SOCIETY for NEUROSCIENCE

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The Society for Neuroscience response to NIGMS RFI
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Purpose

The National Institute of General Medical Sciences (NIGMS) seeks input on approaches that will enhance the transitions of productive postdoctoral scientists from diverse backgrounds, including groups underrepresented in biomedical research, into independent faculty positions at research-intensive institutions. This Request for Information (RFI) will assist NIGMS in identifying, developing and implementing strategies that will allow the biomedical enterprise to benefit from a more diverse research workforce – namely, a broader variety of perspectives to address complex scientific problems, more robust learning environments, improved global competitiveness, and enhanced public trust.

Background

NIGMS has a longstanding commitment to training the next generation of biomedical scientists and supporting training of students from diverse backgrounds, including groups underrepresented in biomedical research, through a variety of fellowships, career development awards, and institutional training and student development programs. These programs, and other efforts, have contributed to a substantial increase in the talent pool of well-trained biomedical Ph.Ds. from historically underrepresented racial and ethnic groups (NIH Databook; FASEB). However, increasing evidence demonstrates that transitions of these talented scientists from the postdoctoral training period into independent faculty positions at research-intensive institutions is a key point at which they exit the NIH-funded research workforce (Gibbs et al, eLife 2016; Meyers et al, PLOS One 2018). Similarly, women have earned a majority of biomedical Ph.Ds. since 2008 (FASEB), but approximately 1/3 of NIH-funded principal investigators are women (NIH Databook).

NIGMS has undertaken a number of efforts to facilitate the career transitions of postdoctoral scientists from diverse groups into the professoriate including the Institutional Research and Academic Career Development Awards (IRACDA), and research supplements to promote diversity in health-related research and re-entry into biomedical research careers. Additionally, NIGMS administers the common-fund National Research Mentoring Network (NRMN), a nationwide consortium of biomedical professionals and institutions collaborating to provide biomedical trainees from all backgrounds and at all levels with evidence-based mentorship and professional development programming. While these efforts have supported the development of highly trained biomedical scientists who have the necessary knowledge and skills to pursue independent careers in the biomedical research workforce, there remains a compelling need to develop additional strategies to promote transitions to independent faculty positions at research-intensive institutions.

Information Requested

NIGMS seeks input from key extramural community stakeholders, including graduate students, postdoctoral scientists, biomedical faculty, scientific societies and advocacy organizations, and academic institutions, as well from interested members of the public, on strategies to enhance postdoctoral career transitions to promote faculty diversity, specifically in research-intensive institutions. Topics that could be addressed include, but are not limited to, the following:

1. The barriers scientists from underrepresented groups face as they progress from postdoctoral training into faculty positions at research-intensive institutions, and potential strategies to overcome these barriers

Society for Neuroscience (SfN) appreciates the opportunity to respond to this Request for Information on behalf of its worldwide membership of nearly 37,000 neuroscientist members. Diversity and inclusion are organizational priorities of SfN that guide all of its programming. SfN encourages and promotes participation, accessibility, active representation, and leadership from diverse populations. Recognizing that diversity advances the field of neuroscience, SfN encourages membership and participation, regardless of race, ethnicity, national origin, gender, gender identity, sexual orientation, economic status, physical ability, age and religion. Beyond fostering diversity, the Society promotes an environment that is supportive of all diverse groups in the interest of advancing science.

Scientists from underrepresented backgrounds face implicit bias when being evaluated by peers, supervisors, and even students. These stereotypes are usually not deliberate and are instead formed unconsciously, making it difficult to uncover and prevent implicit bias. The disadvantage that bias poses for progression of scientists from underrepresented groups in academia should be addressed directly by individual scientists, institutions, and throughout scientific culture. At each level, overcoming implicit bias requires mitigation strategies to recognize and combat bias, as well as a commitment to prioritize diversity and inclusion. For example, institutions can help to counteract implicit bias in academic hiring by formally addressing it through broad outreach, required training for search committees, a commitment to equality, and transparently communicating evaluation information (e.g., salaries, promotions, and resources).

In addition, postdoctoral fellows in underrepresented groups frequently approach the transition into the professoriate without sufficient mentorship. These postdoctoral fellows rarely have role models from their own backgrounds and may have difficulty connecting with mentors that match their needs. Early career researchers can also benefit from having multiple mentors. Transitioning and excelling in the professoriate requires skill development beyond the scientific aspects of a postdoctoral fellowship. The acquisition of these skills is best supported by multiple mentors that each exemplify, communicate and enable particular skillsets. Mentors can help postdoctoral fellows develop skills that may include: scientific knowledge, navigating department dynamics, teaching and managing a laboratory. Effective mentors can motivate postdoctoral fellows by maintaining a positive demeanor and teaching by example how to surmount the challenges associated with faculty positions.

2. The qualities and perspectives that scientists from underrepresented groups bring to the research enterprise, and how these can be drawn upon to encourage and promote career transitions into the professoriate at research-intensive institutions

The success of neuroscience — and of the entire scientific community — requires the inclusion of diverse voices and perspectives at all levels. Researchers in underrepresented groups improve

science through their approach to research questions, utilizing distinct methods and results interpretations, and providing unique perspectives to collaborations. Adding diverse perspectives to a collaboration improves team problem-solving and resulting innovation. As scientific questions are increasingly complex, researchers must build and work in more diverse teams. For example, underrepresented groups are more likely to consider health disparities affecting their minority group and can motivate related research ideas, thereby expanding the scope of scientific considerations.

Additionally, diverse faculty provide unique teaching perspectives that are important for science to resonate with more students. Underrepresented students are more likely to feel included and pursue science with a relatable faculty mentor.

