# THIS WEEK

## EDITORIALS

**FUNDING** The perils and pitfalls of grants that are renewed annually **p.8**

**WORLD VIEW** Biotechnology is the way to save Indian species **p.9**

**PARASITES** Plant defence chemicals score an own goal **p.10**

# An unhealthy obsession

*The energy expended by US biomedical scientists on complaining about grant-application limits would be better directed at the real problem: stagnant funding.*

The US National Institutes of Health (NIH) announced last week that it plans to hold firm on an unpopular three-year-old policy limiting grant applicants to one resubmission if a proposal is rejected the first time. The world's largest biomedical research funder is pushing back against a powerful current of unhappiness among its grant recipients. Last year, more than 2,300 of them signed a letter to the US$31-billion agency condemning the policy as irrational and damaging in an era of historically low grant-application success rates. The 'two strikes and you're out' rule, the letter-writers argued correctly, makes it more likely that some highly meritorious applications will fail to win funding. The policy is particularly hard on the youngest scientists, who suffer both from a dearth of grant-writing experience and the lack of a large body of work to build on in crafting a new proposal. Senior scientists with narrowly focused research programmes are also hurt, as they may have trouble developing a "substantially" different proposal after they have failed twice, as the NIH requires.

But the fact that the critics are correct is beside the point. Other countries have already instituted much more draconian schemes. In the United Kingdom, for instance, applicants to the Medical Research Council who have failed to win funding on their first bid must wait a year before even trying a second time. In the case of the NIH, the bottom line is that, even if the agency were to reintroduce a rule allowing third submissions of twice-failed grants, the same absolute number of applicants would end up getting funded. Indeed, some excellent applications would probably fail to pass muster under any submission regime, as the Comment on page 34 makes clear. With application success rates at historic lows largely because the number of applicants is at historic highs, many first-rate proposals would still go begging.

The crucial problem is not that applicants are limited to two tries; it is that too many aspiring applicants are chasing a stagnant pool of funds that is, in real terms, being eroded further by inflation each year. The latest figures from the National Institute of Allergy and Infectious Diseases, the NIH's second-largest institute, highlight the problem. It is currently funding 6% of the applications for mainstay 'R01' grants that it receives from established scientists, and 10% of those from early-career investigators.

Yet the two-versus-three-chances issue continues to generate heat in the community. One online discussion, at the DrugMonkey blog, generated more than 46 comments totalling some 5,000 words in less than one week in October, after *Nature*'s News blog noted that the NIH was considering returning to the three-strikes system.

All the time and energy that these and other angst-ridden scientists are devoting to complaints about how a finite pie is being sliced would be far better directed at trying to enlarge it. Only a bigger funding pie — or a dramatic exodus of aspiring grant-winners from the ranks of US biomedical science, surely a less desirable outcome — will give grant applicants a decent chance of winning funding.

Before US readers roll their eyes at the suggestion that lobbying for more money could succeed in a dire fiscal climate, they might cast those eyes northwards to Canada, where, last summer, some 2,000 white-coated scientists and graduate students marched on the parliament in Ottawa to protest at what they described as anti-science policies and funding cuts being enacted by the government of Prime Minister Stephen Harper. The photogenic Parliament Hill protest generated around 40 items of news coverage — no mean feat in a country with one-tenth the population of the United States. The march clearly got the Harper government's attention: the same day, Gary Goodyear, the minister for science and technology, issued an animated defence of his government's record on science.

***"Only a bigger funding pie will give grant applicants a decent chance of winning funding."***

But with few exceptions, US scientists, like scientists everywhere, have been loath to take to the streets with placards — to be visibly, outspokenly political in defence of their own best interests. Clearly, in the current US context, that strategy, or lack of one, is failing. And things could get much worse. The across-the-board cuts that will take effect in early January if Congress and the White House fail to agree on a deficit-reduction plan would slice 8% from the NIH's budget, making the current situation look comparatively comfortable. That threat should be enough to galvanize researchers into action.

One thing is certain. If each signatory of last year's letter blasting the NIH were to recruit four colleagues, and if all donned white coats in a coordinated march on Capitol Hill, the media would take notice. The sight of 12,000 biomedical scientists alarmed about the present and future of their enterprise would capture politicians' attention in a way that no number of letters and e-mails from advocacy groups will ever do. Such a dramatic call to action may seem — well — dramatic, but if it is not warranted now, then when? ■

# Suspend disbelief

*Wrangling over scientific misconduct could influence Romania's general election.*

One of Romania's best known cultural figures is playwright Eugène Ionesco, who co-founded the twentieth-century movement known as the theatre of the absurd. Had he been alive today, he might have written an absurdist play about his native country — with science taking a strong supporting role.

Romania remains one of the problem children in the European Union (EU). It has stacked up debilitating debt in the past decade,

and in recent months has worryingly veered away from democratic principles. However, ahead of joining the EU in 2007, the country started to develop the framework for a serious scientific base, something that its leaders considered important to make good the damage caused by 40 years of communist dictatorship. Most of the best scientists had left the country, and an appropriately funded, meritocratic system was needed to tempt them back.

The present government of Social Democrat Victor Ponta has been in office for less than a year but it has reversed many of the positive steps taken. Should his Social Liberal Union (USL) coalition gain the absolute majority predicted by some in the general election to be held on 9 December, it is likely to dismantle even more of the institutions set up to ensure meritocracy in academic appointment and funding, and will probably strip away the remaining checks against academic corruption.

