Genetics Society of America

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Jon R. Lorsch, PhD
Director
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Dear Dr. Lorsch:

In response to your request for ideas on the impact and sustainability of NIH's funding for biomedical research (NOT-OD-15-084), the membership of the Genetics Society of America (GSA) was polled; below please find a distilled synthesis of the many responses received. We will also be submitting our viewpoints formally but thought that this cohesive summary would also be helpful for your work.

The single most pervasive theme among the responses was the need for NIH to communicate to Congress that past investments have worked, that the pace of discovery and its translation has never been better, and that model organism research remains a foundation of the biomedical research enterprise. Disease genes that are new to biology are being identified on a weekly basis, but without a robust investment in the highly efficient model organism approaches to these genes, progress will be slowed. Return on NIH investment in the Mendelian disease discovery program and The Cancer Genome Atlas is unsustainable without leveraging orthology and the principle of evolution as manifest in model organism research.

The other major theme to emerge was the need to reduce the feast-or-famine nature of funding. To the extent that NIGMS' Maximizing Investigators' Research Award (MIRA) mechanism addresses that, there is support for MIRA. However, there is a sense among many investigators that MIRA is primarily for those with more than one R01 award, potentially leaving out the many with only a single R01 grant. Here, two suggestions stand out: (1) Bridge funding mechanisms have been successful and need to be expanded given current success rates; (2) Flexibility in carry-forward beyond the current 25% limit should be allowed so that investigators can help buffer funding challenges. Unexpected changes in personnel produce unexpected episodic unexpended funds, and greater flexibility would help.

Our community is familiar with the NIGMS study indicating that, on average, productivity of labs reaches a maximum at $750,000 direct costs per year. The compelling suggestions that follow are that study sections be allowed to take a grant's budget into account in scoring an application and be able to consider the other funding available to a PI. In difficult times, the need for transparency is

great. In addition, GSA members would be appreciative if NIH could re-establish a scoring system that provides reviewers a larger number of scores to discriminate among the best applications.

We are concerned that many institutions have diminished support for their own researchers, such that NIH is asked to provide most or all of the salary for its investigators. GSA encourages NIH to work toward reducing the level of PI salary that can be charged to grants.

We believe that the language used in the debate over "substantial funding of excellence versus some funding for breadth" is inaccurate and obfuscates reality. First, almost no one who has served on a study section believes that applications on one side of the payline are accurately distinguished from those just over the line, yet careers flourish or perish on such distinctions. Second, we know of no credible claim that tomorrow's breakthroughs can be reliably predicted in advance. Hence, future breakthroughs depend upon placing a wider range of bets today. Obviously, for more PIs to have some support, some well-funded PIs will have to have less support; it is better for some labs to be a little smaller than to force others to shut down their research program entirely.

With respect to the membership of the GSA, we continue to suffer from the absence of a study section focused on genetics. Molecular Genetics A and B (MGA and MGB) lack consistent expertise in and appreciation for research in model organisms, even though the efficiency of model organism research makes it the most sustainable and impactful investment the NIH makes. We need a study section that better evaluates the full cross-section of research in genetics.

Study sections work best when there is the depth of experience needed to evaluate the context of the proposed research and evaluate the potential for success and transformative impact. One suggestion for recruiting more experienced people to do a second, or multiple, round(s) of service on study sections is to allow the NIH to offer continued funding to experienced reviewers at their current funding level for the duration of their service on study section.

Our members commented on big science projects, but their comments were nuanced in their critiques. The take-home message was that big science projects with clearly articulated goals—like the Human Genome Project or The Cancer Genome Atlas project—were appreciated. In contrast, others with less defined goals—such as ENCODE and some large systems biology grants—were judged not to be cost-effective even by those who have received funding from them. GSA argues that NIH should prioritize funding for investigator-initiated research, especially R01 and similar research project grants.

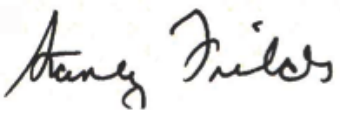
The new NIH biosketch format drew criticism due to its potential to obfuscate judgments on a PI's impact. While the motivation for the new format has merit, the shortage of substantive data in favor of a PI's self-stated accomplishments suggests that the change does not help study sections judge the likely impact of a proposal.

Finally, we come to the aspect of the MIRA philosophy that shifts toward an evaluation of people rather than projects. We believe in the value of articulating a detailed, coherent plan of attack on a well-conceived research problem, no matter one's track record. Despite this belief, the benefits of the MIRA program regarding programmatic flexibility as well as addressing the feast-or-famine issues justify trying the experiment. But more data are better than less data, especially as study section members try to make ever finer distinctions among the competing merits of funding one PI over another.

Thank you for the opportunity to share our community's views as we all weather what we hope is a short-lived nadir in public support of US biomedical research.

Sincerely,

Jasper Rine, PhD
President



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ABOUT GSA: Founded in 1931, the Genetics Society of America (GSA) is a professional scientific society with more than 5,000 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. For more information about GSA, please visit www.genetics-gsa.org. Also follow GSA on Facebook at facebook.com/GeneticsGSA and on Twitter @GeneticsGSA.