ABCT

ASSOCIATION FOR BEHAVIORAL
AND COGNITIVE THERAPIES

NIMH Funding: Understanding the Mechanisms

Philip C. Kendall and Meredith E. Coles, *Temple University*

The National Institute of Mental Health (NIMH) provides a variety of mechanisms to secure funding for mental health research. Although it is pleasing that there are many funding sources available, identifying the proper funding mechanism can be a demanding task. This article provides a quick overview of the main funding mechanisms of interest to cognitive-behavioral researchers and offers some observations and suggestions. Additional information, including application materials, due dates, and detailed information about the various funding mechanisms, is available on the Web (start at www.nih.gov and click on the link for "Grants and Funding Opportunities"). Another useful Web page is the Grants Office of Extramural Research home page (http://grants.nih.gov/grants/oer.htm).

In this article we discuss five major types of funding mechanisms. We highlight the purpose of the mechanisms, the eligibility criteria, the basic review criteria that are used for evaluating proposals, and information about expenses covered by the mechanism. Observations and suggestions that are intended to be helpful to applicants are laced throughout.

RO1s: Investigator-Initiated
Research Projects

RO1s represent the broadest funding mechanism. It is the mechanism for investigator-initiated research grants and therefore the most common. The nature of RO1 projects varies widely, from basic psychopathology research to large-scale randomized clinical trials. Also, because of the broad nature of this mechanism, specific information regarding the purpose of RO1s is difficult to secure. However, a few useful resources may contribute to a better understanding of RO1s. First, information about the form used to prepare an RO1 submission, the PHS 398, is available and includes a helpful instruction book for preparing submissions, sample forms, and a downloadable version (http:\\grants.nih.gov\grants\funding \phs398\phs398.html). Another useful re-source is CRISP (Computer Retrieval of Information on Scientific Projects), a searchable database of biomedical research. CRISP allows you to sort by various characteristics, such as funding mechanism, to get a sense of what types of questions are addressed with a

given funding mechanism or topic area, to get a sense of current research in a particular area. You can access CRISP at http://crisp.cit.nih.gov/.

Applications for RO1s are reviewed with consideration of their ability to advance the understanding of biological systems, improve the control of disease, and enhance health. Within the mental health arena, a better understanding of a disorder or a proposal that could improve the treatment of a disorder fulfills this aspect of the evaluation. RO1 applications are evaluated on the following criteria: (a) significance of the project, (b) approach/methods proposed, (c) innovation, (d) credentials of the investigator, and (e) scientific environment for the work. The bar is set high, as these projects are typically large in scope and expense. Reviewers also examine the appropriateness of the proposed budget and the adequacy of plans to include a diverse sample (genders, children and adolescents, and minorities).

An applicant seeking support from the RO1 mechanism should have had relevant experience in the research arena. Having conducted and reported on studies similar to those proposed and having gathered pilot data that inform the study and its methods are examples of this valued experience. But, as you may have guessed, experience is not sufficient. Rather, each of the criteria is considered and an impressive application is one that achieves high marks on all five criteria. Although we offer a few observations about the process, one fact remains: The key to a successful research grant application is a first-rate proposal (e.g., quality methods).

Significance has to do with the public health relevance of the work—tying the proposal to an important concern in the mental health field and showing that the work has relevance to a pressing need. Keep in mind that members of the community are a part of the review process and they often want to see that the research has direct public health relevance. The review of the section called "approach" is the one that involves the science of the proposal. Make every effort to propose the best study, not the easiest to do. In this section, an incomplete assessment plan, an inchoate intervention, or an unsound data analytic strategy will be identified and potentially seen as a sufficient detraction from the proposal. Conduct and report power analyses, provide information about the psychometrics of the

scales being proposed, and be clear and compelling in the rationales used to justify important procedural decisions. Consider the various methods that could be followed, and provide a rationale for the methods that are chosen.

Although innovation is a good thing, innovation alone will not carry the proposal forward—a good approach (e.g., methods, analysis plan) will. The investigator and the scientific environment are criteria in the sense that it is important that reviewers can be confident that the principal investigator (PI) can do the work and that the setting for the work is supportive. Past research publication and pilot work help to document the qualifications of the PI and letters of support can buttress the commitment of the research environment. Institutions without prior publication on the topic are not penalized, whereas a PI without some prior research experience may be questioned.

The budget is not the central issue in the evaluation of an RO1 application. True, the budget entries need to be justified, and there are limits that require approval before submission, but the general rule is that the budget should reflect what it would take to conduct the needed and proper study. Reviewers evaluate the budget, and may make some suggestions about it, but this is done after the scientific merit of the proposal has been determined.

"F" Awards: Individual National Research Service Awards (F30, F31, and F32)

(For additional information see http://grants.nih.gov/training/nrsa.htm#fellowships.)

The purpose of the F awards is to help ensure that highly trained scientists will be available in adequate numbers and in appropriate research areas to carry out the nation's biomedical and behavioral research agenda. These awards seek to facilitate the training of those applicants judged to have the potential to become productive, independent investigators. There are three types: F30 Individual Predoctoral awards for M.D./Ph.D. Fellowships; F31 Predoctoral Fellows; and F32 Individual Postdoctoral Fellows.

