

ASBMB response to NOT-GM-17-017
Submitted: 10/30/17

Purpose: The NIGMS seeks input on the organization and administration of its Undergraduate and Pre-doctoral Diversity Programs. The goal of these programs is to enhance the pool of students from underrepresented groups (NOT-OD-053) who matriculate in and complete Ph.D. degree programs in the biomedical sciences and become leaders of the U.S. biomedical research enterprise. This Request for Information (RFI) will assist NIGMS in identifying, developing and implementing strategies that will lead to more effective and efficient organization and administration of the Institute's Undergraduate and Pre-doctoral Diversity Programs.

See [NOT-GM-17-017](#) for additional background.

Topics that could be addressed include, but are not limited to, the following areas:

1) The potential challenges and opportunities created by changing NIGMS R25 programs to NRSA training (T) grant activity codes, and strategies for overcoming any potential challenges.

Challenges: If all NIGMS Undergraduate and Pre-doctoral Diversity Programs (UPDPs) are now listed as "T" grant activity codes, it may be difficult to identify or tease out the unique aspects of each program. This in turn gives a broad definition of success by which proposals will be measured. In turn this may undermine the social, cultural, experiential differences that have been established in each of the particular programs.

Opportunities: The T grant activity designation will allow for support of a broader group of talented participants through tuition subsidies for undergraduate students.

2) The potential advantages or disadvantages of having a single, unified NIGMS-funded undergraduate or pre-doctoral diversity program vs. multiple NIGMS-funded diversity programs at a given institution.

The challenges to building a skilled workforce and fostering an educated citizenry are the same for all institutions of higher learning, but given the facts, these challenges are critical for minority-serving institutions (MSIs). One such challenge involves ensuring that students who enter college with interest in pursuing STEM/biomedical science degrees persist in those majors and develop their abilities to adapt to the rapid pace of technological changes and scientific discoveries. Burgeoning data suggests that challenges in STEM/biomedical fields are further complicated by stereotype threats, which undermine the success of minorities and women in this scientific enterprise. In an ideal world, strategies that work with one minority group should work with the others, but we live in a multi-cultural nation, with distributions of lingo, accents, beliefs, and social habits that differentiate in a fascinating way. With few exceptions, the realities of the different cultures do not allow scholar-teachers to use a one-size-fits-all set of strategies that address all underrepresented minority issues.

Disadvantage: A single, unified NIGMS-funded UPDP may miss the mark by assuming that institutional roles/missions of MSIs are the same, thereby reducing the role played by an institutional and organizational culture rooted in mentoring and support. Furthermore this lessens the impact of research training and

informal cohort building in encouraging different populations of URMs to reach their full potential in the natural sciences, thus negatively impacting URM participation in biomedical sciences.

Advantage: The potential for scaffolding across one program may 1) ensure that NIGMS UPDPs are communicating and sharing best practices; and 2) better facilitate entry of URMs into graduate programs and the biomedical science workforce.

3) Strategies that could be used to build effective intra- and inter-institutional networks that minimize unnecessary duplication, leverage existing resources, and create synergies to more efficiently and effectively promote the development of a well-trained and diverse biomedical research workforce.

Targeted strategies are often adopted by colleges and universities specifically, directed at broadening participation challenges in STEM or biomedical sciences by strongly promoting and investing funds in one or more of the ten high-impact educational practices according to studies reported by the American Association of Colleges and Universities. These high impact practices have largely been focused on the individual student. It is our view that a framework beyond the individual student is often missing in the conversation creating a diverse biomedical scientific enterprise. We advocate that NIH could consider “widening the net” by encouraging NIGMS funded undergraduate institutions to create pathways with UPDPs that have graduate programs. This creates a multi-pronged approach to establishing a national culture that encourages URMs to reach their full potential in the biomedical sciences. This effort would be considered an educational collective with a sustainable feedback loop. Also, we recommend that the funded institutions consider creating an Office of Research Coordination (ORC) so that programs can be better tracked and that communication and resource sharing between programs may be facilitated. ORCs can be made mandatory for each funded institution, creating effective intra-and inter-institutional networks that minimize unnecessary duplication, leverage existing resources, and create synergies at UPDPs.

4) Any other comments or recommendations regarding NIGMS programs that support the training of students from UR groups.

Because of the national urgency to replenish the science pipeline, address problems facing the biomedical workforce and achieve ethnic and gender parity in the sciences, the American Society for Biochemistry and Molecular Biology (ASBMB) remains committed to working to sustain the biomedical research enterprise. We commend the efforts of the NIGMS and its Undergraduate and Pre-doctoral diversity programs (UPDPs) and offer our strongest encouragement for the development of new policies, strategies, and funding mechanisms that will solidify the foundation of the biomedical research enterprise for years to come. We welcome the opportunity to continue to work with the NIGMS UPDPs and the NIH through our ASBMB MSI partnership programs and various programs for minority scientists to achieve this common goal, to advance the mission of the NIH, and to help implement policies to promote best practices for recruitment, retention, and career development for the advancement of all biomedical scientists.