



ACTIVATING A NEURAL NETWORK

**Admission Strategies to Increase Diverse
Neuroscience Trainees**

R25/T32 Diversity Workshop

April 10 – 11, 2017

**Doubletree by Hilton Hotel Bethesda
Ballroom A/B**



**National Institute of
Neurological Disorders
and Stroke**

~

*A neural network works by creating connections between processing elements.
The organization and weights of the connections determine the output.*

~

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Welcome and Meeting Goals



It is my pleasure to welcome you to “**Activating a Neural Network: Admission Strategies to Increase Diverse Neuroscience Trainees R25/T32 Diversity Workshop.**” As one of 27 Institutes and Centers making up the National Institutes of Health (NIH), the National Institute of Neurological Disorders and Stroke (NINDS) has played a central role in supporting neuroscience research for more than 60 years. Our mission is to seek fundamental knowledge about the brain and nervous system and to use that knowledge to reduce the burden of neurological diseases borne by every age group, by every segment of society, and by people all over the world. To help accomplish this mission, our portfolio must include research training and career development programs to increase basic, translational, and clinical neuroscience expertise and ensure a vibrant, talented, and diverse workforce.

The goals of this meeting include: 1) building alliances between individuals who are actively engaged in addressing issues surrounding workforce diversity and individuals engaged in neuroscience graduate admissions and training; 2) identifying opportunities and share successful approaches for more effective recruitment, training, and retention of diverse individuals in neuroscience; 3) fostering dialog around intervention strategies to support diverse trainees at critical transition points along the career path, particularly surrounding entry to and persistence in graduate school; 4) providing training to administrators of neuroscience R25 and T32 training programs on how to foster diversity and inclusion in their programs; and 5) receiving feedback on how NINDS programs and policies can more effectively promote transitions across career stages for the diverse neuroscience workforce.

NINDS seeks to promote diversity in all of its training and research programs, and to increase the participation of all underrepresented groups. NINDS T32 and R25 programs have a very important role to play in expanding the diversity of the workforce by recruiting and preparing underrepresented trainees; developing meaningful mentorship relationships and connecting diverse individuals to supportive networks; and providing program support for retention while eliminating barriers for career transition. With your partnership, we at NINDS are making strides and are confident that through collective dedication, we can strengthen our efforts and further improve our workforce diversity outcomes.

We hope that you will enjoy this important meeting and take full advantage of the many opportunities to interact with colleagues, share experiences, and participate in stimulating discussions.

*Best wishes,
Walter*

Walter J. Koroshetz, MD
Director
National Institute of Neurological Disorders and Stroke
National Institutes of Health

Agenda

Monday, April 10, 2017

- 7:30 – 8:00 am **Registration**
- 8:00 – 8:15 am **Welcome**
Walter Koroshetz, MD
Director, National Institute of Neurological Disorders and Stroke (NINDS)
- 8:15 – 8:30 am **Meeting Goals**
Michelle Jones-London, PhD
NINDS
- 8:30 – 9:15 am **Featured Lecture**
Julie R. Posselt, PhD, University of Southern California
Assistant Professor, Rossier School of Education
Fellow, National Academy of Education/Spencer Foundation
- 9:15 – 9:35 am **Q & A Session**
- 9:35 – 9:50 am **BREAK**
- 9:50 – 11:10 am **Panel 1: *Interconnected Nodes: Where do I find the talent and how do I make connections?***
Moderator: Edgardo Falcón-Morales, PhD, NINDS
Background: Gayle Slaughter, PhD, Baylor College of Medicine
Discussants: Vanya Quiñones-Jenab, PhD, Hunter College of the City University of New York
 Diane Lipscombe, PhD, Brown University
 Rochelle Smith, MS, Washington University in St. Louis
- How can R25s connect with graduate programs?
 - What are successful recruitment strategies for T32s? Where can they find resources or make connections with diverse students and programs?
 - How do students choose graduate programs to apply to and attend?
- 11:10 – 11:25 am **BREAK**
- 11:25 – 12:10 pm **Featured Lecture**
Anna O’Connell, MS, University of North Carolina at Chapel Hill
Director, Biological & Biomedical Sciences Program
- 12:10 – 12:30 pm **Q & A Session**
- 12:30 – 1:40 pm **LUNCH BREAK**

Agenda

- 1:40 – 3:00 pm **Panel 2: *Input, Hidden, and Output Layers*: Defining and solving challenges in graduate admissions**
Moderator: Steve Korn, PhD, NINDS
Background: Julia Kent, PhD, Council of Graduate Schools
Discussants: Kathryn Saatman, PhD, University of Kentucky
Marion Buckwalter, MD, PhD, Stanford University
Gary Westbrook, MD, Oregon Health & Science University
José García-Arrarás, PhD, University of Puerto Rico
- What are the challenges in graduate admissions from the perspective of graduate programs, R25s, and institutions?
 - How do you successfully employ holistic graduate admissions? What solutions have you employed? How can institutions be prepared to find talent in all forms?
 - What are graduate programs looking for in a student? Who do they invite for interview? For admission? How can students be best prepared to succeed?
- 3:00 – 3:15 pm **BREAK**
- 3:15 – 4:00 pm **Featured Lecture**
Kimberly Griffin, PhD, University of Maryland
Associate Professor, Higher Education, Student Affairs, and International Education Policy Program
- 4:00 – 4:20 pm **Q & A Session**
- 4:20 – 4:30 pm **BREAK**
- 4:30 – 5:50 pm **Panel 3: *Long-term Potentiation*: Inclusion and successful advancement of graduate students**
Moderator: Letitia Weigand, PhD, NINDS
Background: Rick McGee, PhD, Northwestern University
Discussants: Farah Lubin, PhD, University of Alabama at Birmingham
Kathleen Maguire-Zeiss, PhD, Georgetown University
Yoland Smith, PhD, Emory University
- How can programs, departments and institutions ensure an inclusive environment for all?
 - How to support, mentor and promote successful future transitions for diverse students? Are there strategies to support students through transitions employed by R25 programs that T32 programs can adopt and vice-versa?
 - How can R25s best prepare students for smooth transition to grad school and beyond?
 - Student outcomes from example programs
- 5:50 – 6:00 pm **Day One Wrap-up and ADJOURN**
Michelle Jones-London, PhD, NINDS

Agenda

Tuesday, April 11, 2017

8:00 – 8:30 am **Breakfast**

8:30 – 8:40 am **Welcome and Introduction of Activity**
Lauren Ullrich, PhD, NINDS

8:40 – 10:30 am **Small Group Training: Entering Mentoring Curriculum and Implementation Plans**
Facilitators: Christine Pfund, PhD, Associate Scientist, University of Wisconsin-Madison, NRMN Master Facilitator
Lauren Ullrich, PhD, NINDS
Chinonye Nnakwe, PhD, National Science Foundation
Marguerite Matthews, PhD, NIH

10:30 – 10:40 am **BREAK**

10:40 – 11:40 am **Group Breakout Session**
Three breakouts to discuss recruitment, admissions, and transitions and facilitate connections between programs.
Introductions and identification of a scribe and a reporter
Brainstorming: Discuss questions below from individual perspectives

- How can programs make the case for the value of diversity to all faculty in department/institution?
- What kind of resources, training, etc. are needed and available for this?
- What can NIH, NINDS, institutions, Program Directors, admissions personnel, and students do to meet these challenges?

Prioritize the final report out: Develop generalizable lessons learned and/or recommendations around the topic to share with all meeting participants

11:40 – 12:00 pm **Report out, concluding remarks, and ADJOURN**
Michelle Jones-London, PhD, and Steve Korn, PhD, NINDS

Speakers and Moderators



Walter Koroshetz, MD
Director
National Institute of Neurological Disorders and Stroke

Walter J. Koroshetz, MD, was selected Director of NINDS on June 11, 2015. Dr. Koroshetz joined NINDS in 2007 as Deputy Director, and he served as Acting Director from October 2014 through June 2015. Previously, he served as Deputy Director of NINDS under Dr. Story Landis. Together, they directed program planning and budgeting, and oversaw the scientific and administrative functions of the Institute.

