeed as productive scientists. Many scientists trained from the GRFP have gone on to create biotechnology companies that have expanded the U.S. scientific enterprise. For instance, co-founders of Gingko Bioworks, a synthetic biology company, began their research careers with funding from the GRF program. The initial investment into their training positioned them to receive the necessary seed money (also from NSF) to build their now multi-million dollar company that provides over 600 jobs.

Without steady funding for these programs, talent will be lost and there will no future innovators to lead the country's scientific enterprise.

The value of investing in NSF goes beyond the careers of individual scientists and trainees. The NSF is uniquely equipped to fulfill the administration's ambitious goal to "revitalize America's science and technology enterprise." NSF brings together scientists from across disciplines through the Convergence Accelerators and other Center programs. In high-priority fields like

quantum science and AI, the TIP directorate is building bridges across the public and private sectors to promote research and development. The research conducted between these partnerships in fields such as cybersecurity protects the nation's digital infrastructure and keeps the country safe by mitigating the risks of cyberattacks by foreign adversaries.

Lastly, to stay ahead of foreign competitors, we must maintain US scientific leadership. NSF funding contributes to American competitiveness through training of a highly skilled workforce, discovery and commercialization of inventions, and by fostering international cooperation. Programs like the Global Centers and AccelNet encourage engagement with global peers and position American scientists as leaders on the global research stage.

To grow and sustain our scientific enterprise, we strongly urge appropriators to increase the NSF budget to the highest possible level to maintain global leadership, fuel the economy and train future innovators.