Testimony of the American Society for Biochemistry and Molecular Biology to the both the House and Senate Appropriations Committee Subcommittee on Labor, Health and Human Services, Education and Related Agencies

Testimony in support of the National Institutes of Health

Submitted by:
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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 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 further the thriving American research ecosystem, **the ASBMB strongly recommends policymakers appropriate $51.3 billion to the National Institutes of Health** 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 stress. By studying these pathways, we can potentially identify targets for antimicrobial therapy development, which is desperately needed as we see the rising toll of drug-resistant infections.

NIH funding supports basic scientific research that studies specific intricacies of biological systems and processes that are needed to lay the foundation for innovative cures and therapies. 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. For example, the targeted radiation therapy Pluvicto that is used to treat prostate cancer came to

fruition from studying small protein sequences known as peptides that specifically bind to cancer cells.

To build this pipeline of scientific information, NIH researchers across the country are aiming to answer rudimentary questions on the workings of living organisms that leads to discoveries that are targets for therapies. For example, researchers at New York University are using fruit flies to study respiratory proteins that are associated with heart failure, cardiomyopathy and cancer; a group at the University of Michigan are studying molecules that slow the process of neurodegenerative diseases such as Alzheimer's Disease; and a team at the University of California, San Diego are researching lipids to serve as biomarkers to detect the risk of liver disease.

The United States' biomedical scientific research enterprise led by the NIH has generated crucial advancements that paved the way for live-saving medications and treatments. From 2010 to 2019, 354 out of 356 drugs approved came from NIH funded research, providing treatments for diseases such as pancreatic cancer. These innovations have secured the U.S.'s leadership role in driving innovation and have supported the health of all Americans. The benefit of these innovations can be seen through recent cancer drugs that have prolonged the lives of thousands of Americans and the return on investment that has impacted every single state.

Investing in these researchers drives innovation forward and pours economic benefits into local economies. Basic research, supported by the NIH, has tremendous economic impacts: funding from the NIH stimulates local economies through the training of the next generation of scientists, attracting talent to communities across the country, purchasing of laboratory supplies, supporting small businesses and ultimately, creating thriving research hubs that uplift economies. These research hubs support a plethora of non-research related positions including local construction, electrician and HVAC jobs and so much more.

Furthermore, publicly funded research institutions are fertile ground for partnerships between the public and private sectors. Public-private partnerships such as those cultivated through the NIH's National Center for Advancing Translational Sciences accelerate treatments to the market. Examples of these partnerships include the Accelerating Medicines Partnership program that has discovered novel approaches for streamlining the research for Alzheimer's Disease, Type 2 Diabetes, Rheumatoid Arthritis, and Systemic Lupus Erythematosus.

Lastly, to remain the top country for biomedical research in the world, the country must grow and not reduce investments in scientific research. Other countries are rapidly increasing R&D spending and innovation efforts, approaching the United States and even surpassing the U.S. in certain fields. Alarmingly, China has almost quadrupled its research within the past ten years while the U.S. has remained stagnant or decreased in some areas, including artificial intelligence (AI). Basic scientific research covers a wide array of topics, including AI. Not only has basic science contributed to the development of AI, but it also utilizes AI within data analysis software and for other day to day lab activities.

While China is the current leader in AI development, supporting the NIH and basic research will allow the U.S. to catch up and reclaim our global advantage in STEM and ensure that America is first in scientific research. To do this, we must fully invest in building our research infrastructure and capacity, so we can bolster our STEM enterprise.

A robust STEM enterprise is crucial in keeping the United States at the forefront of scientific innovation. Science and engineering articles are a key metric in measuring productivity and

research impact of our STEM workforce. As of 2022, the U.S. is behind China in S&E publications. Moreover, China is significantly outpacing the U.S. in STEM PhDs, a key component to driving basic science research and a weakness in our innovation ecosystem. To remain as leaders in the scientific community, the U.S. must provide significant and sustained funding to the STEM enterprise.

The U.S. scientific enterprise is a vital aspect of our international competitiveness. A lack of sustained investment in basic research can cause a delay in life-saving drugs to the market and technologies that drive scientific innovation forward. Investing in basic scientific research accelerates research and development and revitalizes America's science and technology enterprise, which is consistent with the chargethe Administration recently gave to the White House Office of Science and Technology Policy director. We strongly urge appropriators to increase the NIH budget to the highest possible level to raise the country on the global research stage, fuel the economy and save American lives.