SfN works diligently to ensure diverse representation and perspectives when seeking volunteer leaders for SfN committees, panels, and other programming. Ensuring diverse voices serves to improve the quality and thoroughness of scientific discussions and practice while providing early career researchers, like postdoctoral fellows, the chance to "see themselves" on panels and within Society leadership.

3. Approaches that key stakeholders (e.g., faculty advisors, institutions, scientific societies, etc.) can employ to promote the successful career transitions of postdoctoral scientists from underrepresented groups into the professoriate at research-intensive institutions, and how these can be coordinated and sustained to maximize impact

Promoting successful career transitions requires tracking and acting on data about scientific trainees' career outcomes and the climate of diversity in academic research. Data collected by institutions, scientific societies, and national stakeholders should all be used to guide which intervention points are most effective in encouraging underrepresented minorities to pursue faculty positions. Surveying the diversity within and among institutions will help identify the qualities and perspectives that scientists in underrepresented groups contribute and how these can be leveraged to increase diversity in the professoriate overall. Sustaining faculty diversity efforts over the long term will involve periodic surveys to evaluate factors identified and their relative influence on career progression of scientists in underrepresented groups. With a variety of stakeholders collecting relevant data, potentially with support from NIGMS, the management and integration of data between stakeholders becomes critical for assuring a representative sample and connecting with individuals surveyed.

One effective way to promote successful career progression is through mentoring. All levels of stakeholders, including institutional leadership, can prioritize diversity and inclusive career development by facilitating mentorship. Faculty advisors, the primary mentors of postdoctoral fellows, should encourage their mentees to seek training from multiple perspectives and resources and tailor their mentorship style to individual postdoctoral fellows' needs. In a complementary way, institutions and professional societies are poised to promote faculty to pursue mentorship training and host venues for postdoctoral fellows to identify mentors.

Day-to-day scientific functions planned with a commitment to diversity also allow scientists in underrepresented groups to identify mentors in a more informal way by seeing others from their background participate in various aspects of professional life, such as a panel or department seminar talk.

4. Current strategies that have been successful in promoting the transition of postdoctoral scientists from underrepresented groups into independent, tenure-track faculty positions

SfN both administers successful programs to promote diversity and inclusiveness in neuroscience, and has identified some examples of such programs from other societies and organizations. These feeder programs build the skills, confidence, and network of postdoctoral scientists from underrepresented groups and can embolden them to pursue faculty positions. SfN included links to these different programs for further investigation by NIGMS.

From 2010-2012, SfN hosted a series of five workshops across the United States— the Department Chair Training to Increase Women in Neuroscience (IWiN) workshop series (http://www.sfn.org/Careers-and-Training/Women-in-Neuroscience/Department-Chair-Training-to-Increase-Diversity/Workshop-Resources). This workshop series trained department chairs on effective strategies for recruiting and retaining a diverse faculty and developed a network of chairs that could support each other in implementing these strategies. Following the workshops, SfN adapted the presentation materials to create online learning modules (http://www.sfn.org/iwin) and a series of turn-key presentation resources (http://neuronline.sfn.org/Collections/Increasing-Women-in-Neuroscience-Toolkits) that institutions can utilize to host their own workshops on the topics of implicit bias, recruitment and retention, promotion and evaluation, and improving faculty climate. While the Neuronline resources are reserved for SfN members, the material on SfN.org was supported by the National Science Foundation and is available to the public. SfN continues to prioritize programming focused on identifying and mitigating implicit bias through a virtual conference that will take place in early 2019.

SfN furthermore supports the Neuroscience Scholars Program (NSP) (https://www.sfn.org/careers-and-training/diversity-programs/neuroscience-scholars-program), a multi-year program funded by NINDS to enhance career development and promote professional networking opportunities for underrepresented graduate students and postdoctoral fellows in neuroscience. For over 30 years, NSP has provided two-year fellowships for neuroscience trainees involving mentoring, professional development resources, and travel awards. In a survey of NSP alumni, 100% of respondents had completed their PhDs and 75% remained in academia after graduation, with equal percentages of women and men pursing faculty positions.

Beyond SfN supported initiatives, there are additional training programs that exemplify support for early career neuroscientists in underrepresented groups:

- Summer Program in Neuroscience, Excellence, and Success (SPINES) (http://www.mbl.edu/education/courses/spines/) at the Marine Biological Laboratory,
- Broadening the Representation of Academic Investigators in NeuroScience (BRAINS) (https://advance.washington.edu/brains/) at the University of Washington, and

- Early Career Institute in Neuroscience (http://eci.pitt.edu/overview.htm) at the University of Pittsburgh.

Promoting underrepresented groups development into faculty can also be achieved through bridge funding of research between postdoctoral and faculty years. For example, Howard Hughes Medical Institute supports the Hannah H. Gray Fellows Program (https://www.hhmi.org/programs/hanna-h-gray-fellows-program) that funds the research of postdoctoral fellows and early career faculty from underrepresented backgrounds. Additionally, the American Physical Society's Bridge Program (https://www.nature.com/articles/d41586-018-05260-4) for graduate students is another example of supporting underrepresented groups through bridge funding that has successfully retained such researchers in the physical sciences.

Finally, a funding announcement (https://www.ninds.nih.gov/Funding/Training-Career-Development/Award/K99R00-BRAIN-Initiative-Advanced-Postdoctoral-Career-0) from NINDS will award mentored (K99) and independent (R00) research funding for postdoctoral fellows in underrepresented groups to strengthen diverse neuroscientists' career transitions. A recent analysis (http://rescuingbiomedicalresearch.org/blog/examining-distribution-k99r00-awards-race/#.W1DN-vz-Ixg.twitter) of the racial distribution of NIH K99 and R00 awards represents the need for similar funding programs.

SfN supports the adoption and expansion of these funding initiatives by NIH.