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Is the 'High Quality Research Act' the antithesis of science?

May 20, 2013 | Author:Summer Allen, Graduate and Postdoc, Brown University

ScienceInsider obtained a draft copy of the "High Quality Research Act" – legislation that seeks to change how the National Science Foundation selects which grants to fund. Many scientists fear that this draft bill shows a misunderstanding of how science works.

The draft bill proposes that the Director of the National Science Foundation (NSF) must certify that every grant funded by the agency:

1. is in the interests of the United States to advance the national health, prosperity, or welfare, and to secure the national defense by promoting the progress of science;
2. is the finest quality, is ground breaking, and answers questions or solves problems that are of utmost importance to society at large; and
3. is not duplicative of other research projects being funded by the Foundation or other Federal science agencies.

I'm largely skeptical (as are many other scientists) of this legislation for several reasons.

First, anyone who has submitted or reviewed an NSF grant knows that each grant contains a section where researchers describe both the "intellectual merit" and the "broader impacts" of their proposed research. These sections are evaluated, along with the rest of the grant, by peer reviewers – independent scientists who decide whether a grant should be funded or not. This process would seem to address both points 1 and 2, and it's unlikely that the Director of the NSF would not stand behind the current, well-established grant review process. (Unless the 'and' in point 1 would require that all research funded by NSF "secure the national defense"--then researchers are in big trouble.)

But it's clear Representative Lamar Smith (R-TX), drafter of the legislation, does not have this same level of trust in the grant review process. On April 25th, Smith, who is also Chairman of the Committee on Science, Space, and Technology, sent a letter to NSF's Acting Director Cora Marrett questioning the intellectual merit of five grants that were funded by the agency.

The following day, Ranking Member (and champion of science) Representative Eddie Bernice Johnson took Smith to task in her own letter: "Interventions in grant awards by political figures with agendas, biases, and no expertise is the antithesis of the peer review processes. By making this request, you are sending a chilling message to the entire scientific community that peer review may always be trumped by political review."

The "High Quality Research Act" invites other concerns. For example, the requirement that a research project is not "duplicative of other research projects" shows a misunderstanding of how scientific research works. If anything, we need to increase tests for reproducibility.

Also, the bill completely ignores the role that serendipity plays in scientific progress. Grant reviewers do their very best to make sure that the most intellectually rigorous and important grants are funded, but it is impossible for anyone, even scientists, to predict what findings will go on to have the largest impact down the line. In fact, some of the largest scientific findings were actually accidents!

In the end, the "High Quality Research Act" looks like an unnecessary bill that would do nothing but hamstring scientific advancement. Hopefully, feedback from the scientific community will ensure that this bill meets the early death it deserves.

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