
Internal Grant Competitions: A New Opportunity for Research Officers to Build Institutional Funding Portfolios

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Abstract

The Ohio University College of Osteopathic Medicine in 2005 created an innovative competitive grant program aimed at stimulating faculty to submit more and better NIH research proposals, thereby increasing the probability of success. In this internal competition, three experienced external reviewers critique each proposal and assign a priority score, mirroring the NIH review process. An internal panel then selects the two to three best proposals to receive \$20,000 awards, contingent upon submission to NIH of a revised proposal that incorporates the comments and suggestions of the reviewers. Thus, the awardees receive additional resources to move their project forward. Moreover, all participants benefit from the constructive reviews, the "free" review cycle (in addition to the NIH "three-strike" system), and the excellent learning experience in grant preparation, revision and submission of competitive proposals. Academic researchers and administrators, particularly at smaller, less research-intensive institutions, today face a challenging environment with increased competition for a limited funding pool. Under such circumstances, an internal grant development program may be a great avenue for mentoring and education for faculty, and

also serve as a cost-effective investment for research officers to increase external research funding as well as enhance the research skills of faculty.

Key Words: Grant, NIH, research administration, mentoring program, seed money

Introduction

The National Institutes of Health (NIH), the predominant funding agency for biomedical research in the United States, was allocated \$29.24 billion for its fiscal year 2007 budget, an inflation-adjusted decrease of 1.2% from the previous year (National Institutes of Health, 2007). At the same time, NIH expects the number of grant proposals to increase by 6.5% in 2007 (Zerhouni, 2006). This is compounded by the decline in success rates for new NIH R01 research grants from about 25% in 1998 to 16.3% in 2006 (NIH, n.d.). At the same time, many academic institutions are attempting to increase federal research grant funding. For smaller, less research-intensive institutions, the situation is even more challenging if they are to compete with their more research-intensive counterparts.

Funding decisions at NIH are based primarily on the critiques provided by the reviewers who serve on study sections. While this system is necessary to ensure that only the best and most worthy proposals are funded, it can be a slow process. With the Roadmap program, NIH is streamlining the application process and encouraging more applicants by revising the review criteria, transitioning to the electronic grant application system and introducing a new award mechanism targeted toward beginning investigators (NIH, 2004, NIH, 2006 & NIH, n.d.). Despite these efforts, the average turnaround time between grant submission and receipt of scores and reviews is still five to seven months (NIH, n.d.). Typically, NIH grant programs permit a maximum of two resubmissions. Because the overwhelming majority of new proposals do not get funded during the first review

cycle, it is not uncommon for applicants to spend up to two years revising and resubmitting their proposals before receiving a final decision on funding. In the absence of sufficient institutional support, this time lapse can significantly hinder a research project.

Sufficient preliminary data to demonstrate the feasibility of the applicant's hypothesis is one of the key factors that increase reviewers' enthusiasm for a grant proposal. In a proverbial Catch-22, however, limited resources can delay or prevent the generation of preliminary data required for a successful proposal. Hence, it would be helpful to have a targeted source of funding for a promising proposal that may not be funded in the first submission.

This article describes a novel competitive grant program that we believe can help address some of the problems discussed above. Faculty compete for \$20,000 awards by submitting NIH research grant proposals for internal review. Our program is intended to increase both the quantity and quality of grant proposals submitted to NIH and to provide incentives to enhance chances of funding in a timely manner. Similar programs can be adapted and further customized to meet the needs and objectives of individual institutions.

The Program at OU-COM

The Office of Research and Grants at the Ohio University College of Osteopathic Medicine (OU-COM) initiated a program to stimulate the submission of competitive NIH proposals. The aim of this new mechanism is to support selected faculty in continuing their research and gathering more

preliminary data while their proposals are under review.

Participating faculty are required to complete a full research grant proposal using the NIH application format. These proposals are then sent to qualified external reviewers from across the nation. Reviewers are recruited with not only the necessary expertise in the scientific area of the grant proposal, but also with a track record of NIH funding and experience with the NIH review system. The reviewers, who are paid a modest honorarium, are instructed to critique the proposals based on NIH's standard review criteria and to assign a priority score, just as they would do as part of an NIH study section. The call for proposals is sent to faculty during the summer (July/August), with milestones and deadlines set in such a way that the applicant will be able to complete a significantly revised version of the proposal for submission to NIH during the February/March cycle of the following year.