Those checks are essential, not least to scrub clean Ponta's government. In the past week, the watchdog website Integru.org has highlighted two cases of alleged plagiarism and one case of alleged data manipulation involving the research minister Ecaterina Andronescu, then a chemist at the Polytechnic University of Bucharest. She denies them. In accordance with Integru's methods, each of the allegations was confirmed by several independent scientific experts from other countries in Europe and North America.

Unlikely as it sounds given the briefness of Ponta's tenure, Andronescu was his third appointment as research minister, and the third to be accused of misconduct. Ponta's first choice, Corina Dumitrescu, was withdrawn before she was confirmed by parliament. She stood accused of plagiarism and falsely claiming that she attended Stanford University. Ioan Mang was appointed in her place on 7 May but was forced to resign just a week later after *Nature* exposed extensive plagiarism in his academic papers in computer science (see *Nature* **485,** 289, 2012). Absurdity peaked in June, when *Nature* revealed that Ponta himself had plagiarized in his 2003 PhD thesis (see *Nature* **486,** 305; 2012).

The accused all dismiss the charges as politically motivated. Ponta promptly ditched the committees responsible for considering the allegations, replaced them with sympathizers, and insisted that the wrong committee had judged him guilty. In a televised electoral debate on 2 December, which heavily featured Integru's evidence against her, Andronescu responded by emotionally repeating her unlikely election slogan: 'justice all the way'. A press release from her ministry attempted to dismiss the authority of Integru.org.

On 30 November, Andronescu announced her decision not to withdraw Ponta's PhD, even though a report from the awarding University of Bucharest confirmed plagiarism. Only the research minister can order such revocation. Yet she claimed, absurdly, that it was not in her legislative power to do so. She similarly failed to take responsibility for plagiarism and other scientific misconduct allegedly perpetrated by leading figures in other universities. She has also announced her intention to eliminate rules that require grant applications to be sent to reviewers outside Romania, claiming that the process costs too much.

***"Could the issue of scientific integrity influence a general election?"***

Those who are struggling to absorb the scale on which Romania's scientific system is failing must do as they would in the theatre — suspend their disbelief. But they might also reflect on the challenge of building a strong democratic state on the ashes of a corrupted dictatorship. Ponta's attempt in July to impeach President Traian Băsescu, a Democratic Liberal, drew a formal rebuke from the EU as undemocratic.

The second largest contender in the elections is a coalition led by the Democratic Liberals. The Democratic Liberals were responsible for bringing in the exemplary laws and structures for science that Ponta is now dismantling. But their governing coalition was also responsible for carrying out an austerity programme that, among other things, cut public-sector wages by 25% in 2010. The coalition collapsed in February this year and is still struggling to recover. But thanks in good part to the very public war on academic corruption in government, it may yet prevent the USL from winning an absolute majority. Could the issue of scientific integrity influence a general election? That would be astonishing perhaps, but not absurd. ■

# Haste not speed

*US science would benefit if Congress improved the predictability and stability of funding.*

The sad saga of the US Superconducting Super Collider is well known: after spending nearly US$2 billion digging tunnels under the plains of Texas, the US Congress in 1993 cancelled the proton smasher at a stroke. Compare that to the stately funding stream that CERN, Europe's particle-physics facility near Geneva, Switzerland, used to build the Large Hadron Collider. Each of CERN's 20 member states contributes a specific amount of money, governed by treaty, towards a fixed five-year budget.

A report from a panel of US presidential science advisers (see page 18) points out this obvious difference: European funding is slow and steady, whereas US funding, disbursed by congressional appropriators on an annual basis, is fickle.

It is not just large facilities that struggle. The top-line budgets of US science agencies can vacillate in destructive ways. For instance, the doubling of the budgets at the National Institutes of Health (NIH) from 1998 to 2003 induced many universities to open departments, take on postdoctoral students and construct new buildings. When the cash from the NIH suddenly dried up, the biomedical boomtown went bust.

Appropriators in Congress are unlikely ever to commit to multi-year budgets. But the advisory report makes some good suggestions for reining in the worst aspects of the US budget cycle. First, it proposes that science agencies should start planning budgets into the future, even though appropriators might well ignore them. There is a belief in Washington DC that, in being planned, a programme is put out in the open and is therefore vulnerable to the budget-cutter's axe. That idea is incorrect. For years, the Department of Defense has been laying out budget plans in five- or six-year increments. Although appropriators do not have to abide by the plan, they are able to see the agency's rationale. NASA also plans notional five-year budgets (although its costings for large missions are sometimes off target). The NIH, the National Science Foundation (NSF) and the Department of Energy should follow suit.

A second recommendation is for appropriators to match the funding levels set by authorization committees more closely. The congressional representatives on authorization committees know their agencies well, and often plan budgets in two- or three-year increments. But the exercise is largely a fiction. For instance, the most recent NSF reauthorization called for $7.8 billion in 2012, but appropriators ended up giving the agency only $7 billion.

The US way of doing things is not all wrong. There can be some advantages: an agency can pick up on a new scientific idea, propose a visionary programme and get it funded all in the space of a year — something that rarely happens in Europe, where some programmes end up being supported way past their prime. But when it comes to funding science, predictability is more of a virtue than speed, and stability better than surprise. The US scientific enterprise, dynamic as it is, could benefit if its budgets became a little more plodding. ■

**➲ NATURE.COM**
To comment online, click on Editorials at:
go.nature.com/xhunqv