Building Mentoring and Community Platforms to Support DEI in your Scientific Network: Overview of NIH/NIGMS Programs to Enhance Diversity of the Biomedical Research Workforce

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April 20, 2022
Representation across the biomedical academic pathway

Underrepresented: Hispanic or Latina/o/x, African American/Black, Native American, Alaska Native, Pacific Islander; Well represented: White, Asian. (2018 NSF Data)
What Can We Do to Combat Anti-Black Racism in the Biomedical Research Enterprise?

JUNE 10, 2020

BY DR. JON LORSCH, DR. KENNETH GIBBS, AND DR. ALISON GAMMIE

20 comments

The recent deaths of George Floyd, Ahmaud Arbery, and Breonna Taylor, in addition to the disproportionate burden of COVID-19 on African Americans, are wrenching reminders of the many harms that societal racism, inequality, and injustice inflict on the Black community. These injustices are rooted in centuries of oppression—including slavery and Jim Crow, school segregation, and mass incarceration—that continue to influence American life, including the biomedical research enterprise. Despite leading an NIH Institute whose mission includes building a diverse scientific workforce, at NIGMS we’ve struggled with what an adequate response to this moment would be, knowing that the systems that mediate the distinct and disparate burdens Black students, postdocs, and scientists face are complex and often aren’t easily moved with the urgency that they demand. With that in mind, below we share thoughts on what each of us who is in the majority or in a position of power can do to help break the cycles of racial disparities that are woven into the fabric of the biomedical research enterprise and that limit opportunities for Black scientists.

Institutional structures, policies, and cultures, including those in the biomedical research enterprise, all contribute to racial inequality and injustice. This fact was laid bare for us by the responses to the request for information (RFI) we issued in 2018 on strategies to enhance successful postdoctoral career transitions to promote faculty diversity. Respondents cited bias and discrimination—including racism—most frequently as a key barrier to postdoctoral researchers attaining independent faculty positions.

NIGMS Supports UNITE, the Trans-NIH Initiative to Promote Diversity, Equity, and Inclusion in Biomedical Research

MARCH 4, 2021

BY DR. JON LORSCH, DR. ALISON GAMMIE, AND DR. KENNETH GIBBS

0 comments

On March 1, NIH Director Francis Collins announced UNITE, a new effort to end structural racism and racial inequities in the biomedical research enterprise. NIGMS fully supports this initiative and is actively reviewing our own policies, practices, procedures, and priorities. We’re also intensifying our current efforts to undo the impacts of structural racism and all other forms of structural bias and discrimination in the biomedical research enterprise. Upcoming NIGMS communications and activities will identify structural and cultural elements in biomedical research that are contributing to racism and what we’re currently doing and plan to do to address them. New initiatives include, but are not limited to:

It Takes Courage: Re-Emphasizing Our Institutional and Societal Commitment to Diversity, Respect, and Inclusion

MARCH 29, 2021

BY DR. RICHARD ARAGON, SALLY LEE, DR. MING LEI, AND DR. JON LORSCH

0 comments

Recent events have highlighted the unfortunate, discriminatory, and, at times, violent or criminal actions taken against members of the Asian American and Pacific Islander (AAPI) communities. These events, including attacks on women and the elderly, constitute a threat to the health and well-being of not only the AAPI community, but also to the principles of diversity, inclusivity, respect, and civility. Data recently released [PDF] by California State University, San Bernardino, indicate a 149% increase in anti-Asian hate crimes reported to law enforcement between 2019 and 2020, including staggering increases in some of the most demographically diverse cities in the country. These events, and the perspectives or attitudes that underlie them, damage the social fabric and mutual bonds that hold us together. Elements of hate and discrimination anywhere act as a barrier to equity and respect everywhere.
Training, Workforce Development and Diversity (TWD): Supports programs that foster research training and the development of a strong and diverse biomedical research workforce

NIH’s Interest in Diversity: NOT-OD-20-031
NIGMS Strategies and Resources to Enhance Diversity in Training Programs

- Recruitment of Trainees and Fellows from Underrepresented Racial and Ethnic Groups
- Recruitment of Trainees and Fellows with Disabilities
- Trainee Retention Activities

https://www.nigms.nih.gov/training/diversity/
NIGMS Administers ~1,900 Training, Workforce Development, Diversity and Capacity Building Awards at ~400 institutions ~$900 million per year
### NIGMS awards across 118 Minority Serving Institutions