Before coming to NIH as the NINDS Deputy Director in 2007, Dr. Koroshetz was a Harvard Professor of Neurology, Vice Chair of Neurology at Massachusetts General Hospital (MGH), Director of Stroke and Neurointensive Care, and a member of the Huntington's disease unit. He was also a Professor of Neurology at Harvard Medical School and led neurology resident training at MGH from 1990 until 2007. A native of Brooklyn, New York, Dr. Koroshetz graduated from Georgetown University and received his MD from the University of Chicago. He trained in internal medicine at the University of Chicago and in both internal medicine and neurology at MGH, after which he did postdoctoral studies in cellular neurophysiology at MGH and the Harvard neurobiology department.



Michelle D. Jones-London, PhD
Chief, Office of Programs to Enhance Neuroscience Workforce Diversity (OPEN)
NINDS

Michelle Jones-London, PhD, serves as Chief, Office of Programs to Enhance Neuroscience Workforce Diversity. In this position, she plays a critical role in guiding the Institute's diversity efforts and chairs the NINDS Diversity Working Group. Dr. Jones-London joined NINDS as a Program Director in July, 2006. Dr. Jones-London earned her PhD in Neuroscience from Pennsylvania State University College of

Medicine. She then received postdoctoral training as a research fellow at University of Pennsylvania. Dr. Jones-London came to the NIH in July 2004 as an Emerging Leader Fellow; she performed duties across the Department of Health and Human Services. Dr. Jones-London directs the diversity training and workforce development programs at NINDS which include Diversity and Re-Entry Supplements, Predoctoral Fellowships to Promote Diversity (F31), Career Development Awards to Promote Diversity (K01 and K22) and Diversity Research Education Grants (R25). She also provides oversight for the Institute's diversity outreach initiatives at several other national scientific conferences. Her trans-NIH efforts include oversight of the NIH Blueprint ENDURE and the F99/K00 D-SPAN program. Her research interests have focused on understanding monoaminergic neurotransmitter regulation and mechanisms of behavioral psychopharmacology in animal models of disorders such as ADHD, Tourette Syndrome, and depression.

Featured Lecture



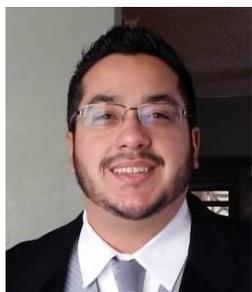
Julie R. Posselt, PhD
Assistant Professor of Higher Education
University of Southern California

Julie Posselt, PhD, is Assistant Professor of Education at the University of Southern California and a National Academy of Education/Spencer Foundation postdoctoral fellow. Her research examines organizational behavior affecting access to and equity in selective sectors of higher education, especially graduate education, elite colleges

Speakers and Moderators

and universities, STEM fields, and the professoriate. Posselt is the author of *Inside Graduate Admissions: Merit, Diversity, and Faculty Gatekeeping* (Harvard University Press, 2015), an award-winning ethnographic comparative study of faculty decision making in doctoral admissions. Her research is also published in the *American Educational Research Journal*, *Journal of Higher Education*, *Research in Higher Education*, and *Chronicle of Higher Education*, among others. She is a member of the editorial review board for the *Journal of Higher Education* and *Journal of Diversity in Higher Education*. Her work has been funded by the US Department of Education, Spencer Foundation, Mellon Foundation, and National Science Foundation.

Panel 1: Interconnected Nodes: Where do I find the talent and how do I make connections?



Edgardo Falcón-Morales, PhD
Health Program Specialist
NINDS

Edgardo Falcón-Morales, PhD, is a Health Program Specialist in the Office of Programs to Enhance Neuroscience Workforce Diversity at NINDS, where he works in the overseeing and analysis of several diversity-targeted training mechanisms. He obtained a BS in Biology from the University of Puerto Rico–Rio Piedras. He conducted his graduate studies in the laboratory of Dr. Colleen McClung at the University of Texas Southwestern (UTSW) Medical Center in Dallas, TX, investigating the role of circadian genes in cocaine addiction, and graduated with a PhD in Neuroscience in 2012. During his time at UTSW, Edgardo actively recruited diversity applicants to the school and was a member of the admissions committee of the Graduate School of Biomedical Sciences for two years. Dr. Falcón-Morales performed his postdoctoral research at the University of Pennsylvania with Dr. Irwin Lucki, studying the antidepressant potential of opioid compounds. While at Penn, he also served as co-Chair of the Diversity Committee of the Biomedical Postdoctoral Council and as member of the Institutional Review Board. He has worked in collaborative projects with scientists in both academia and industry.



Gayle Slaughter, PhD
Senior Associate Dean for Graduate Education and Diversity
Baylor College of Medicine

Gayle R. Slaughter, PhD, pioneered the college's Summer Medical Research and Training (SMART) program, which has enrolled 80-100 students each summer over the past 16 years. During that time, 439 underrepresented minority students have participated. Dr. Slaughter has been a leader in Baylor College of Medicine's (BCM) success in recruiting and retaining graduate students, especially from underrepresented groups, and her work with the SMART program has more than tripled the number of minority PhD students achieving success at BCM. Overall, she has mentored more than 500 minority students. Slaughter has also established collaborations with the United Negro College Fund to increase interest in molecular biology among K-12 students. She earned her PhD from Iowa State University of Science & Technology and her BS from Northwestern State University of Louisiana.

Speakers and Moderators

Featured Lecture



Anna Ballew O'Connell, MS
Director, Biological & Biomedical Sciences Program
University of North Carolina at Chapel Hill

Anna Ballew O'Connell is the Director of the UNC Chapel Hill Biological and Biomedical Sciences Program (BBSP) an umbrella admissions and first year training program for 14 life sciences PhD programs. Ms. O'Connell is responsible for graduate recruitment, admissions, and for overseeing the training and lab rotation/selection process for 65-85 first year graduate students each year. Before coming to UNC, she spent five years in a biology graduate program at Stanford University studying how cells control their actin cytoskeleton. She then transitioned to a career that focused more on her passion for teaching and advising by serving as the program coordinator for the Howard Hughes Medical Institute funded Pre-Graduate Program, also at Stanford. In this role, she taught laboratory and classroom based courses that introduced undergraduates to the exciting world of inquiry driven research. At UNC Chapel Hill Ms. O'Connell was responsible for implementing the large umbrella style BBSP admissions process and for creating a first year rotation program and professional development course for all BBSP students. Ms. O'Connell's current professional interests include student coaching and advising, mentor training for biomedical research faculty, supporting diversity efforts by creating a more evidence based admissions process and a more inclusive training environment, and promoting trainee mental health and wellness.

Panel 2: Input, Hidden, and Output Layers: Defining and solving challenges in graduate admissions



Stephen J. Korn, PhD
Director, Office of Training and Workforce Development
NINDS

Stephen Korn, PhD, came to NINDS as Director of the Office of Training, Career Development and Workforce Diversity in January, 2006. He received his PhD in Pharmacology from the University of North Carolina- Chapel Hill, and received postdoctoral training at NIH (as a PRAT Fellow of NIGMS) and at the Roche Institute of Molecular Biology (with financial support from NRSA postdoctoral fellowships). He then spent 15 years on the faculty of the University of Connecticut at Storrs, where he was a Full Professor. His area of scientific specialty is the molecular basis of ion channel gating and permeation, but he has also conducted electrophysiological and imaging research on calcium and pH transport/buffering, and synaptic transmission in the hippocampal slice.



Julia Kent, PhD
Assistant Vice President, Communications, Advancement and Best Practices
Council of Graduate Schools

Julia Kent, PhD, is Assistant Vice President, Communications, Advancement and Best Practices at the Council of Graduate Schools (CGS). Since arriving at CGS in 2008, she has conducted research on a broad range of topics in graduate education, including PhD career pathways; diversity and inclusion; international collaborations in STEM fields; professional doctorates; research ethics and integrity; and the preparation of future faculty. Currently she serves as co-Principal Investigator for a multi-phase project

Speakers and Moderators

supported by the Andrew W. Mellon Foundation, Understanding PhD Career Pathways for Program Improvement, which will enable 15 universities to collect data on PhD students and alumni and to use resulting data to inform improvements of doctoral programs. Other current and recent research includes a project examining emerging frameworks for defining doctoral education, funded by the Lumina Foundation, and a project that explores “holistic” admissions processes, funded by Hobsons. Dr. Kent draws from her research experience to lead the Council’s strategic communications and to develop relationships with companies that serve graduate institutions. She holds a PhD in British literature from Johns Hopkins University and a maîtrise de lettres modernes from the Université de Paris VII. Before coming to CGS, she was Assistant Professor of English at the American University of Beirut.

