



1200 New York Avenue NW · Suite 610 · Washington, DC 20005
Office 202.326.6427 · Fax 202.371.9849

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Jeremy Berg, Ph.D.
Director
National Institute of General Medical Sciences
National Institutes of Health
Building 45 - Natcher Building, 2AN12
45 Center Dr
Bethesda, MD 20892-6200

Dear Dr. Berg,

On behalf of the National Postdoctoral Association (NPA), thank you for the opportunity to provide input regarding the National Institute of General Medical Sciences (NIGMS) Strategic Plan for Training and Career Development. As you know, our mission is to enhance the quality of the postdoctoral experience for all participants and thereby advance the U.S. research enterprise. We believe that our mission remains relevant in this time of increasing global collaboration and competition.

The commitment of the Obama administration to furthering scientific research is providing new opportunities to reevaluate traditional training processes and to introduce new methods that address the changing face of the research enterprise. We heartily commend the NIGMS for its request for input regarding training and career development.

We are responding to the NIGMS questions from the point of view of the postdoctoral experience. Our suggestions are based on both anecdotal and quantitative data, which we would be happy to share with you in more detail upon your request. They were submitted via the questionnaire found at <http://public.nigms.nih.gov/2010TrainingSP/>.

What constitutes "success" in biomedical research training from the perspectives of an individual trainee, an institution, and society?

For the majority of biomedical researchers, the "postdoc" is the last transition from education and training to independent research. Briefly, "success" for the postdoctoral trainee is concluding a two-to-five-year postdoc period with sufficient publications, professional contacts, and grant funding to obtain a desired "permanent" position and begin independent research. Institutions benefit from being able to recruit from such a highly qualified pool of researchers who will

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further institutional research goals. Society benefits from the innovative and creative thinking that new scientists bring to bear in solving the world's most pressing problems.

“Success” for many postdocs remains equivalent with obtaining a tenure-track academic position. However, with the steady decline in the number of these positions and the steady increase in the number of postdocs, “success” is being redefined in the postdoctoral community. The NPA actively encourages postdocs to consider all of their career options—which brings a broader interpretation to “success.” Today and in the future, postdocs must prepare for more than one career path and develop a broad range of competencies to succeed. The NPA worked two years to develop a set of “core competencies” to provide a guide for postdocs and their mentors in regard to getting the most benefit from the postdoc position. (Information about these competencies can be found at: www.nationalpostdoc.org/competencies.) A trainee's success may indeed depend upon their mastery of a broad range of skills and their flexibility regarding their career goals; for example, their ability to transition from academia to industry.

What can NIGMS do to encourage an optimal balance of breadth and depth in research training?

Emphasizing research training in terms of life-long learning helps to achieve such a balance. **Accordingly, establishing institute-wide, non-discipline-specific core competency guidelines for biomedical research training could be a step in the right direction.** The FOA for the NIH training grants already generally refers to some competencies in its description of the training to be provided:

The program should develop trainee skills in understanding research, applying their critical abilities to conduct research, identifying problems in the process of conducting research, raising questions and proposing solutions to resolving problems. Trainees should be prepared to utilize their research findings as they pursue future research. Programs should provide all NRSA trainees with additional professional development skills and career guidance including instruction and training in grant writing in order to apply successfully for future career development and independent research support. All postdoctoral NRSA trainees should also be provided with instruction in laboratory and project management.

Regarding research awards, **the NIGMS could provide training supplements that could be used by institutions, among other purposes, to develop core competencies within each discipline that would encourage such breadth and depth in research training.**

What can NIGMS do to encourage an appropriate balance between research productivity and successful outcomes for the mentor's trainees?

