

## News from the National Institute of General Medical Sciences (NIGMS)<sup>1</sup>

### WHAT ARE THE NEW REVIEW CRITERIA FOR RATING NIH GRANT APPLICATIONS? WHAT OTHER CHANGES ARE PENDING AT THE CENTER FOR SCIENTIFIC REVIEW (CSR)?

Beginning with the applications most recently reviewed (those submitted October 1/November 1, 1997), NIH study section members are now being instructed to consider five specific criteria when evaluating grant applications. The criteria are: Significance, Approach, Innovation, Investigator, and Environment. This change to criteria-based evaluations was recommended so that the review of grant applications will be focused on the quality of the science and the impact it might have on the field, rather than on technical details and methodology. The meaning of each of these criteria, and background leading up to the changes, are expanded upon in the text of the relevant *NIH Guide for Grants and Contracts* announcement, which is reprinted in its entirety below.

Dr. Harold Varmus' choice of a new leader to guide the future of the grant review process at NIH was someone with years of academic experience, Dr. Elvera Ehrenfeld. As reflected by organizational changes over the last year and a half, as well as a name change from the Division of Research Grants (DRG) to the Center for Scientific Review (CSR), the Center intends to make the review process as current as the science it evaluates. Accordingly, CSR is broadening its mission to include a new, expanded emphasis on the development and implementation of innovative and flexible ways to conduct referral and review for all aspects of science.

Consistent with these goals, a working group of ten distinguished scientists with prominence in diverse fields was established to undertake a comprehensive examination of the principles governing organization of study sections in CSR. Informally named "The Panel on Scientific Boundaries for Review", the group will consider whether or not major reorganization of the study sections is needed, or whether continuous adjustment of the current system will suffice to identify the most promising projects within all fields of biomedical research. If indicated, the group can recommend that the breadth of disciplines supported by NIH may require that study sections be restructured into newly defined scientific domains. These recommendations may serve as the basis for a future effort to reorganize initial review groups. The members of the panel are listed below, following the Guide announcement.

### REVIEW CRITERIA FOR AND RATING OF UNSOLICITED RESEARCH GRANT AND OTHER APPLICATIONS

*NIH Guide, Volume 26, Number 22, June 27, 1997*

#### BACKGROUND

As part of the ongoing effort to maintain high standards for peer review at the NIH, the Rating of Grant Applications

(RGA) subcommittee of the NIH Committee on Improving Peer Review was charged with examining the process by which scientific review groups rate grant applications and with making recommendations to improve that process in light of scientific knowledge of measurement and decision making. The charge was in response to the perception that the review of grant applications needed to be refocused on the quality of the science and the impact it might have on the field, rather than on details of technique and methodology. After extensive discussion of the RGA's report by NIH staff, the extramural community, and the Peer Review Oversight Group (PROG), at the May 5, 1997 meeting of PROG the Director of NIH announced procedures to be used for the review of research grant applications.

The procedures will be effective for all unsolicited research project grant applications (including those in response to Program Announcements published in the *NIH Guide*) submitted on or after October 1, 1997, most of which will be reviewed starting in January/February 1998. Reviewers will be instructed to (a) address the five review criteria below and (b) assign a single, global score for each scored application. The score should reflect the overall impact that the project could have on the field based on consideration of the five criteria, with the emphasis on each criterion varying from one application to another, depending on the nature of the application and its relative strengths.

The goals of NIH-supported research are to advance our understanding of biological systems, improve the control of disease, and enhance health. In the written comments reviewers will be asked to discuss the following aspects of the application in order to judge the likelihood that the proposed research will have a substantial impact on the pursuit of these goals. Each of these criteria will be addressed and considered in assigning the overall score, weighting them as appropriate for each application. Note that the application does not need to be strong in all categories to be judged likely to have major scientific impact and thus deserve a high priority score.

For example, an investigator may propose to carry out important work that by its nature is not innovative but is essential to move a field forward.

(1) *Significance*: Does this study address an important problem? If the aims of the application are achieved, how will scientific knowledge be advanced? What will be the effect of these studies on the concepts or methods that drive this field?

(2) *Approach*: Are the conceptual framework, design, methods, and analyses adequately developed, well-integrated, and appropriate to the aims of the project? Does the applicant acknowledge potential problem areas and consider alternative tactics?

(3) *Innovation*: Does the project employ novel concepts, approaches or method? Are the aims original and innovative? Does the project challenge existing paradigms or develop new methodologies or technologies?

(4) *Investigator*: Is the investigator appropriately trained and well suited to carry out this work? Is the work proposed

<sup>1</sup> Future topics for this column: training grants, and your suggestions.

appropriate to the experience level of the principal investigator and other researchers (if any)?

(5) *Environment*: Does the scientific environment in which the work will be done contribute to the probability of success? Do the proposed experiments take advantage of unique features of the scientific environment or employ useful collaborative arrangements? Is there evidence of institutional support?

While the review criteria are intended for use primarily with unsolicited research project applications (e.g., R01, R29, P01), to the extent reasonable, they will also form the basis of the review of solicited applications and non-research activities. However, for some activities (e.g., construction grants), use of these criteria as stated may not be feasible.

In addition to the above criteria, in accordance with NIH policy, all applications will also be reviewed with respect to the following:

- The adequacy of plans to include both genders, minorities, and their subgroups as appropriate for the scientific goals of the research. Plans for the recruitment and retention of subjects will also be evaluated.
- The reasonableness of the proposed budget and duration in relation to the proposed research.
- The adequacy of the proposed protection for humans, animals or the environment, to the extent they may be adversely affected by the project proposed in the application.

Requests for Applications (RFAs), which are published in the NIH Guide to Grants and Contracts, will list the specific criteria for scientific peer review of applications submitted in response to the particular RFA.

## INQUIRIES

Inquiries regarding this notice may be directed to:

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## The Panel on Scientific Boundaries for Review

Bruce Alberts, Ph.D., President, National Academy of Sciences

David Botstein, Ph.D., Professor and Chairman, Department of Genetics, Stanford University School of Medicine

Ronald Lee, Ph.D., Professor and Chairman, Department of Demography, University of California, Berkeley

Philippa Marrack, Ph.D., Professor, Department of Medicine, National Jewish Medical and Research Center

Stuart H. Orkin, MD, Professor of Pediatric Medicine, The Children's Hospital

Arthur H. Rubenstein, M.B.B.Ch., Dean and Executive Vice President, Mount Sinai Medical Center

Ralph Snyderman, MD, Chancellor for Health Affairs, Dean, School of Medicine, Chief Executive Officer, Duke University Health System and Medical Center

P. Frederick Sparling, MD, Professor of Medicine and Microbiology and Immunology, University of North Carolina at Chapel Hill

Larry Squire, Ph.D., Research Career Scientist, Department of Veteran's Affairs, Professor of Psychiatry and Neurosciences, University of California, San Diego

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The new URL for the Center for Scientific Review (formerly DRG) home page is <http://www.csr.nih.gov>.

The URL for the National Institute of General Medical Sciences is <http://www.nih.gov/nigms/>

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