Featured Lecture



Kimberly A. Griffin, PhD
Associate Professor
Higher Education, Student Affairs, International Education Policy Program
College of Education, University of Maryland

Kimberly A. Griffin, PhD, is an Associate Professor at the University of Maryland. Prior to becoming a faculty member, she served as a higher education administrator and student affairs professional, working in undergraduate and graduate admissions, promoting diverse and hospitable learning environments, and new student orientation.

These professional experiences have greatly informed her work as a scholar, and her research focuses on three core topics: increasing diversity and retention within the professoriate; diversity within the Black community; and mentoring and career development. Dr. Griffin is a recognized scholar in the area of higher education access and equity research. She has published her work widely in multiple outlets, and is frequently invited to speak at national meetings and conferences. She was the recipient of the 2013 Early Career Award from the Association for the Study of Higher Education, and was identified as an Emerging Scholar by ACPA, College Student Educators International, in 2010. After completing her undergraduate work in Psychology at Stanford University, Dr. Griffin received her Master's degree from the University of Maryland. Her doctoral work in higher education and organizational change was completed at UCLA.

Panel 3: Long-term Potentiation: Inclusion and successful advancement of graduate students



Letitia Weigand, PhD
Program Manager
NINDS

Letitia Weigand, PhD, joined NINDS in 2013. She earned her PhD in Physiology from the Johns Hopkins University Bloomberg School of Public Health with support from an NRSA predoctoral fellowship, and received postdoctoral training at the George Washington University in the Department of Pharmacology and Physiology with diversity supplement support. Dr. Weigand’s research interests have ranged from

pulmonary physiology and pharmacology to neuro-immune interactions in the lungs to CNS control of heart rate. She undertook studies examining the role of calcium signaling in hypoxic pulmonary vasoconstriction in COPD. Other work focused on understanding the role of the peripheral autonomic and sensory nerves in allergic airway disease. In studies related to sleep apnea and SIDS, she conducted research on the recruitment of serotonergic responses in cardiac vagal neurons in the brainstem during hypoxia and hypercapnia.

Speakers and Moderators



Rick McGee, PhD
Associate Dean for Professional Development
Northwestern University Feinberg School of Medicine

Rick McGee, PhD, has over 30 years of experience, first as a successful cellular neurobiologist and pharmacology professor, leader of PhD and MD/PhD programs, designer of programs and interventions to guide development of young scientists, and Program Director for numerous NIH-funded diversity initiatives. In the past 15 years, he has shifted from laboratory research to social-science research to study research training in addition to leading it. In his current academic position he is responsible for guiding the development of research expertise and mastery of grant writing skills of young clinical and basic science faculty. He also leads a professional development approach for early stage PhD students. He currently is PI of several NIH-funded research and research training program awards, and is deeply involved with the National Research Mentoring Network (NRMN). He also has much experience as a program evaluator and evaluation consultant to research training programs around the US.

Small Group Training: Entering Mentoring Curriculum and Implementation Plans



Christine Pfund, PhD
Associate Scientist
University of Wisconsin-Madison

Christine Pfund, PhD, is an associate scientist with the Wisconsin Center for Education Research and the Department of Medicine at the University of Wisconsin-Madison (UW). Dr. Pfund earned her PhD in Cellular and Molecular Biology, followed by postdoctoral research in Plant Pathology, both at University of Wisconsin-Madison. For almost a decade, Dr. Pfund served as the Associate Director of the Delta Program in Research, Teaching and Learning and the co-Director of the Wisconsin Program for Scientific Teaching helping to train future faculty to become better more effective teachers. Chris is now conducting research with several programs across the UW campus including the Institute for Clinical and Translational Research and the Center for Women's Health Research. Her work focuses on developing, implementing, documenting, and studying research mentor training interventions across science, technology, engineering, mathematics and medicine (STEMM). Dr. Pfund co-authored the original Entering Mentoring curriculum and co-authored several papers documenting the effectiveness of this approach. Currently, Dr. Pfund is co-leading two studies focused on the impact of training on both mentors and mentees and understanding specific factors in mentoring relationships that account for positive student outcomes. Dr. Pfund is one of the principal investigators of the newly formed National Research Mentoring Network (NRMN). She is also director of a new Center for the Improvement of Mentored Experience in Research (CIMER).



Lauren Ullrich, PhD
Health Program Specialist
NINDS

Lauren Ullrich, PhD, received her PhD and MS in Neuroscience from Georgetown University, researching memory in early Alzheimer's disease for her thesis and also published on teaching, pedagogy, and professional development in science. She received her BA from Swarthmore College in Psychobiology. Prior to coming to NINDS

Speakers and Moderators

as a AAAS Science & Technology Fellow, Dr. Ullrich worked for the Society for Neuroscience in a range of policy and programmatic areas, including government and public affairs; scientific rigor and reproducibility; workforce and training; and animals in research.



Chinonye "Chi-Chi" Nnakwe, PhD
AAAS Science & Technology Policy Fellow
Directorate for Computer & Information Science & Engineering
Division of Computer & Network Systems
National Science Foundation

Chinonye "Chi-Chi" Nnakwe, PhD is a molecular biologist and studied DNA repair and DNA damage signaling pathways, which offer insights toward the molecular genetics of neuroscience, immunology and cancer biology. As a AAAS Science & Technology Fellow serving at the National Science Foundation, Dr. Nnakwe works on agency-wide innovation policy programs such as the I-Corps™ and SBIR programs. As she transitions from her fellowship, Dr. Nnakwe is interested in building tech commercialization programs and stimulating research at the intersection of tech entrepreneurship education and efforts to broaden participation in STEM fields. After obtaining her doctoral degree, Dr. Nnakwe served as a management consultant for Campbell Alliance, a health-care consulting company, where she facilitated the launch and pricing of pharmaceutical products. Later, she became the inaugural Director of Graduate Diversity Initiatives in the Provost's Office at the University of Chicago where she led in-reach and out-reach programs to promote diversity in higher education and the research workforce. She also fostered multi-institutional partnerships that led to initiatives like the SPINES Neuroscience Symposium with the Marine Biological Laboratory and the National Research Mentoring Network-CIC Academic Network with the Big Ten Academic Alliance. Dr. Nnakwe obtained her BS in Biochemistry with departmental distinction from the University of Illinois at Urbana-Champaign and her PhD in Pathology from the University of Chicago.



Marguerite Matthews, PhD
AAAS Science & Technology Policy Fellow
National Institutes of Health

Marguerite Matthews, PhD, is a 2016-2017 AAAS Science and Technology Policy Fellow at the National Institutes of Health (NIH) in the Division of Biomedical Research Workforce and Division of Loan Repayment within the Office of Extramural Programs. As a Fellow at NIH, Dr. Matthews is focused on outcome-based research and portfolio analyses to inform biomedical research workforce policy and program evaluation. She has a strong interest in increasing underrepresented minorities in the biomedical research workforce. Dr. Matthews received a BS in Biochemistry from Spelman College and a PhD in Neuroscience from the University of Pittsburgh. She completed her postdoctoral training in Behavioral Neuroscience at Oregon Health and Science University, where she also served as program director for the Youth Engaged in Science (YES!) outreach initiative and program director for the OHSU Fellowship for Diversity in Research Program to recruit and retain underrepresented minority postdoctoral researchers. Dr. Matthews also worked with Portland State University's NIH BUILD program, BUILD EXITO, to facilitate undergraduate research experiences for underrepresented students in OHSU labs.

