

# Researchers face 'Catch-22' grants trap

*Sir*— In an era of shrinking funding of basic scientific research, increased competition has resulted in a sharpening of the peer-review process, with more elements coming into play during the 'sieving' of grant applications. In addition to the traditional criteria of originality, adequate methodology, relevance, publication record and so on, an increasingly important element is 'preliminary data'. The applicant is required to provide original, unpublished data that provide leads and justify the hypotheses of the proposal and give an indication of the expected results.

This element of the review process is amounting to alarming proportions. A colleague in the United States says he would not dare to submit a proposal to the National Institutes of Health (NIH) to study a certain developmental process in transgenic mice without having generated the animals and provided a 'preliminary' characterization of their phenotype, which in practice means having as much data on the creatures as possible, preferably of the kind that come close to answering the original question.

Who is supposed to pay for generating those transgenic mice? Presumably either 'leftovers' from previous grants or a generous collaborator. As it happens, being a renowned scientist, my colleague has access to both. But young assistant professors are trapped in a 'Catch-22' situation: they spend

so much time rewriting grant proposals that they never manage to gather the preliminary data requested by the reviewers. After having an NIH grant application returned for lack of *in vivo* work, another colleague submitted a revised application incorporating experiments in relevant animal models. The application came back again from the reviewers indicating that preliminary data from *in vitro* experiments would strengthen the case for the proposed *in vivo* work. For the third round, my colleague had to perform the experiments she had applied for in the first place!

How does one get that precious first piece of preliminary data? Like professional snooker players trying to keep the break going, scientists nowadays have to balance their experiments carefully between those that answer the questions originally raised and those that generate enough preliminary data to allow for another round of funding.

Fortunately, there remain some European funding agencies to which one can submit off-the-beaten-path or moderately risky ideas without having already performed all the crucial experiments. But, as competition for limited funds increases, the importance of preliminary data in the peer-review process is likely to rise among these sources as well. Soon, agencies all over the world will only be paying the few overdue bills remaining

from work that has already been done!

One dangerous consequence of this global trend is that only the most wealthy labs can afford to embark on truly innovative projects, study unexplored avenues or pursue seemingly odd leads — those that sometimes bring breakthroughs. Young scientists may have to content themselves with tightening the nuts and bolts of the established conceptual edifice. Is this what we really want for the future of basic research?

I propose the formation of an international funding agency, the Preliminary Data Organization — 'Predator'. This will be the first agency devoted to supporting the generation of preliminary data. It will consider only truly new ideas, and will disqualify grant applications that include preliminary data, on the principle that prior art nullifies originality. Predator will provide funds for the generation of all the necessary reagents, and for the execution of a minimal set of crucial experiments. Grant recipients will be able to use their data to apply to the more traditional organizations for funds to reproduce their findings in a closely related species! Any offers from rich philanthropists to take up this suggestion?

**Carlos F. Ibáñez**

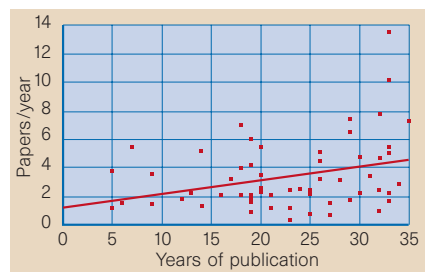
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## It's time to stop counting beans

*Sir*— The letter by Michael J. Larkin about research productivity among young UK scientists highlights a 'bean counter' mentality all too common in the academic community, apparently on both sides of the Atlantic (*Nature* 397, 467; 1999).

While compiling an analysis of the productivity and quality of research of a randomly selected group of US academic researchers funded by a large government agency ( $n = 60$ ), we noted an almost complete lack of association between the number of years of experience in research and productivity as measured by the mean number of papers published per year ( $R^2 = 0.103$ ; see Fig. 1).

This finding appears somewhat at odds with that of Larkin who showed that, within his cohort, mean numbers of papers increased steadily over the course of several years. This may reflect a difference in the publication patterns of UK versus US academic researchers at different career



**Figure 1** There is no strong relationship between experience in biomedical research (as measured by years of publication) and productivity (as judged by the number of peer-reviewed papers published per year).

stages. Even so, Larkin's evaluative criterion of a requirement for 'excellence' in the early career publications of the UK researchers in his study was not further defined.

Our assessment, using a quantifiable metric, clearly shows that the quality of research bears no relationship to the number of years of experience a researcher has accumulated in scientific publication ( $R^2 = 0.0007$ ). Put another way, we believe our data suggest that excellence in scientific

research is manifested from the beginning of one's research career, and that publication rate (at least in the United States) does not change dramatically over the course of one's career. Therefore, perhaps more attention should be paid to where one's papers are published and less to how many papers are published.

**David A. Watson**

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## Franklin recalled

*Sir*— I am writing a biography of the crystallographer Rosalind Franklin (1920–58) and would like to hear from anyone who knew or worked with her in London or Paris, or who met her, even briefly, at conferences or on holiday in Europe, Israel or the United States.

**Brenda Maddox**

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