

## Summary

The mission of the Northwestern University IMSD is to lead institutional efforts to increase the diversity of the biomedical research community. The long term goals of the IMSD are to:

1. Increase the number of underrepresented minority (URM) and disadvantaged students in the five Northwestern University biomedical sciences PhD programs by expanding the selection criteria being used to identify students with talents indicative of success in the PhD and research careers
2. Continue refining programmatic activities and interventions to promote success of biomedical PhD students, especially those from atypical or disadvantaged backgrounds

Through empirical research, we have previously identified characteristics that predict students likely to persist into research training. By careful study of individual students and patterns of success, we have identified several other criteria that appear to predict success in PhD training of 'atypical' students. Atypical students usually come from backgrounds with fewer educational advantages, lower socioeconomic status, and lower family or local community expectations of achievement and college attendance. Academic and life experiences of these students can decrease their chances of acceptance into PhD programs. Although not exclusively aligning with URM status, a higher fraction of URM students fall into this atypical category. We are focusing on this group of students because we believe increased diversity will require that this pool of potential PhDs be tapped to a greater degree than it has been in the past. The Northwestern University IMSD will continue enhancing overall diversity efforts in PhD training while testing the hypothesis that atypical students selected using expanded criteria can become successful scientists.

To achieve our program goals and develop the skills of traditional and atypical students, a two year professional development sequence has been carefully designed for beginning PhD students that focuses on: 1) the major professional and personal transitions all students experience in the first two years of graduate school; 2) development of effective oral communication skills; 3) mastery of scientific writing from the context of constructing research proposals. The design of the program activities takes advantage of the strengths of group and peer mentoring approaches to complement what students get from individual research mentors. In addition, the program creates a social support network, which both research and our own experience suggest is critical to retention of URM students. Any student in the five participating PhD programs can take advantage of program activities by participation in the Collaborative Learning and Integrated Mentoring in the Biosciences (CLIMB) program within which the IMSD is situated. In addition to implementing and testing the IMSD student selection and development strategies at Northwestern, once they have been fully refined they will be described and made available to similar PhD programs for potential application.

## Narrative

It is critically important that the talents of the broadest array of the American population be engaged in the discovery of new biomedical knowledge, and the application of both new and current knowledge to solving medical problems. The Northwestern University IMSD program will make significant gains in our ability to identify individuals from underrepresented groups with the talents to make important contributions to biomedical research. By testing new selection and training paradigms, we will open the way for participation in biomedical research by individuals who otherwise are likely to be excluded and whose valuable contributions might never be achieved.