Special thank you to Monica Flemming (NINDS), Tracey David (NINDS), and Linda Lohneis (Infinity Conference Group) for logistical support

Mentor Training Workshop Materials

PARTICIPANT MATERIALS

Activating a Neural Network: Admission Strategies to Increase Diverse Neuroscience Trainees
R25/T32 Diversity Workshop

Entering Mentoring Curriculum and Implementation Plans

April 11, 2017
8:40am-10:30am

Christine Pfund, PhD, Lauren Ullrich, PhD, Chinonye Nnakwe, PhD, and Marguerite Matthews, PhD

Time	Activity
8:40-8:45	Introductions
8:45-9:00	Importance of Mentoring and Optimizing Mentoring Relationships
9:00-9:15	Mentoring Challenges
9:15-9:25	Evidence to Support Mentor and Mentee Training
9:25-9:45	Promoting Effective Communication and Alignment of Mentor-Mentee Expectations
9:45-10:05	Addressing Equity, Inclusion, and Culture
10:05-10:15	Incorporating Training and Resources into Your Programs
10:15-10:25	Implementation Plans
10:25-10:30	Resources

Mentor Training Workshop Materials

Case Study: *The Slow Writer*

A third year graduate student in my group is adept at performing experiments and analyzing data, but is a very slow writer. Last fall, I set multiple deadlines that this graduate student missed, while another student in my group wrote an entire thesis chapter, submitted a paper, and did experiments. Over winter break, the slow writer had a breakthrough and produced a fairly reasonable draft of a prelim proposal. However, because she produced it so close to the (planned) prelim date and did not have the presentation ready either, I delayed the exam. To avoid delays in publications, I have taken the lead in writing manuscripts based on her work. However, to graduate with a PhD, I realize that she must write the dissertation, as well as the next manuscripts, herself. Setting deadlines for detailed outlines, manuscript/thesis sections, figures, etc. hasn't worked. Communicating the importance of manuscripts to the scientific endeavor hasn't worked. Encouragement hasn't worked. Veiled threats don't seem professional. Other than being patient, what should I do?

Guiding Questions for Discussion:

1. What are the main themes raised in this case study?
2. What could have been done to avoid this situation? What should the mentor do now? What should the mentee do now?
3. How do you find out what expectations your mentee has of you and for their research experience?

Pfund C., Brace C., Branchaw J., Handelsman J., Masters K., Nanney L. (2012). *Mentor Training for Biomedical Researchers*. 2013. New York, NY: W.H. Freeman & Company.

Mentor Training Workshop Materials

Case Study: A Question of Mentoring Bias

You are a native-born American whose parents were born in Round-enia. You were delighted to begin your graduate research to work with Dr. Blunt, and were unconcerned that Dr. Blunt is a naturalized US citizen born of a prominent family in Blunt-enia, a country with a centuries-old hostility toward Round-enia.

As with all his fellows, Dr. Blunt regularly meets with you to discuss your research. Blunt has given you fair feedback on your work. By the end of the ninth month of your graduate training, you feel your projects are well defined, on track, and you are enjoying the research. You have begun to notice that Dr. Blunt spends a great deal of time interacting informally in the lab and socially outside the lab with his several Blunt-enian trainees. When visiting scientists come to the lab for a panel or seminars, Blunt seems more likely to introduce his Blunt-enian fellows to the visitor than his non-Blunt-enian fellows at dinner. Dr. Blunt also spends time in mentoring career discussions with his other fellows, but discusses only the research project with you.

You feel that you are not getting as rich of a professional development experience as the Blunt-enian students with whom Dr. Blunt seems more comfortable. In fact, Dr. Blunt seems even more formal and impersonal in his private dealings with you than with any of his other fellows. You suspect this may reflect the fact that you are the only Round-enian in the group.

Guiding Questions for Discussion:

1. If you were the mentor, how would you feel if your mentee came to you with concerns about differential mentoring?
2. As the mentor, do you think everyone should be treated the same? Does treating everyone the same in the office mean they are being treated equally?
3. If you were the mentee, how would you feel? What, if anything, would you do to address your concerns?
4. If you were the mentee, how might you react to this case if you were the only woman in the office and everyone else was not? What about if you were the only openly gay person or person with a disability?

Case written by Chinonye Nnakwe, AAAS Science & Technology Policy Fellow, National Science Foundation (2016).

Mentor Training Workshop Materials

RESEARCH MENTOR TRAINING IMPLEMENTATION PLANNING WORKSHEET

RECRUITMENT	
Who(m) is your <u>target audience</u> for research mentor training in your program?	
What will <u>motivate</u> mentors to participate?	
What <u>recruitment strategies</u> will you use?	
IMPORTANT STAKEHOLDERS	
Who do you need to <u>convince</u> that mentor training is worth the time and investment?	
What <u>information</u> could be used to convince those stakeholders?	
TRAINING DETAILS and DESIGN	
How many <u>mentors</u> do you plan to train in your first round of implementation?	
Will your training be <u>integrated</u> or serve an existing program (e.g. career development series for trainees or a faculty series), or will it <u>stand alone</u> ?	
When will you implement your training(s)?	

Mentor Training Workshop Materials

Who will facilitate/co-facilitate the training?	
What preparation will the facilitators need? What materials/ resources will they require?	
RESOURCES for IMPLEMENTATION	
What resources (if any) are already committed to support implementation of training? What other resources could you leverage (\$\$, admin help, etc.)?	
How will you evaluate the effectiveness of your training?	
CHALLENGES to IMPLEMENTATION	
What <u>barriers</u> to implementation of mentor training might you face at your institution?	
What <u>strategies</u> might be taken to overcome any barriers or challenges to implementation?	
NEXT STEPS	
What will you do first when you return home to move this effort forward?	
What else do you need to get started?	

Mentor Training Workshop Materials

References and Resources

Mentoring Compacts

- Example compacts for download: ictr.wisc.edu/mentoring/mentoring-compactscontracts-examples

Individual Development Plans (IDPs)

- Example IDP templates for download: ictr.wisc.edu/mentoring/individual-development-plan
- My IDP: myidp.sciencecareers.org

Mentoring Programs and Initiatives:

- National Research Mentoring Network (NRMN): nrmnet.net
- Center for the Improvement of Mentored Experiences in Research: cimerproject.org

References:

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NIH REPORTS

Working Group on Diversity in the Biomedical Research Workforce

<https://acd.od.nih.gov/dbr.htm>

Achieving diversity in the biomedical research workforce is critical to the full realization of our national research goals and is in the best interest of our country. Despite numerous efforts over many years to develop the biomedical science workforce pipeline, encompassing efforts from K-12 education to preserving academic tenure, for underrepresented minorities, the results remain suboptimal. In response to the unacceptable status quo and given the mission-driven priorities of the NIH, the Director of the NIH has charged The Advisory Committee to the Director to form a special Diversity in Biomedical Research Working Group.

- [Executive Summary of the Draft Report of the Advisory Committee to the Director Working Group on Diversity in the Biomedical Research Workforce](#)
- [Draft Report of the Advisory Committee to the Director Working Group on Diversity in the Biomedical Research Workforce](#)

ADMISSIONS

Holistic Review in Graduate Admissions: A Report from the Council of Graduate Schools

<http://cgsnet.org/holistic-review-graduate-admissions-report-council-graduate-schools>

Based on the findings of a 2015 research project supported by Hobsons, this publication explores current strategies for creating a more diverse graduate student population. This publication outlines the current state of graduate admissions at US institutions, offers promising practices for graduate institutions seeking to implement holistic admissions processes, and provides an overview of existing resources for institutions.

- [Holistic Review in Graduate Admissions](#)

Advancing Holistic Review Initiative – Association of American Medical Colleges

<https://www.aamc.org/initiatives/holisticreview/>

The Advancing Holistic Review Initiative endeavors to enable the implementation of holistic review in member institutions, and to illustrate the connection of holistic admissions to larger diversity and inclusion efforts. To do this, the Initiative is offering an integrated suite of flexible, customized tools and resources that link the holistic admissions process to diversity and inclusion efforts across the medical education continuum.

- [Roadmap to Diversity: Integrating Holistic Review Practices into Medical School Admission Processes](#)

Working Smarter, not Harder, in Admissions

The Chronicle of Higher Education, March 2017

A team-based approach to initial reviews can often save time and may allow for better evaluations. Admissions officers discuss their use of a new way to review applications.

