



U.S. National Science Foundation



2025 marks the 75th anniversary of NSF. Throughout the year, the agency will host in-person and virtual activities to commemorate this significant milestone. For more information, visit: [nsf.gov/75years](https://www.nsf.gov/75years)

# MARYLAND

## ● FAST FACTS



**\$442,470,000**

Total NSF Awards to Maryland



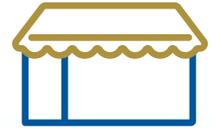
**\$352,042,000**

Invested in Fundamental Research in Maryland



**\$34,904,000**

Invested in STEM Education in Maryland



**\$7,717,000**

Invested in Maryland Businesses

## ● TOP NSF-FUNDED ACADEMIC INSTITUTIONS

University of Maryland, College Park  
**\$45,950,000**

Johns Hopkins University  
**\$41,844,000**

University of Maryland, Baltimore County  
**\$17,478,000**

## ● NSF BY THE NUMBERS

The U.S. National Science Foundation (NSF) is an independent federal agency created by Congress in 1950 to promote the progress of science; to advance the national health, prosperity, and welfare; and to secure the national defense. To fulfill this vital role, NSF supports basic research and researchers who create knowledge that transforms the future.

**DID YOU KNOW?** NSF has funded the work of **268** Nobel Prize winners over 75 years.



**\$9.06B**  
FY 2024  
Total Enacted

**92%**  
Funds research, education and related activities



**11K**  
Awards



**1.9K**  
Institutions



**358K**  
People

*"Data represents FY 2024 Actuals unless otherwise indicated"*



[www.nsf.gov](https://www.nsf.gov)



## INNOVATION | *Generating new knowledge that provides a greater understanding of the world around us*

Researchers at **Johns Hopkins University** are using an NSF Trailblazer Engineering Impact Award to harness the power of quantum technology in the biomedical sciences. By leveraging electron spins in engineered proteins, biochemical reactions — and, subsequently, the behaviors of cells — can be controlled using magnetic fields. The design of the engineered proteins is inspired by a family of naturally occurring proteins that are sensitive to magnetic fields. This family of magneto-sensitive proteins is known to control biological clocks, DNA damage repair, neuronal activities and the seasonal navigation of migratory birds. The engineered proteins will exhibit graded sensitivity to magnetic fields, where their activities are correlated to the strength of the externally applied magnetic field. As such, biochemical reactions can be dialed down or up by adjusting the field strength. Therefore, this new class of engineered proteins is named “quantum-enabled dial” (QED). Because QED activity can be tuned on a continuous scale, QED will have high impacts in many fields, such as synthetic biology, medicine and quantum computing. For example, QED-based bespoke molecules can be used as smart drugs by precisely controlling when and where the drug is active.

## EXPANDING FRONTIERS | *Generating institutional capacity, new technologies and societal impact*

**Astek Diagnostic LLC** is leading an NSF Small Business Innovation Research Phase II project to deliver a rapid antibiotic susceptibility testing (AST) platform. There is a significant need for rapid AST methods that can quickly determine the most effective antibiotics, especially for critical conditions like urinary tract infections (UTIs), complicated UTIs, urosepsis, bacterial meningitis and skin and wound infections. Traditional methods, based on culture techniques, often take several days, causing delays in administering the correct antibiotics for infections and adversely affecting patient outcomes. The novel AST platform will enable the identification of appropriate antibiotics for a given infection within an hour. This will reduce the need for empirical antibiotic administration and address the urgent public health challenge of increasing antimicrobial resistance, where the potential to reduce the empirical use of broad-spectrum antibiotics could slow the development of antibiotic resistance. The AST market is projected to reach \$4.05 billion by 2028, and a novel AST device would be well positioned to address critical market deficits.

## EDUCATION AND WORKFORCE | *Supporting our STEM talent of today and tomorrow*

The NSF Improving Undergraduate STEM Education: Innovation in Two-Year College STEM Education project at the **Community College of Baltimore County** is developing and implementing an array of early undergraduate research experiences for students beginning their academic career at a two-year college. Each year of the project, 15-30 students will be supported with research stipends and participation in STEM conferences. The project team is also creating and scoping the sequence of four research courses which include faculty-led research components. Students are supported by a dedicated advisor who provides both guidance and resources for academic success that complement the research experiences. Access to this type of high-impact practice early in the STEM pathway is critical for expanding the STEM workforce across the country.

### ON THE CUTTING EDGE

NSF is pushing the boundaries of what is possible in today's most important technology areas, including [artificial intelligence](#), [quantum information science](#), and [biotechnology](#). The Foundation also maintains industry-leading, [state-of-the-art facilities](#) around the world.

### NCSES

The [National Center for Science and Engineering Statistics \(NCSES\)](#) within the U.S. National Science Foundation is the nation's leading provider of statistical data on the U.S. science and engineering enterprise. As a principal federal statistical agency, NCSES conducts nationally representative surveys and publishes objective data and reports on topics related to research and development, the science and engineering workforce, and STEM education. For example, in FY 2024, **Maryland** invested **\$25,108,000,000** on research and development.

For more information on NSF's impact in your state, please contact NSF Office of Legislative and Public Affairs at [congressionalteam@nsf.gov](mailto:congressionalteam@nsf.gov).

### LEARN MORE

- **BROUGHT TO YOU BY NSF** – NSF has invested in discoveries, inventions, and innovations that have shaped the modern world, including the internet, 3D printing, American Sign Language, Magnetic Resonance Imaging (MRI), deep sea exploration, Doppler radar and more. For more information on NSF impacts, please visit: [nsf.gov/impacts](https://www.nsf.gov/impacts).
- **RESEARCH SECURITY** – NSF is committed to safeguarding the integrity and security of science and engineering while also keeping fundamental research open and collaborative. NSF seeks to address an age of new threats and challenges through close work with our partners in academia, law enforcement, intelligence and other federal agencies. By fostering transparency, disclosure and other practices that reflect the values of research integrity, NSF is helping to lead the way in ensuring taxpayer-funded research remains secure. To learn more, please visit [NSF's Research Security website](#).
- **FOSTERING INNOVATION** – Every year, NSF funds around 400 companies across nearly all technology areas to create prototypes and commercialize technologies. Learn more at [seedfund.nsf.gov](https://www.seedfund.nsf.gov).