Based on the critiques provided by the external reviewers, an internal panel of NIH-funded faculty members at Ohio University recommends up to three proposals for \$20,000 awards, using funds allocated by the College. Because this award is restricted to OU-COM's faculty members, any potential conflicts of interest were minimized by recruiting panel members from outside the college. The \$20,000 awards, coupled with the prospect of receiving expert reviews prior to submission to NIH, provide a strong incentive for faculty members to take part in the program.

When the competition was initiated in 2005, eight applications were received, of which three were selected for the internal award. Of these three, two proposals received respectable priority scores at NIH (160-175

range), but were not funded and one was unscored, ranking in the bottom half of the applications.

In 2006, the number of applications increased to 12, and two were selected for the award. These applications were revised and submitted to NIH for grant deadlines in early 2007; NIH review of these proposals is pending. We strongly encourage the faculty who did not receive internal college funding to use the reviewers' critiques to strengthen their proposals prior to submission to NIH.

Discussion

More and more faculty at smaller academic institutions are abandoning efforts to secure federal research funding because of increased teaching loads, stark competition for an ever-diminishing pool of grant monies, and lack of resources to generate the strong preliminary data required to produce competitive grant proposals. It is, therefore, important to provide assistance and incentives to faculty, so they can focus and refine their research efforts, and increase their chances for success in securing external research grant funding. Institutions faced with this situation may be well-advised to consider a competitive internal grant program, such as the one described here.

Why is this Program Important for Research Offices and Administrators?

The basic concept of internal grant funding opportunities to help investigators garner preliminary data is not unique. Many universities and medical schools (including University of Iowa Medical School, University of Minnesota Medical School, Georgia State University, University of Mississippi, Auburn University and University of Texas) have similar programs. However, there are certain important distinctions between existing programs

and OU-COM's. The key innovations of our program are: (a) by mirroring NIH's requirements, duplication of efforts during grant submission is avoided, making the grant review and submission process more efficient for both the research office and the researcher; (b) of the internal funding mechanisms that were identified, none had a requirement of an external grant submission tied to the program, nor did the proposals go through a rigorous external review process; and, (c) the scope of many of these funding mechanisms was limited, e.g., some were restricted to a particular research topic or to junior faculty members.

Additionally, our experience shows that there are a few overarching advantages to conducting such a program:

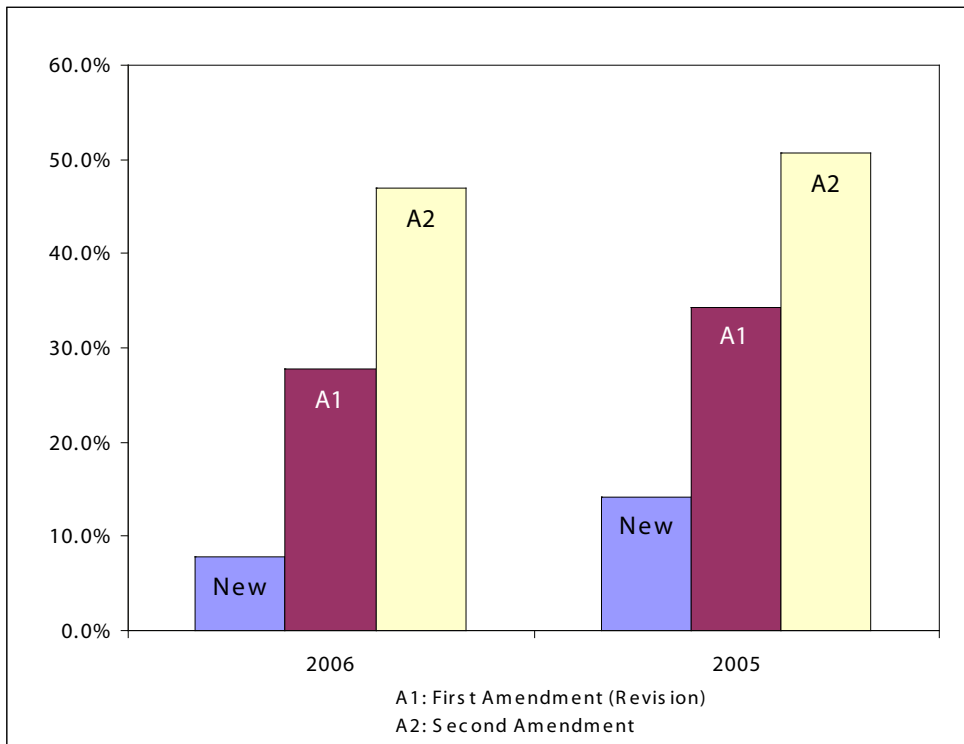
1. *Opportunity for mentoring and education:* One of the primary functions of research/grant offices is to educate and mentor investigators in grant submission and compliance with sponsors' regulatory, scientific and administrative requirements. A competitive grant program can serve as a good "dry run" for novice investigators who do not have significant NIH grant writing experience. This allows them to experience all of the elements of the grant application process — preparing biosketches, formulating a budget, following the sponsor's guidelines, assembling the various sections of the grant, honing writing and communication skills, and developing proficiency in using the electronic grant application system. Finally, the reviewers' critiques are also a key part of this education because they examine the soundness and value of the fundamental hypotheses, and the aims and methods of the project.
2. *Reduced review turnaround time and greater efficiency:* The elapsed time between proposal submission and applicants' receipt of critiques from external reviewers through this program was only two months, which is a 60-70% reduction in the average review time at NIH. The program is designed so that proposals can be revised based upon the reviews received in December and submitted to NIH for the February/March deadline dates.
3. *Improvement in quantity and quality of proposals:* A competitive grant program, coupled with institutional expectations, can provide the necessary incentive for faculty to apply for more grants (*quantity*). With critiques from qualified and experienced reviewers, faculty can revise their proposals prior to submission for external funding and greatly improve their chances of funding by submitting a better proposal (*quality*).
4. *The "fourth strike":* Many funding agencies have restrictions on the number of times an application can be submitted. At NIH, a research grant application can be revised only twice. If the application is unsuccessful after three attempts, NIH requires applicants to submit a new grant (making major changes in specific aims and research plans) for future applications. Given NIH's "three-strike" system, this grant competition program provides one additional review cycle (the "fourth strike") to improve the chances of funding.
5. *Resources to advance the research project:* Participants who receive \$20,000 awards through the grant competition are able to advance their projects and gather more preliminary data, serving to jumpstart the project if funded by NIH or further strengthen a resubmission if the proposal is not funded. For example, one of the researchers selected for the award was

able to obtain enough preliminary data (using the awarded funds) to publish the results in a peer-reviewed publication, thus further strengthening his NIH grant application.

The success rates for new, first amendment and second amendment R01 proposals at

NIH for 2006 are 7.9%, 27.7% and 46.9%, respectively (Figure 1) (Bleakley, personal communication, 2007). These data clearly show that subjecting a grant to a thorough review and revision, and subsequently resubmitting it considerably increases one's chances of being funded.

Figure 1.
Overall Success Rates for New and Amended R01 Proposals at NIH.



The key to the success of the grant competition lies in the ability to recruit qualified reviewers who can provide a thorough critique of the grant proposals; only then can the program truly simulate the stringent review process at NIH. Reviewers, who can comment not only on the technical aspects of the proposal but also provide valuable insight from a study section's standpoint, can significantly increase the likelihood of funding. In this regard, our program has been fortunate. The external reviewers who participated in this program were not only well-qualified to review the

technical and administrative aspects of the grants, but also showed a strong sense of collegiality and responsibility – a genuine desire to do a thorough job and provide valuable input for the benefit of their fellow junior researchers. This was well-received and appreciated by the applicants of the grant competition; the high-quality reviews proved to be just as valuable an incentive as the \$20,000 award, as indicated by the strong increase in the number of submitted proposals in the second year of the competitive program.