- [Working Smarter, not Harder, in Admissions](#)

Resources

RESEARCH

Predicting PhD Attainment: The Efficacy of the GRE

Patricia B. Campbell and Sandra L. Petersen
Campbell-Kibler Associates, Inc.

This paper reports the results of a study of 2,000 students which found GRE: Verbal and GRE: Quantitative scores did not predict PhD attainment for women while for men higher GRE: Quantitative scores and to a lesser degree GRE: Verbal scores were tied to lower PhD attainment.

- <http://www.campbell-kibler.com/Campbell%20and%20Petersen%202016%20GRE%20study.pdf>

Underrepresentation by Race/Ethnicity Across Stages of U.S. Science and Engineering Education

Howard Garrison
CBE-Life Sciences Education, Fall 2013

Blacks, Hispanics, and American Indians/Alaskan Natives are underrepresented in science and engineering fields. A comparison of race-ethnic differences at key transition points was undertaken to better inform education policy. National data on high school graduation, college enrollment, choice of major, college graduation, graduate school enrollment, and doctoral degrees were used to quantify the degree of underrepresentation at each level of education and the rate of transition to the next stage. Disparities are found at every level, and their impact is cumulative. For the most part, differences in graduation rates, rather than differential matriculation rates, make the largest contribution to the underrepresentation. The size, scope, and persistence of the disparities suggest that small-scale, narrowly targeted remediation will be insufficient.

- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3763003/>

Decoupling of the minority PhD talent pool and assistant professor hiring in medical school basic science departments in the US

Kenneth D Gibbs, Jr., Jacob Basson, Imam M Xierali, and David A Broniatowski
eLife, November 2016

Faculty diversity is a longstanding challenge in the US. However, we lack a quantitative and systemic understanding of how the career transitions into assistant professor positions of PhD scientists from underrepresented minority (URM) and well-represented (WR) racial/ethnic backgrounds compare. Between 1980 and 2013, the number of PhD graduates from URM backgrounds increased by a factor of 9.3, compared with a 2.6-fold increase in the number of PhD graduates from WR groups. However, the number of scientists from URM backgrounds hired as assistant professors in medical school basic science departments was not related to the number of potential candidates ($R^2=0.12$, $p>0.07$), whereas there was a strong correlation between these two numbers for scientists from WR backgrounds ($R^2=0.48$, $p<0.0001$). We built and validated a conceptual system dynamics model based on these data that explained 79% of the variance in the hiring of assistant professors and posited no hiring discrimination. Simulations show that, given current transition rates of scientists from URM backgrounds to faculty positions, faculty diversity would not increase significantly through the year 2080 even in the context of an exponential growth in the population of PhD graduates from URM backgrounds, or significant increases in the number of faculty positions. Instead, the simulations showed that diversity increased as more postdoctoral candidates from URM backgrounds transitioned onto the market and were hired.

- <https://elifesciences.org/content/5/e21393>

Resources

Biomedical Science PhD Career Interest Patterns by Race/Ethnicity and Gender

Kenneth D. Gibbs, Jr., John McGready, Jessica C. Bennett, and Kimberly Griffin
PLoS ONE, December 2014

Increasing biomedical workforce diversity remains a persistent challenge. Recent reports have shown that biomedical sciences (BMS) graduate students become less interested in faculty careers as training progresses; however, it is unclear whether or how the career preferences of women and underrepresented minority (URM) scientists change in manners distinct from their better-represented peers. We report results from a survey of 1500 recent American BMS PhD graduates (including 276 URMs) that examined career preferences over the course of their graduate training experiences. On average, scientists from all social backgrounds showed significantly decreased interest in faculty careers at research universities, and significantly increased interest in non-research careers at PhD completion relative to entry. However, group differences emerged in overall levels of interest (at PhD entry and completion), and the magnitude of change in interest in these careers. Multiple logistic regression showed that when controlling for career pathway interest at PhD entry, first-author publication rate, faculty support, research self-efficacy, and graduate training experiences, differences in career pathway interest between social identity groups persisted. All groups were less likely than men from well-represented (WR) racial/ethnic backgrounds to report high interest in faculty careers at research-intensive universities (URM men: OR 0.60, 95% CI: 0.36–0.98, $p=0.04$; WR women: OR: 0.64, 95% CI: 0.47–0.89, $p=0.008$; URM women: OR: 0.46, 95% CI: 0.30–0.71, $p<0.001$), and URM women were more likely than all other groups to report high interest in non-research careers (OR: 1.93, 95% CI: 1.28–2.90, $p=0.002$). The persistence of disparities in the career interests of PhD recipients suggests that a supply-side (or “pipeline”) framing of biomedical workforce diversity challenges may limit the effectiveness of efforts to attract and retain the best and most diverse workforce. We propose incorporation of an ecological perspective of career development when considering strategies to enhance the biomedical workforce and professoriate through diversity.

- <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0114736>

Increasing Persistence of College Students in STEM

Mark J. Graham, Jennifer Frederick, Angela Byars-Winston, Anne-Barrie Hunter, Jo Handelsman
Science, September 2013

A 2012 report by the President's Council of Advisors on Science and Technology (PCAST) predicts that the U.S. workforce will suffer a deficit of one million college graduates in science, technology, engineering, and mathematics (STEM) over the next decade (1). The report calls for addressing the shortfall by increasing retention of college students in STEM. But many academic leaders have not responded aggressively to workforce needs by implementing measures that increase retention. Some of this nonaction is likely due to lack of knowledge about proven retention strategies.

- <http://science.sciencemag.org/content/341/6153/1455.full>

Predictors of Student Productivity in Biomedical Graduate School Applications

Joshua D. Hall, Anna B. O'Connell, and Jeanette G. Cook
PLoS ONE, January 2017

Many US biomedical PhD programs receive more applications for admissions than they can accept each year, necessitating a selective admissions process. Typical selection criteria include standardized test scores, undergraduate grade point average, letters of recommendation, a resume and/or personal statement highlighting relevant research or professional experience, and feedback from interviews with training faculty. Admissions decisions are often founded on assumptions that these application

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components correlate with research success in graduate school, but these assumptions have not been rigorously tested. We sought to determine if any application components were predictive of student productivity measured by first-author student publications and time to degree completion. We collected productivity metrics for graduate students who entered the umbrella first-year biomedical PhD program at the University of North Carolina at Chapel Hill from 2008–2010 and analyzed components of their admissions applications. We found no correlations of test scores, grades, amount of previous research experience, or faculty interview ratings with high or low productivity among those applicants who were admitted and chose to matriculate at UNC. In contrast, ratings from recommendation letter writers were significantly stronger for students who published multiple first-author papers in graduate school than for those who published no first-author papers during the same timeframe. We conclude that the most commonly used standardized test (the general GRE) is a particularly ineffective predictive tool, but that qualitative assessments by previous mentors are more likely to identify students who will succeed in biomedical graduate research. Based on these results, we conclude that admissions committees should avoid over-reliance on any single component of the application and de-emphasize metrics that are minimally predictive of student productivity. We recommend continual tracking of desired training outcomes combined with retrospective analysis of admissions practices to guide both application requirements and holistic application review.

- <http://dx.doi.org/10.1371/journal.pone.0169121>

The Limitations of the GRE in Predicting Success in Biomedical Graduate School

Liane Moneta-Koehler, Abigail M. Brown, Kimberly A. Petrie, Brent J. Evans, and Roger Chalkley
PLoS ONE, January 2017

Historically, admissions committees for biomedical PhD programs have heavily weighed GRE scores when considering applications for admission. The predictive validity of GRE scores on graduate student success is unclear, and there have been no recent investigations specifically on the relationship between general GRE scores and graduate student success in biomedical research. Data from Vanderbilt University Medical School's biomedical umbrella program were used to test to what extent GRE scores can predict outcomes in graduate school training when controlling for other admissions information. Overall, the GRE did not prove useful in predicating who will graduate with a PhD, pass the qualifying exam, have a shorter time to defense, deliver more conference presentations, publish more first author papers, or obtain an individual grant or fellowship. GRE scores were found to be moderate predictors of first semester grades, and weak to moderate predictors of graduate GPA and some elements of a faculty evaluation. These findings suggest admissions committees of biomedical doctoral programs should consider minimizing their reliance on GRE scores to predict the important measures of progress in the program and student productivity.

