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Peer review reviewed

The US research community is responding vigorously to calls to help change the system of grant assessment at the National Institutes of Health. A radical transformation is urgently needed.

The peer-review system used by the $29-billion National Institutes of Health (NIH) is more than half-a-century old, and is showing its age. It has become stretched by the breadth of today's science, in which inter- and multidisciplinary grant applications are common, and by the sheer volume of submissions in an era in which one-grant labs have gone the way of the dinosaur.

Twenty years ago, some 1,800 reviewers judged grant applications for the NIH's Center for Scientific Review, which oversees the lion's share of the agency's peer review; today, that number is more than 18,000. Increasingly, ad hoc and junior reviewers have been called into service — the former to provide expertise on complex multidisciplinary grants, the latter because of volume and because senior scientists feel that they have already paid their dues with earlier service.

Complicating this unwieldy situation, the current NIH funding freeze has made funding committees conservative to the point that an application must be almost perfect to be funded on its first submission. A searching assessment of how the system can be reshaped and improved is essential. The Center for Scientific Review has already sought feedback through a series of field-specific community sessions and has tested some changes, such as shorter grant-review cycles and a more electronic grant-evaluation process.

Separately, NIH director Elias Zerhouni in June launched a bid to restructure peer review at the NIH to reflect foreseeable needs. An internal panel of senior NIH officials and an illustrious working group of non-NIH scientists jointly face a deceptively simple challenge: to ensure that the agency funds the best science by the best scientists with the lightest administrative burden.

Ideas were solicited this summer at a packed meeting of scientific-society leaders in Washington DC. More researchers' opinions are being gathered at meetings in Chicago, New York and San Francisco this month and next. Electronic comments were invited over a two-month period that ended last Friday. Judging by the 2,000 opinions submitted, the extramural community has plenty to say on the matter.

The two groups aim to have concrete recommendations by early this winter, with the goal of launching pilot projects as soon as next spring. They have asked for 'creative' and even 'radical' ideas, intending to act not on the most popular suggestions but on the best ones.

Still, good ideas have emerged in the 'popular' category: there are strong arguments to be made for shortened grant applications and for regular 'bridge' funding to see investigators through gaps between grants. It is also important to ensure that senior, accomplished scientists serve on study sections. There is simply no replacement for the brains, experience, insight and judgement that they bring to bear on applications.

"The NIH needs to fund the best science by the best scientists with the lightest administrative burden."

To this end, NIH grantees should be required to serve on study sections if the agency asks for their help — with due provision to ensure that they are not overburdened, and perhaps also a reward in the form of increased funds for their own grants. This would ensure that the best scientists are recruited onto study sections, and that senior scientists are brought back into the system.

A proposal put forward by the Association of American Medical Colleges, and probably others, would allow individual scientists to have only one application of a given kind in the system at any one time. Multiple grants could still be held by one scientist, but he or she could have only one application per mechanism under review. This would compel self-selection of the best proposals by scientists upstream of the review process. To be workable, this would necessitate a funding cycle that lasts at most six months rather than the current ten. But that compression is highly desirable in any case and has already been accomplished in pilot trials.

Such an approach can only help the most creative scientists by stemming the current deluge of applications. It's a radical idea but, for that reason at least, an excellent one. ■

Meeting obligations

Climate change should take ever-increasing priority in the Asia-Pacific region.

Gatherings of world leaders are never easy events, and last week's Asia-Pacific Economic Cooperation (APEC) forum in Sydney, Australia, was no exception. The United States and South Korea, for example, shared some awkward moments over whether the Korean War should officially be declared over; and environmental activists complained that not enough was done to advance one of the meeting's key issues: climate change.

Yet the very fact that climate change was on the APEC agenda was a start. It was put there by one of the environmentalists' greatest foes, Australian prime minister John Howard — a man who has consistently opposed the notion of mandatory emissions cuts. Unsurprisingly, the statement signed by the 21 APEC leaders was vague, calling for just two specific actions: an additional 20 million hectares of forest in the region by 2020, and a 25% reduction in energy intensity — the amount of greenhouse gases released per dollar of gross domestic product — by 2030. And there are no penalties set out for not meeting these 'aspirational' goals.

It is encouraging that the APEC leaders have issued a climate consensus, however weak. Such discussions, after all, emphasize the increasing importance that the Asia-Pacific region plays in the