



Genetics Society of America

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Testimony of the Genetics Society of America
IN SUPPORT of increased funding for the National Science Foundation

Before the Senate Committee on Appropriations
Subcommittee on Commerce, Justice, Science, and Related Agencies

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Thank you for the opportunity for the Genetics Society of America (GSA) to provide our perspective on the fiscal year (FY) 2017 appropriations for the National Science Foundation (NSF). GSA recommends a minimum of \$7.96 billion for NSF to support fundamental research across the nation.

GSA is a professional scientific society with more than 5,500 members from all 50 states working to deepen our understanding of the living world by advancing the field of genetics, from the molecular to the population level. While NSF provides 24% of all federal research for sciences, its contributions comprise 68% of the total federal investment in non-biomedical biology—including genetics research.¹ Members of our community rely on support from NSF to answer fundamental research questions. This is especially true for our members whose line of scientific inquiry does not have a foreseeable health application, but fits directly into NSF’s mission to “promote the progress of science.”

Fundamental research supported by the NSF has led to ground-breaking discoveries in our field and beyond. For example, research into the mechanisms of bacterial immunity funded by NSF led to the development of CRISPR/Cas9, the breakthrough technology which has accelerated the potential for gene editing.² As a result, researchers now have an unprecedented ability to study biological processes at the molecular level in a growing array of experimental systems and a new universe for biotechnological applications is now open for exploration. In another example, results from genetics research on the decline of bee colonies—which are a crucial pollinator for U.S. crops—will be implemented to create new management and breeding strategies to ensure that bee populations are maintained.³ This

¹ NSF FY 2015 Budget Request to Congress. <http://www.nsf.gov/about/budget/fy2017>

² http://www.nsf.gov/discoveries/disc_summ.jsp?cntn_id=134286&org=BIO

³ http://www.nsf.gov/discoveries/disc_summ.jsp?cntn_id=131953

research investment could prevent threats to food security and billions of dollars in losses in agricultural production.

Sustainable funding for the National Science Foundation is critical to ensure that these types of investigator-initiated projects, which have implications for society at large, continue to be supported. If the full funding request of \$7.96 billion is appropriated, the agency will be able to increase its success rate for investigator-initiated grants to 23%, corresponding to 800 new projects, any number of which could lead to the next great scientific innovation.

We also wish to emphasize the importance of sustainable support for research infrastructure. Biological databases, stock centers, and other shared research resources are essential for maintaining consistency across different research laboratories and are vital to scientists nationwide. For example, genomic databases speed innovation by providing accelerated access to well-curated data that can be used to validate new techniques. They also serve as searchable data repositories that allow scientists to connect their research findings and identify collaborators rapidly. Further, research databases function as a central place for data sharing, improving research transparency, and positively impacting research reproducibility. We believe that sustained public support for these community resources is essential and allows them to operate on an open access model, thus assuring that all researchers have the tools they need for discovery.

A significant fraction of the GSA membership are trainees—undergraduates, graduate students and postdoctoral scholars—who are concerned about the future of research funding and its implications for their careers. In 2015, 350,000 senior researchers, postdocs, graduate, and undergraduate students were funded directly through the NSF.¹ The requested increase in the agency's budget would allow 20,600 more scientists to be positively impacted by agency funds.¹ Such an increase would ensure that graduate students and postdocs remain in research careers, making strides in science and technology that will allow the U.S. to remain a world leader in STEM advances.

Finally, we would like to emphasize our support for the NSF's existing practice of setting priorities for research investments through engagement with the scientific community including the National Science Board, National Academy of Sciences, and other advisory bodies. The Genetics Society of America supports the merit review process of the NSF to select the most promising research and to enable the foundation to have flexibility to use its appropriation to pursue promising opportunities across the breadth of its mission.

We appreciate the opportunity to provide input into your deliberations about NSF appropriations. We are happy to provide any additional information about the impact of NSF funding on our community and the advancement of genetics research. Please contact GSA's Executive Director, Adam P. Fagen, PhD (AFagen@genetics-gsa.org) or GSA's Policy and Communications Manager, Chloe N. Poston, PhD (CPoston@genetics-gsa.org) with any questions.



ABOUT GSA: Founded in 1931, the [Genetics Society of America](http://www.genetics-gsa.org) (GSA) is a professional scientific society with more than 5,500 members worldwide working to deepen our understanding of the living world by advancing the field of genetics, from the molecular to the population level. GSA promotes research and fosters communication through a number of GSA-sponsored conferences including regular meetings that focus on particular model organisms. GSA publishes two peer-edited scholarly journals: [GENETICS](#), which has published high quality original research across the breadth of the field since 1916, and [G3: Genes|Genomes|Genetics](#), an open-access journal launched in 2011 to disseminate high quality foundational research in genetics and genomics. The Society also has a deep commitment to education and fostering the next generation of scholars in the field—as well as helping to enhance public understanding of genetics and model organism research. For more information about GSA, please visit www.genetics-gsa.org. Also follow GSA on Facebook at facebook.com/GeneticsGSA and on Twitter [@GeneticsGSA](https://twitter.com/GeneticsGSA).