- <http://dx.doi.org/10.1371/journal.pone.0166742>

Addressing the challenge of diversity in the graduate ranks: good practices yield good outcomes

Nancy L. Thompson and Andrew G. Campbell
CBE-Life Sciences Education, Spring 2013

In this paper, we examine the impact of implementing three systemic practices on the diversity and institutional culture in biomedical and public health PhD training at Brown University. We hypothesized that these practices, designed as part of the National Institutes of Health-funded Initiative to Maximize Student Development (IMSD) program in the Division of Biology and Medicine, would have a positive effect on underrepresented minority (URM) recruitment and retention and objective measures of student success. These practices include: 1) develop strategic partnerships with selected undergraduate institutions; 2)

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provide a personalized education program of student support and skill-based modules to supplement discipline-based course work; and 3) transform institutional culture by engaging faculty in supporting diversity-related goals and practices. Data comparing URM numbers and key academic milestones before and after implementation of IMSD practices support the initial hypothesis and effectiveness of these practices at Brown. Program components are broadly applicable as best practices for others seeking to improve URM recruitment and achievements of graduate students traditionally underrepresented in the sciences.

- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3587852/>

REPORTS AND OTHER RESOURCES

Society for Neuroscience Department Chair Training to Increase Women in Neuroscience

<http://sfn.org/iwin>

Over the last several decades, great progress has been made to increase the ranks of female scientists. Yet women remain underrepresented within STEM (science, technology, engineering and math) fields, including neuroscience. While data show that progress has been made in early-career stages, with women now comprising a majority of PhDs, the problem worsens considerably at the upper ranks of academia where the number of women faculty has failed to keep up with the number of women pursuing higher education in the sciences. SfN is explicitly committed in its strategic plan to promoting greater diversity and representation of women, minorities, and young investigators in all of its activities.

- https://meetings.ninds.nih.gov/assets/NINDSR25T32Meeting/IWiN_Recruitment_and_Bias_Readings_1.pdf

Surviving as an underrepresented minority scientist in a majority environment

Erich D. Jarvis

Molecular Biology of the Cell, November 2015

I believe the evidence will show that the science we conduct and discoveries we make are influenced by our cultural experience, whether they be positive, negative, or neutral. I grew up as a person of color in the United States of America, faced with challenges that many had as members of an underrepresented minority group. I write here about some of the lessons I have learned that have allowed me to survive as an underrepresented minority scientist in a majority environment.

- <http://www.molbiolcell.org/content/26/21/3692.full.pdf>

Institutional Change in Higher Education: Innovation and Collaboration

Freeman A. Hrabowski

Peabody Journal of Education: Issues of Leadership, Policy, and Organizations, July 2013

To remain globally competitive and increase the number of young people completing two- and four-year college degrees, America needs to expand access to higher education and focus attention on the success of those who enroll. Expertise in Science, Technology, Engineering and Mathematics (STEM) will be particularly important for maintaining a thriving economy and in developing innovative solutions to global challenges. However, only 6 percent of 24-year-olds in the United States hold first degrees in these fields, placing the country 20th in a comparison group of 24 industrialized countries. Many American students initially interested in STEM areas select other fields after they begin college: only 33 percent of white students, 42 percent of Asian American students, and about 20 percent of black, Latino, and Native American students who aspire to complete a STEM major succeed. This paper examines strategies

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developed at the University of Maryland, Baltimore County (UMBC) and elsewhere that have created an atmosphere of inclusive excellence and are allowing more students of all backgrounds to succeed in STEM areas and other disciplines. Culture change at UMBC began 25 years ago with the development of the Meyerhoff Scholars Program for high-achieving minority students interested in STEM research careers. Lessons learned from that program have motivated University-wide changes as faculty, staff, and students have pursued broad initiatives to redesign courses, build community, and support and engage students.

- http://peabody.vanderbilt.edu/faculty/pje/pje_volume_89_issue_3_2014/freeman_hrabowski.php

Assessing Institutional Culture and Climate

Association of American Medical Colleges

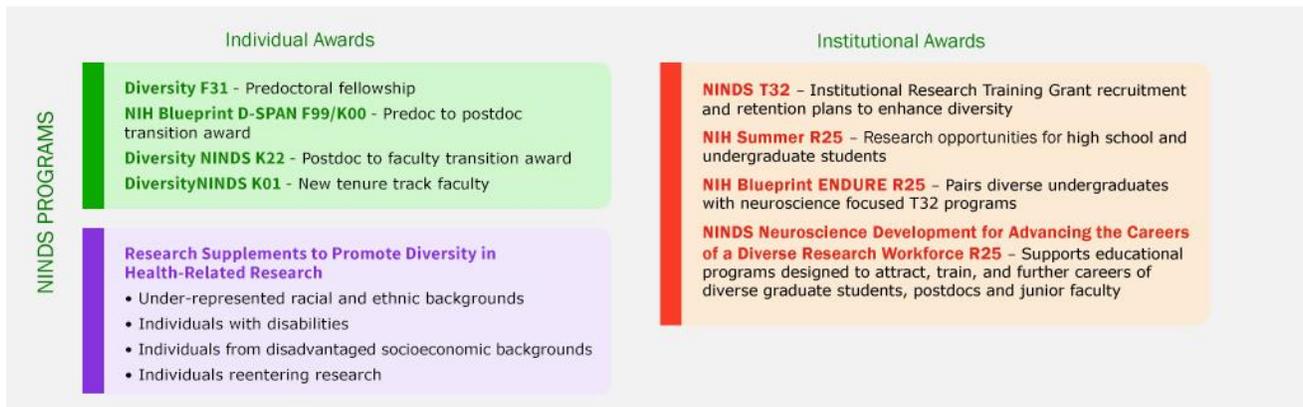
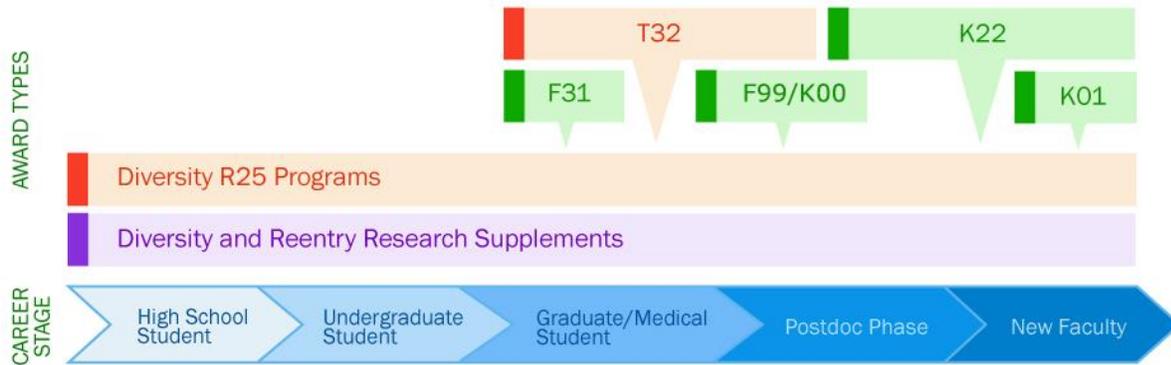
<https://www.aamc.org/initiatives/diversity/learningseries/>

Diversity Policy and Programs is pleased to bring you a set of online, on-demand video resources on a range of diversity and inclusion topics. The Diversity 3.0 Learning Series includes interviews with thought leaders and experts, faculty career development webinars, guidance on institutional strategic planning and culture and climate assessment, and presentations on innovative programs at AAMC member institutions.