The NIGMS should constantly seek to “train the trainer” and to provide the mentors with the resources that they need to better serve their protégés. One of the best ways to provide these resources is through the establishment of postdoctoral offices at research institutions. These offices not only provide support for trainees but also take some of the burden off of the mentors by developing and organizing career and professional development workshops. It is important to recognize that not all Principal Investigators make good mentors and that having other avenues

for mentoring could be crucial to a trainee's success. The postdoc office can provide these avenues. **The NPA recommends that the NIGMS provide incentives that would encourage the development of postdoctoral offices at institutions receiving training and/or research awards.**

The NPA encourages postdocs to be proactive in their mentoring relationships and to recognize that mentoring is a two-way street. The NIGMS could recommend the use of such tools as the NPA Core Competencies, the [Individual Development Plan](#), and/or the Association of American Medical Colleges (AAMC) [Postdoc Compact](#), which would help the trainee to understand his or her role in maintaining a balance between research productivity and training. **The NIGMS could develop its own mentor/trainee compact for its training programs.**

Regarding research awards, the balance between research productivity and training may only be reached when Principal Investigators understand that the research productivity of postdocs will increase if they are allowed to spend a reasonable amount of time on professional and career development. **The NIGMS could facilitate this attitude by supporting the requirement of mentoring provisions for postdoctoral scholars on research grants, much as the National Science Foundation has done in answer to the America COMPETES Act.**

Such a requirement need not be onerous, as both the NIH Office of Extramural Research and the NIH Office of Intramural Training and Education provide resources and information that could be used in mentoring plans. The NPA and other associations and societies also provide valuable resources.

What can NIGMS do through its training programs to promote and encourage greater diversity in the biomedical research workforce?

The NPA has identified two key issues in promoting and encouraging greater diversity in the biomedical research workforce: (1) in regard to women, lack of family-friendly policies and (2) in regard to women and underrepresented groups, lack of effective mentoring/appropriate mentors. (Data suggest that mentoring outcomes are affected by the gender of the mentor and protégé, as well as by the race/ethnicity of the mentor and protégé.) Another issue worth studying is that persons from underrepresented groups often choose to study at "Tier 2" institutions, which can hinder their advancement to independent research. There are no easy solutions to these challenges.

Through its training programs, the NIGMS could disseminate information to make people aware of these issues and provide incentives for institutions to research and tackle these issues. For example, the NPA has previously suggested that the NIH provide funding for senior researchers near retirement to serve as full-time mentors/advisors to postdoctoral scholars at their institutions. Such mentors would support rather than take the place of Principal Investigators, and they could possibly be an additional resource for postdocs from underrepresented groups. This program could include training for the mentors in regard to career options and best mentoring practices, as well as support programs to which the mentors could refer the postdoctoral scholars (e.g., sources for learning to write well or develop leadership skills). Such an initiative would have the added benefit of providing employment and transition funding for Principal Investigators from research to retirement.

Finally, the NPA applauds the NIGMS for its support of diversity in the science profession through its Minority Access to Research Careers (MARC) Program and would encourage increased support for this program.

Recognizing that students have different career goals and interests, should NIGMS encourage greater flexibility in training, and if so, how?

Definitely. Again, the NPA believes that developing a set of institute-wide, broad core competencies would encourage greater flexibility in training, as would support of postdoctoral offices. Developing NIGMS' resources in support of this flexibility would be crucial. The NIGMS could seek private/public partnerships to develop these resources. For example, The Kauffman Foundation would be an excellent partner in regard to developing training resources about scientific entrepreneurship.

What should NIGMS do to ensure that institutions monitor, measure, and continuously improve the quality of their training efforts?

If not already in place, the NIGMS could require mid-award evaluation surveys to be completed and submitted by postdoctoral trainees *directly to the institute*. The NIGMS could then provide the institution with aggregate, anonymous results. Such surveys could be a mid-program wake-up call to the institutions and would provide data on the effectiveness of postdoctoral training that could be used to evaluate programs/mentors when reviewing future grant proposals containing trainee salaries.

Mid-award evaluations of training programs could provide more reliable data than entry/exit interviews. Our conversations with postdoctoral researchers suggest that, upon entry, the postdoctoral scholar does not know enough to answer the questions, and upon exit, the postdoctoral scholar no longer has the motivation to respond in a meaningful way.

Do you have other comments or recommendations regarding NIGMS-sponsored training?

Please consider ways to make training fellowships more attractive, such as supporting an increase in the allowance for health insurance, etc. Many postdocs who receive NRSA fellowships often take a cut in pay and lose benefits. To add insult to injury, if the institution provides any benefits, they must claim those as income and pay income tax on that amount.

Again, thank you very much for this opportunity to provide input on the NIGMS training and career development.

Sincerely,



Cathee Johnson Phillips
Executive Director