Process

Creation and Implementation

The OU-COM grant competition was created in 2005, shortly after the announcement of an institution-wide initiative for enhanced national prominence in the areas of research and grant funding. While there was strong administrative support for the program, the faculty were initially less enthusiastic, but have shown increasing support since the first funding cycle. The goal of this program is to stimulate productivity and to provide a process through which faculty members improve the quality of their grant proposals. As mentioned earlier, the key to the success of this program was the quality of the external reviewers who had the required scientific background and also understood the NIH review process. Significant time and effort were spent in recruiting at least two qualified reviewers per proposal. For more broadly -defined research topics, three reviewers were recruited for each proposal. Online web resources such as PubMed, CRISP database and NIH Study Section rosters were used to identify and recruit potential reviewers. To maintain anonymity and to make the process fair, the

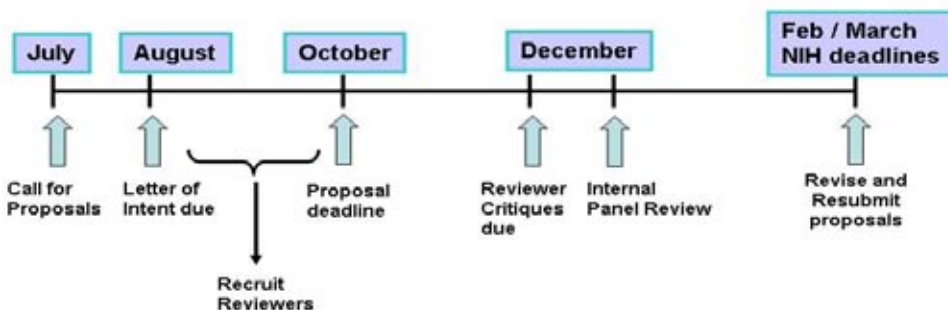
identity of the reviewers was not disclosed to the applicants. The proposals were sent to reviewers after obtaining a signed confidentiality agreement. All reviewers were instructed to prepare a detailed critique of the proposal, conforming to NIH's review criteria. A modest honorarium was paid to reviewers for these services. This grant competition program was developed and administered by the Office of Research and Grants at OU-COM.

Timeline

A call for proposals was sent during the last week of July or the first week of August (see Figure 2 for complete timeline). All faculty members interested in responding to the call were instructed to provide some basic information pertaining to their proposal (i.e., topic of research; tentative title; program announcement number, if applicable; NIH grant mechanism; etc.). Using this information, suitable reviewers were recruited. The deadline for faculty to submit proposals was the second week of October, with reviews completed by early December. Thus, the applicants had sufficient time to revise their proposals and submit them to NIH for the February/March deadlines.

Figure 2.

Timeline for the OU-COM Grant Competition.



Reflections

The most valuable product of the grant competition was the high-quality of the reviews, which provided thorough and constructive suggestions for strengthening the proposals. It was impressive to find that most reviewers were willing to devote time from their busy schedules, to prepare detailed critiques and to provide pointers for their fellow researchers' benefits. In fact, a few reviewers even volunteered to provide additional assistance to the applicant beyond the scope of this program. Such a conscientious effort on the part of the reviewers was a major contribution to the success of this program, and, in many cases, was more valuable than the monetary awards.

Based upon our experience over the last few years, we believe that this grant competition program could be further improved in several ways. First, we could perform a preliminary review of the proposals before they are submitted to the external reviewers. Through this process, proposals could be screened for completeness, for adherence to NIH's guidelines (i.e., page limitation; font size and type; biosketches; introduction section; budget justification; human subjects and animal sections; etc.), and for formatting and grammatical errors. Correcting such errors before sending out the proposals will allow the reviewers to focus on scientific merit with fewer distractions, thereby resulting in more useful comments. Secondly, a more rigorous follow-up process is required. To gain the greatest value from the reviewers' comments, faculty should have the opportunity to work closely with the research office staff during the revision process. Faculty whose proposals were not selected for an award should also be urged to make revisions. After revision, these proposals may be as competitive in the NIH review process as those selected for the internal awards.

Conclusion

A competitive internal grant program such as the one started at OU-COM can help to enhance the research climate within an institution, stimulate faculty morale, and encourage friendly competition and productive collaboration among faculty members. Our experience with this program has been encouraging, as evinced by the 50% increase in the number of applications over the last two years. While supporting such a program requires a significant institutional commitment in terms of both time and money, we believe that this investment will prove to be worthwhile because of the potential to increase both the research skills of our faculty and the level of external research funding.

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