- <https://www.aamc.org/initiatives/diversity/learningseries/335954/cultureclimatewebcast.html>

Resources

NINDS DIVERSITY SCIENTIFIC TRAINING AND CAREER OPPORTUNITIES



DIVERSITY RESOURCES ONLINE

NINDS Diversity Funding Opportunities - Programs to enhance diversity focus on underrepresented racial/ethnic groups, individuals with disabilities, and individuals from disadvantaged backgrounds.
<https://www.ninds.nih.gov/Funding/Training-Career-Awards/Diversity-Awards>

NINDS Diversity Success Stories - Stories highlighting outstanding neuroscientists who have used NINDS diversity programs to become successful researchers in their field.
<https://www.ninds.nih.gov/About-NINDS/Workforce-Diversity/Success-Stories>

NIH Office of Extramural Research Diversity Website - Learn how diversity supports the NIH mission, find opportunities to participate in diversity programs, meet researchers, and more.
<https://extramural-diversity.nih.gov/>

Scientific Workforce Diversity Office - The Scientific Workforce Diversity (SWD) Office leads NIH's effort to diversify the national scientific workforce and expand recruitment and retention.
<https://diversity.nih.gov/>

National Research Mentoring Network (NRMN) - NRMN is a nationwide consortium established to provide trainees with evidence-based mentorship and professional development programming.
<https://nrmnet.net/>

An OPEN Conversation, Vol. I

DIVERSITY & INCLUSION

in science & academia

Diversity is not an end in itself, but a means of achieving our ideal institutions, learning environments, and communities. Evidence suggests that **diverse groups**—in age, race, ethnicity, physical ability, gender, and other attributes—are **more productive, creative, and innovative**. Diversity also brings with it challenges for cohesiveness and effective communication. Fostering an inclusive environment requires work, but the payoff is a rich and dynamic intellectual community.

This guide **summarizes the research and provides concrete steps to effect change**.

“Diversity is being invited to the party; inclusion is being asked to dance.”

- Vernã Myers

Benefits of Diversity

- ◆ Ethnically diverse groups brainstormed **higher quality ideas** than homogenous groups.¹
- ◆ Groups exposed to minority viewpoints demonstrated **greater critical analysis** and consideration of alternatives.²
- ◆ Scholars from minority groups have **enriched scholarship** through offering new perspectives and avenues of research.³
- ◆ Engagement with diverse peers and institutional policies fostering campus diversity have **positive effects** on students’ cognitive development and critical thinking.⁴⁻⁷
- ◆ Medical students reported that diversity in the student body **enhanced their educational experience**.⁸

Challenges of Diversity

- ◆ Women and underrepresented faculty and students are **less satisfied** than white men, and often feel isolated, excluded, and alienated.⁶⁻¹⁴
- ◆ These groups may experience **“stereotype threat”**—a fear that they will confirm or be judged by a negative stereotype about them—which in turns leads to anxiety and poor performance.¹⁵
- ◆ **Lack of exposure** to dissimilar individuals may cause well-represented groups to feel anxious about interactions with members of another group.¹⁶

The **Office of Programs to Enhance Neuroscience Workforce Diversity (OPEN)**

promotes diversity in NINDS training and research programs and supports the participation of underrepresented groups. *Diversity & Inclusion in Science & Academia* is Volume I of “An OPEN Conversation,” an ongoing series of resources to promote diversity in neuroscience.



National Institute of
Neurological Disorders
and Stroke

Recognizing IMPLICIT BIAS

“The key isn’t to feel guilty about our biases—guilt tends toward inaction.

We all have biases. What matters is how we act upon them.”

-Neill Franklin



Everyone carries unconscious attitudes that affect their behaviors, sometimes even if we consciously want to treat everyone equally. For scientists, it can be particularly upsetting to acknowledge implicit bias because we pride ourselves on rationality and logic. Unfortunately, **even scientists display implicit bias**; it’s part of being human. The good news is that, even though implicit bias is usually below conscious awareness, **it can be countered.**

The Evidence

- ◆ Resumes with white-sounding names received **50% more interviews** than those with black-sounding names.¹⁷
- ◆ Males **underestimate academic performance** of their female peers in undergraduate biology classrooms.¹⁸
- ◆ Both male and female faculty rated male applicants to a lab manager position as **more competent** and would offer a **higher salary** and more **mentoring.**¹⁹
- ◆ Professors, regardless of race or ethnicity, were **more likely to respond to white males** when contacted by potential PhD students about re-search opportunities.²⁰
- ◆ Women postdoctoral candidates needed substantially **more publications** to get the same evaluation as men.²¹
- ◆ Both male and female academic psychologists gave a CV with a male name **better evaluations** and were **more likely to hire him** as faculty.²²
- ◆ Reference letters for male applicants for faculty positions used more **standout adjectives** and language implying **natural ability.**²³
- ◆ Letters for male applicants for medical school faculty positions were **longer and contained more references** to the CV, publications, and work with colleagues.³⁴
- ◆ When an ecology journal initiated double-blind review, the acceptance rate for female first-authored papers **increased significantly.**²⁴

“Diversity is not an imposition, it’s an advantage; inclusion is not a problem, it’s a solution; working together is more than a good idea, it’s essential to individual and organizational success.”

-Sondra Thiederman, PhD

Promoting INCLUSION

Countering Bias

Bias can be hard to combat because we usually aren't aware of it. However, there are many things you can do to reduce the chance that bias will affect your decisions.

The following strategies have been shown to minimize the effect of implicit bias:²⁵



Slow down. When we are busy, distracted, or under time pressure, bias is more evident



Increase intergroup contact. The more interaction with others, the less bias is held toward those groups.



Engage in perspective-taking. Imagining oneself as a member of a different group can decrease bias.



Conduct blind review. If you don't know someone's race or gender, you can't be biased by that information.



Define qualifications before starting review. Avoid the influence of initial biases on your interpretation of the information as you conduct the review.



Focus on the individual. Consciously avoid the tendency to make assumptions about others based on their group membership, or vice versa.



Promote inclusive communities. Work to ensure that everyone has a voice. Acknowledge and attribute ideas accurately. Discuss these issues as a community.

Merely adding diverse people to a homogeneous environment does not automatically create a more welcoming and intellectually stimulating campus.²⁵

Inclusion is about experiences, not demographics. It's about being confident enough in a space to share your thoughts, ideas, and concerns—and to have them heard in a meaningful way.

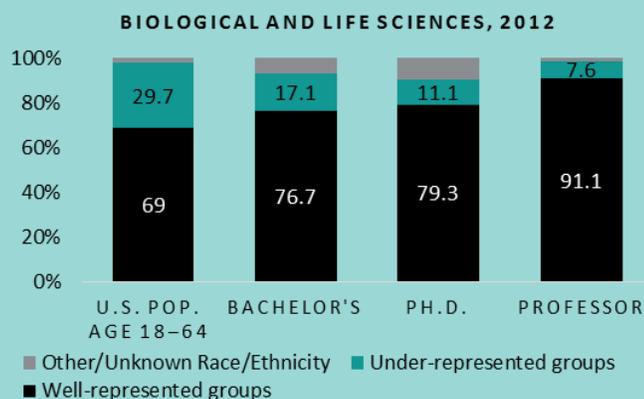
-Sabriya Stukes, PhD

Practicing Inclusion^{25, 33}

- ◆ In an inclusive environment, **everyone has a chance to be heard.** Provide space for diverse perspectives and be mindful of acknowledging and attributing ideas accurately.
- ◆ Work to ensure **all levels are diverse**, from leadership to trainees, with respect to age, gender, nationality, race, and ethnicity. Enact admissions, hiring, and promotion policies that minimize implicit bias.
- ◆ Work to ensure events such as seminar series and conferences **include diverse individuals** at the level of attendee, speaker, and organizer. It's not enough to say a certain group is not represented in the field—many resources exist on the internet for identifying diverse speakers.
- ◆ **Use inclusive language;** e.g., avoid using only male pronouns or making assumptions about marital status.
- ◆ **Welcome new members of the community** by initiating conversations and meetings. Strive for communities where all members feel valued, included, and empowered.