<table>
<thead>
<tr>
<th>MSI</th>
<th>Sum of Awd Tot $</th>
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<tr>
<td>AAPI</td>
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<td><strong>Grand Total</strong></td>
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NIGMS Training Programs Are/Will be Expected to

- Promote diversity, equity and inclusion
- Conduct holistic approaches for participant selection
- Encourage inclusive, safe, and supportive research environments
- Use evidence-informed educational and mentoring practices
- Employ cohort-building activities that enhance the trainees’ science identity and self-efficacy

- Introduce trainees to a variety of scientific careers and research areas
- Include a recruitment plan to enhance diversity
- Expectation of mentor training, assessment and accountability
- Offer stipend and tuition remission
- Require strong institutional support
- Inquire about outcomes for both WR and URM
Bridges to the Baccalaureate (T34)
Contacts: Shakira Nelson and Laurie Stepanek
shakira.nelson@nih.gov; laurie.stepanek@nih.gov

- Emphasizes the development of a diverse pool of community college students that transition to baccalaureate degree-granting institutions, and subsequently earn their bachelor’s degree in the biomedical sciences.
- Encourages a strong partnership that offers a well-integrated set of activities both pre- and post-bridging (e.g., research prior to and after bridging and articulation agreements to reduce the time-to-degree).
- Community Colleges are an important pathway to postsecondary education for many students, especially first-generation college students and those who are from low-income families.
- Program impact: across 17 currently active programs over a 5-year period, 547 of 912 participants completed a baccalaureate degree (60%). Nationally, ~13% of those who begin at 2-year public colleges in STEM fields earn a baccalaureate degree in 6 years.
Postbaccalaureate Research Education Program (PREP) (R25)
Contact: Anissa Brown and Laurie Stepanek
https://www.nigms.nih.gov/training/PREP
PAR-20-066

- Program focuses on increasing the number of baccalaureates from underrepresented groups who go on to Ph.D. degree programs.
- Grants are made to domestic, private and public universities or research institutions with strong Ph.D. degree programs in the biomedical sciences.
- Program impact: 65% of participants go on to a Ph.D. program
MOSAIC is a new program designed to facilitate the transition of promising postdoctoral researchers from diverse backgrounds, for example individuals from groups underrepresented in the biomedical research workforce at the faculty level, into independent, research-intensive faculty careers.

The overarching goal of the NIH MOSAIC program is to enhance the diversity of independent investigators conducting research within the NIH mission. Program priority is to address documented underrepresentation at the faculty level (e.g., see NIH's Notice of Interest in Diversity).

Program has the potential to address the significant underrepresentation of Black (as well as Latinx and Indigenous) faculty in the professoriate.

Progress of this young program is encouraging- over half of the applicants in the first round of the K99 were Black/African American.
MOSAIC K99 Applications – Self-ID in Application

- Female (n=44)
- Male (n=15)

- Black/AA (n=20)
- AI/AN/NH/PI (n=5)
- Hispanic (n=20)
- Other/Decline to State (n=14)
NIH MOSAIC Scholars – Areas of Science

- Cell biology (n=16)
- Physiology (n=7)
- Minority Health/Health Disparities (n=5)
- Biological Chemistry (n=3)
- Mental Health (n=2)
- Neuroscience (n=12)
- Biophysics/Structural Biology (n=6)
- Microbiology/Immunology (n=4)
- Developmental Biology (n=2)
- Health Technology (n=1)
2021 NIH MOSAIC Scholars

https://www.nigms.nih.gov/training/careerdev/Pages/mosaic-scholars.aspx
Programs that span the pathway

preK-12  Community College  Undergraduate  Post-bac  Graduate MS  Graduate PhD  Postdoctoral  Faculty
Innovative Programs to Enhance Research Training (IPERT) (R25)
PA-21-196

• Primary focus of the program is to support educational activities that complement and/or enhance the training of a workforce to meet the nation’s biomedical, behavioral and clinical research needs.

• The goal is to enable the scientific community to develop and implement innovative educational activities to equip diverse cohorts of participants with technical, operational or professional skills required for careers in the biomedical research workforce. Programs should have a broad national reach, innovation, and sustainability.