To be eligible, the applicant must be a citizen or a noncitizen national of the United States or have been lawfully admitted for permanent residence at the time of award. All applicants must have a baccalaureate degree. F30 applicants must be enrolled in an M.D./Ph.D. program at an approved medical school, accepted in a related scientific Ph.D. program, and supervised by a mentor in that scientific discipline. F31 applicants must be enrolled in a program leading to a research doctorate (e.g., Ph.D. or D.Sc.) or a combined clinical and research degree (M.D./Ph.D.). F31 awards support research training applied toward preparation of a dissertation and do not support study leading to the professional degrees (e.g., M.D., D.O., Psy.D.). F32 applicants must have already received their advanced degree from an accredited domestic or foreign institution. In all cases a sponsoring institution with adequate staff and facilities for training must be identified.

When considering the criteria used to review applications it's worthwhile to remember the goal of the fellowships—they are designed to train future generations of outstanding scientists committed to pursuing careers in mental health sciences research. Therefore, it is not surprising that the review of F30 and F31 applications focuses on the applicant, the research training plan, the sponsor, and the institutional environment/commitment. Review of F32 applications focuses on the candidate, the sponsor/training environment, the research proposal, and the training potential. A track record of research is quite helpful, as is the plan to work with an established research mentor. The training plan should be specific to the training goals and well integrated within the overall application.

All three F's provide a stipend that is determined based on the funding institute and funding mechanism (years postdoctoral in the case of F32). Awards also provide yearly research allowances/institutional allowances (F30 up to $2,000, F31 up to $2,500, and F32 up to $4,000). These funds are intended to defray costs of expenses such as research supplies, equipment, and travel to scientific meetings. Further, awards provide payment of tuition/fees/health insurance (100% of the cost of up to $2,000 for F30 and up to $3,000 for F31/F32, and 60% of costs above these thresholds).

Small Grant Applications (R03)

(For additional information see http://grants.nih.gov/grants/guide/pa-files/PAR-99-140.html.)

The small grants program provides research support of up to $50,000 per year (direct costs) for up to 2 years for new research projects in areas of relevance. These short-term awards are intended to fund investigations of specific, focused research questions. New investigators may use these grants to generate data for future research grants and more experienced investigators may use these grants to fund new research directions or develop new methodology.

Applications can be submitted by domestic organizations both nonprofit and for-profit and public and private. Examples include universities, colleges, hospitals, and laboratories.

Individuals supported by National Research Service Awards traineeships and/or fellowships are not eligible.

Applications are reviewed with consideration of their ability to advance the understanding of biological systems, improve the control of disease, and enhance health. Like RO1s, small grant applications are evaluated on the following criteria: (a) significance of the project, (b) approach/methods proposed, (c) innovation, (d) credentials of the investigator, and (e) scientific environment for the work. In other words, studies are evaluated on their public health relevance, the scientific merit of the proposal, the qualifications of the investigator, and the scientific environment for the study. Reviewers also examine the appropriateness of the proposed budget and the adequacy of plans to include a diverse sample (genders, children and adolescents, and minorities). Finally, it is worth noting that while small grant awards are evaluated on the same criteria as R01's, the larger scope and expense of RO1s typically translates to higher review standards.

Support from RO3s may be requested for up to 2 years at $50,000 per year in direct costs, plus facilities and administrative (F&A) costs. Budget requests are submitted using the "Modular Grant" procedures. Small grants are not renewable.

"K" Awards: Career Development Awards
(K01, K02, K05, K08, K23, and K24)

(For additional information see http://grants.nih.gov /training/careerdevelopmentawards.htm.)

Various institutes within NIMH, with the unifying goal of career development, sponsor K awards. These awards vary greatly in the level of experience of the trainee, the number of years of funding provided, and the percent effort required of the recipient. Many of the programs are intended to facilitate the career development of scientists, and to allow for increasing independence. Awards are available for both new and seasoned researchers. For example, the K01, Mentored Research Scientist Development Award, supports career development in a new area of research for a period of 3 to 5 years. Similarly, the K02, Independent Scientist Award, is aimed at developing the career of the funded scientist. Awards for more established researchers are also available such as the K05, Senior Scientist Award, which provides funding for up to 5 years and is intended for scientists with a sustained record of high productivity. Awards are also available for researchers with a clinical focus. For example, the K23, Mentored Patient-Oriented Research Career Development Award, supports the career development of investigators who have made a commitment to focus their research endeavors on patient-oriented research. Finally, awards are also available for institutions to improve the quality of training in clinical research. The K30, Clinical Research Curriculum Awards, are intended to support the development of didactic programs in clinical research at institutions that do not already have such programs, or to improve the quality of existing clinical research didactic programs.

"T" Awards: Training Grants
(T32 and T35)

(For additional information see http://grants.nih.gov /training/nrsa.htm#inst.)

Institutional Research Training Grants (T32) are awarded to eligible institutions with the goal of enhancing research training (improvements to existing training programs or the development of new programs). Such training is intended for both pre- and postdoctoral trainees in the fields of behavioral, biomedical, and clinical research. The overarching goal of these grants is to ensure that a diverse and highly trained work force is available to assume leadership roles.

Short-term Institutional Research Training Grants (T35) are available with similar goals to the T32 mechanism, but are intended to support intensive, short-term research training experiences for students in health professional schools during the summer. T35 training programs must be in either basic or clinical aspects of the health-related sciences and should provide sufficient training to enable trainees to have thorough exposure to the principles underlying the conduct of research.

Closing Remarks

The Web provides easy access to the lengthy descriptions of the various mechanisms, and we provided Web addresses to ease your journey. But the materials are dense in "government speak" and probably will require sifting to find the specific information that you seek. What may be helpful to someone unfamiliar with an application is to examine the application of someone who has submitted previously. Also, NIMH staff can be contacted and they are quite helpful in directing you to the proper mechanism for your proposal.

✍