

impact of the project, says Ravi Basavappa, NIH programme manager for high-risk, high-reward funding. “Why is this proposed project so important, what communities would be affected and how?” he asks.

Funders suggest that researchers discuss their ideas with the appropriate programme directors before submitting a grant. “Find the people running those programmes and see if you catch their interest with a description of what you want to do,” advises Russell.

### NEW APPROACHES

Some funders are going even further off the beaten path. At the NSF, programme directors can authorize a ‘special creativity extension’ to fund work not covered under a standard grant. In 2010, the UK Biotechnology and Biological Sciences Research Council (BBSRC) in Swindon teamed up with the NSF to create a jointly funded Ideas Lab: a five-day meeting to brainstorm ways to improve plant photosynthesis and enhance food production. Participants hashed out the most promising approaches and wrote proposals that were reviewed at the meeting; the funding agencies shared a total of £6.15 million (US\$9.5 million) between the best projects. Another Ideas Lab is planned for later this year, this one on producing crops that require less nitrogen fertilizer.

The UK Engineering and Physical Sciences Research Council in Swindon also supports high-risk work. For its Bright IDEAS Awards, it offers researchers up to £250,000 over 18 months to tackle a specific challenge — most recently, the development of quantum technologies that could transform communication, imaging or computing.

The Research Corporation for Science Advancement (RCSA) in Tucson, Arizona, runs the Scialog programme, in which it provides \$100,000 for individual researchers working on a given topic, or \$250,000 for teams. Grant recipients must attend a meeting to discuss their work with colleagues, which offers an extra incentive to get creative. “If a new idea comes out of the meeting, we encourage people to write a two-page application on site — which we’ll fund if we think it is possible,” says Jim Gentile, president of the RCSA. The foundation launched a Scialog on enhancing solar cells in 2010; another, on energy storage, will be

launched this year.

Individual institutions are also promoting innovative approaches. To take advantage of the expertise spread across departments, scientists at the University of Michigan in Ann Arbor sought a “fast, interdisciplinary funding vehicle that doesn’t have the downside of peer review”, says Thomas Zurbuchen, associate dean for entrepreneurship. They came up with MCubed, a 2-year pilot project funded with \$15 million from the provost and individual university schools, colleges and investigators.

University researchers can register with the MCubed website (<http://mcubed.umich.edu>) and float their ideas to the community. Each is allotted a token for \$20,000; to unlock and combine the funding, three researchers from different disciplines have to establish a team and register their project. Once they’ve done that, they immediately receive their combined \$60,000 to hire staff and begin work. The teams must draft a mentoring plan to protect participating students’ academic progress and must give a talk about the project after it ends. The website launches this summer, says Zurbuchen, and should fund its first ideas by the end of the year. “We want to swing for the fences, realizing we may have some failures on the way to some massive successes,” he adds.

### RISK MANAGEMENT

How can applicants endure without losing funds if their risk doesn’t pay off? In the NIH’s high-risk, high-reward programmes, “if an idea isn’t developing the way it was expected to, awardees have the flexibility to pursue a more promising avenue of research”, says Basavappa, adding that he cannot recall a requested change in course ever being denied.

ARPA-E takes a different tack, instilling a rigid level of oversight — something some researchers may not like. Instead of grants, the agency uses cooperative research agreements, which pay incrementally for work performed, giving ARPA-E the authority to remove funding if projects don’t meet expectations in on-site visits and tangible milestones at decision points every three months. Toone says that about 10% of projects are spiked. “We take on more technical risks and we manage that risk,” he says.

High-risk, high-reward research can break down barriers and bring diverse teams together, but some researchers are not cut out for life on the edge. “There is a self-selection of those applicants willing to take a risk,” says Basavappa. Alf Game, acting director of research at the BBSRC, agrees: “Not everybody is capable of or wants to be at the cutting edge of every damn thing they are doing.” ■

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### GRADUATE STUDENTS

## Unionization review

Graduate-student assistants at private US universities may once more be eligible to join a union if a 2004 federal ruling that blocks formation of bargaining units is reversed. On 22 June, the US National Labor Relations Board (NLRB) voted to review the ruling. A solicitation for legal comment closes on 23 July. The 2004 ruling said that graduate students are not employees and cannot elect unions; in doing so, it overturned a 2000 decision. Graduate students at New York University and the Polytechnic Institute of New York University have petitioned the NLRB for an election in the past two years. Nancy Cleeland, director of public affairs at the NLRB, says that no date has yet been set to review the ruling.

### TRAINING

## Clinical course for PhDs

To broaden career options, the US National Institutes of Health (NIH) has launched a scheme to introduce biomedical PhD students to clinical and translational research. The two-week programme at the NIH Clinical Center in Bethesda, Maryland, began on 9 July. Students will learn principles of clinical and translational research design, implementation and analysis; participate in a mock institutional review board; and learn how to apply for a drug to be approved by the US Food and Drug Administration. “We wanted to open students’ eyes to the fact that there are opportunities beyond core, basic research,” says Frederick Ognibene, a deputy director at the clinical centre. Next year’s programme will incorporate feedback and is expected to include more participants.

### EARLY-CAREER RESEARCHERS

## Advocacy group forms

A cross-border coalition of researchers has formed to advocate for better working conditions and to inform and inspire policy. The International Consortium of Research Staff Associations (ICoRSA) will address early-career challenges including low wages, limited career prospects, mobility restrictions and inadequate recognition. “The same issues exist in almost every country, and we felt that they have to be addressed globally,” says Cathée Johnson Phillips, executive director of the US National Postdoctoral Association, one of ICoRSA’s founding members. ICoRSA held its first meeting on 14 July at the 2012 Euroscience Open Forum in Dublin.



**“A good grant reads like a novel; it grabs you on the first page and you can’t put it down.”**

Miguel Nicolelis