• Program must support creative educational activities, that are rooted in evidence-based approaches, with a focus on:
  • **Courses for Skills Development**: activities to develop scientific research skills, problem-solving skills, communication skills, emerging technologies;
  • **Mentoring Activities**: Activities designed to provide career information, advice, and support to research-oriented undergraduates, graduate students, postdoctoral fellows, or independent faculty in biomedical fields. The activities should provide participants with perspective on the biomedical research training pathway and tools for overcoming challenges, navigating career transition points, and successfully transitioning into careers in the biomedical research workforce.
• Hypothesis-driven research to test interventions for efficacy and replicability across career stages and at a range of institution types and to provide empirical evidence of the factors contributing to success, including the social and behavioral factors.

• Program should focus on research that will contribute to the evidence base for effective, high-impact, scalable interventions, and to improve our understanding of the elements contributing to the advancement of individuals pursuing biomedical research careers.

• This grant will support research designed to test interventions to enhance research-oriented individuals' interest, motivation, persistence and preparedness for careers in the biomedical research workforce.

• Funded projects are expected to produce research findings that will guide the implementation of interventions in a variety of academic settings and career levels to enhance the diversity of the biomedical research workforce.

• Not designed to support evaluation of an existing or planned program(s), nor is it intended to support a training program, curriculum development, or other activity disguised as an experiment.

• Examples of areas of study:
  • Training, Mentoring, and Networking- informing the community about why, how, and to what extent certain strategies and approaches have significant impacts on academic and professional success
  • Navigation of critical transition points- underlying mechanisms that contribute to timely transitions and career progression
  • Harassment- research designed to change the culture to mitigate or eliminate sexual or other forms of harassment
  • Institutional factors that influence persistence- tests of interventions to address institutional level structures and culture
What could be considered next?

• What do you know about what is needed?
  o Attend workshops and seminars
  o Hold your own listening sessions
  o Create spaces for dissemination of outcomes and information
  o Diversify your spaces and voices

• Are the community needs aligned with your visions?

• Identify those doing the work and foster relationships (no work should be siloed!)

• Review established practices and policies. What are cross-cutting themes?

• Areas that can help further the mission:
  o Acknowledging diversity, equity, and inclusion as a cross-cutting theme
  o Developing new research resources and technologies, expanding research capacities
  o Creating better transparency and communication
Closing thoughts

• Lessons learned are on-going
  ○ Emphasizing program evaluations and analyses, imploring the development of dissemination plans is how we build better funding announcements, help broaden our reach, and create the opportunities that meet the goals of our programs.
  ○ Results of evaluations of NIGMS programs and the ensuing actions taken in response to their findings are publicly available: https://www.nigms.nih.gov/about/dima/Pages/reports.aspx

• Program progress: adjust and pivot
  ○ Based on analyses and evaluations, we re-examined the focus areas of our programs to ensure we are hitting the appropriate communities, seeing strong outcomes.
  ○ Restructuring of diversity enhancing programs led to enhanced capacity for evaluation, and better tracking of trainees through the research training pathway.

• When considering how to find your place in the current space, communication is key!

• Our collective commitment to diversity, equity, and inclusion cannot be realized without self-reflection (individual and institutional) and change.

• Program expectations that are data driven can lead to success
Resources you can use

• Look through the strategic plans of the NIH IC’s
  o NIGMS 2021-2025 strategic plan:
  o Strategic plans of other policy-driving institutions

• Use NIH-based tools to explore the type of science that is being done, training program ideas that are out there, etc. Where can you fit in?
  o https://reporter.nih.gov/
Thank you!
Eligibility considerations

Higher Education Institutions
• Public/State Controlled Institutions of Higher Education
• Private Institutions of Higher Education

The following types of Higher Education Institutions are always encouraged to apply for NIH support as Public or Private Institutions of Higher Education:
• Hispanic-serving Institutions
• Historically Black Colleges and Universities (HBCUs)
• Predominantly Black Institutions (PBI)
• Tribally Controlled Colleges and Universities (TCCUs)
• American Indian/Alaska Native Serving, Non-Tribal Institutions (AI/AN)
• Alaska Native and Native Hawaiian Serving Institutions
• Asian American Native American Pacific Islander Serving Institutions (AANAPISIs)

Nonprofits Other Than Institutions of Higher Education
• Nonprofits with 501(c)(3) IRS Status (Other than Institutions of Higher Education)
• Nonprofits without 501(c)(3) IRS Status (Other than Institutions of Higher Education)

Governments
• Indian/Native American Tribal Governments (Federally Recognized)
• Indian/Native American Tribal Governments (Other than Federally Recognized)
• U.S. Territory or Possession

Other
• Native American Tribal Organizations (other than Federally recognized tribal governments)
• Faith-based or Community-based Organizations