CASE STUDY: Graduate Admissions

Diversity in science is vital to recruitment of the most talented researchers. However, African Americans, Hispanics, American Indians, Alaskan Natives, and Pacific Islanders are progressively more underrepresented at each step of the academic ladder.²⁶



Programs can inadvertently hinder progress by using uninformative admissions criteria. Luckily, there are many steps you can take to mitigate bias and admit students who are most likely to be successful. Holistic review, in which admissions committees consider a range of candidate qualities including personal attributes, is one effective method.²⁹

Did You Know? NIH & NSF have removed GRE and MCAT scores from fellowships and training grants.

Are your metrics filtering out future talent?

- ◆ Using GRE score as a “filter” or “cutoff” for applicants contributes to the underrepresentation of women, low income individuals, and people of color.
- ◆ GRE scores have been shown to be poorly predictive of success in or length or time to complete graduate school.²⁷
- ◆ GRE scores are highly correlated with socioeconomic status, gender, and ethnicity and can be improved with practice.²⁸

Focus on identifying the qualities of a successful scientist²⁸

- ◆ Persistence, drive, enthusiasm, motivation, and a positive attitude.
- ◆ Amount and quality of research or work experience.
- ◆ Interpersonal skills and collegiality.
- ◆ Writing and communication skills.
- ◆ Personal and professional values and character, such as integrity, fairness, openness, honesty, trustworthiness, and consistency.

Strategies to identify students with potential^{28,29}

- ◆ **Build relationships** with faculty at programs that provide research experiences for diverse students. Familiarize yourself with the strengths of a variety of undergraduate institutions.
- ◆ Agree on program mission and desired student attributes **before recruitment starts**.
- ◆ Design admissions processes around **holistic indicators** that the applicant has or can develop the qualities of a successful scientist.
- ◆ Use **rubrics and standardized interview questions** to ask about college and research experiences, key relationships, leadership experience, and service to the community.
- ◆ **Adequately support students** before, during, and after recruitment (see “Promoting Inclusion”).

CASE STUDY: Faculty Hiring & Retention

Hiring a Diverse Faculty

In the field of neuroscience, underrepresented minorities represent only 5% of tenure-stream faculty members, compared to 12% of PhD students.³⁰ In addition, 40-50% of women leave before becoming tenure-track faculty.³² To increase diversity, programs should consider how to hire and retain a diverse faculty body. Many of the same strategies apply to faculty hiring as admissions. They include taking action at each step in the process:³¹

- ◆ **Form a diverse search committee and empower its members to learn about and counter implicit bias.** Begin with a conversation about what the department is looking for and ways a candidate might demonstrate those qualities.
- ◆ **Conduct a truly open search.** Where you advertise and the language used in a job advertisement can influence who applies. Broader language is more likely to attract women and underrepresented candidates. Reach out to specific candidates and ask them to apply.
- ◆ **Review applications in detail, against a rubric or evaluation matrix.** This helps members of the search committee be consistent and ensures everyone is on the same page before you start.
- ◆ **Be mindful when interviewing candidates.** Be aware of inappropriate questions, such as asking about family status, and provide information on institutional climate and policies to all applicants by default.
- ◆ **Make a high-quality offer, with attention to salary, start-up, teaching, service, and access to mentoring.** Consider cluster hiring (recruiting for several positions simultaneously) and bringing in more than one female and/or minority candidate to interview in the same search. This has been shown to increase hiring of diverse candidates.



Scientific workforce diversity is a scientific opportunity rather than an intractable problem.

-Francis Collins, MD, PhD &
Hannah Valentine, MD

Promotion and Retention^{32,33}

Faculty are more likely to succeed when they are supported by and integrated into the community of their department and institution. There are many things departments can do to set junior faculty up for success and foster an environment where they feel included, heard, and respected. These practices can mean the difference between success and failure for underrepresented scientists. They not only help diversity the faculty, but they also make the process more equitable for all.

Key steps are:

- **Build a supportive culture.**
- **Make expectations clear.**
- **Incorporate mentoring into career development.**
- **Conduct mid-career evaluations.**
- **Make tenure review practices equitable.**
- **Support promotion to full professor.**

Learn more at [SfN.org/IWiN](https://www.sfn.org/IWiN).³²

Learn More

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This guide owes an incalculable debt to the following publications:

Benefits and Challenges of Diversity in Academic Settings, Eve Fine and Jo Handelsman
Wiseli.engr.wisc.edu/docs/Benefits_Challenges.pdf

Mentor Training for Biomedical Researchers, “Addressing Equity and Inclusion,” by Christine Pfund, Christopher Brace, Janet Branchaw, Jo Handelsman, Kristyn Masters, and Lillian Nanney
Mentoringresources.ictr.wisc.edu/TrainingCurriculumChoices

Department Chair Training to Increase Diversity (IWIn), Society for Neuroscience
SfN.org/IWIn

Resources

Notice: Standardized Test Scores Are No Longer Required in Biosketches for Individual Fellowship Applications (F30 and F31)

Notice Number: NOT-OD-15-120

Key Dates

Release Date: July 7, 2015

Related Announcements

[PA-14-147](#)

[PA-14-148](#)

[PA-14-150](#)

[NOT-OD-14-133](#)

[NOT-OD-14-134](#)

[NOT-OD-14-135](#)

Issued by

National Institutes of Health ([NIH](#))

Purpose

To align with recent changes in the [fellowship biosketch format](#), this Notice eliminates the requirement for inclusion of scores from standardized exams (e.g., MCAT, GRE) in the fellowship biosketch from the following funding opportunity announcements, effective immediately:

- [PA-14-147](#): Ruth L. Kirschstein National Research Service Award (NRSA) Individual Predoctoral Fellowship (Parent F31)
- [PA-14-148](#): Ruth L. Kirschstein National Research Service Award Individual Predoctoral Fellowship to Promote Diversity in Health-Related Research (Parent F31 - Diversity)
- [PA-14-150](#): Ruth L. Kirschstein National Research Service Award (NRSA) Individual Predoctoral MD/PhD or Other Dual-Doctoral Degree Fellowship (Parent F30)

Inquiries

Please direct all inquiries to:

Division of Biomedical Research Workforce

Email: NIHTrain@mail.nih.gov

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The Role of NINDS T32 Programs in Training a Diverse Workforce

The NINDS is committed to the development of a biomedical research workforce that is representative of the diversity in American society. NINDS seeks to promote diversity in all of its training and research programs and to increase the participation of underrepresented groups.

As the US population becomes increasingly diverse, reflection of that diversity among the biomedical research workforce is vital to our science enterprise and the NIH research mission. There are compelling reasons to promote a diverse workforce and increase participation by underrepresented groups. Advancing diversity through NINDS individual and institutional programs, like the T32, is expected to produce a number of tangible and overlapping benefits:

- The recruitment of the most talented researchers from all groups;
- An improvement in the quality of the educational training environment;
- A balanced perspective in setting research priorities;
- An improved capacity to recruit subjects from diverse backgrounds into clinical research protocols;
- An improved capacity to address health disparities.

Why is it important that NINDS T32 programs be involved in training a diverse neuroscience workforce?

T32 programs offer a peer-reviewed, high quality NIH training environment in which to train diverse fellows. The institutional nature of a T32 program provides diverse trainees with an accomplished mentoring team to work with and an integrated cohort in which to belong. In contrast to support on an individual research grant, the structure of a T32 provides built-in accountability and oversight of a trainee's progress and outcomes. Moreover, T32 programs are often involved in trainee recruitment and standard-setting for larger university or department efforts, which put the program in a good position to foster opportunities, increase awareness and create a strong environment for diverse individuals. Finally, T32 programs can involve diverse individuals in their training program activities, regardless of the individual funding source of the trainee.

Staff from the NINDS Office of Training, Career Development and Workforce Diversity met with NINDS T32 Principal Investigators (PIs) to discuss strategies to improve the recruitment and retention of diverse trainees. To facilitate attendance by as many PIs as possible, two identical meetings were held, one at the University of California-Los Angeles on February 8, 2012 and one at the Children's Hospital of Philadelphia on March 21, 2012. There were over 75 attendees between the two meetings, composed of both T32 PIs and University Officials. The agenda included discussion of 1) NINDS expectations for programmatic activities, progress reports and renewals, 2) resources for recruitment and retention of diverse trainees and 3) the ways in which NINDS could help T32 PIs succeed in diversity recruitment and retention. The meetings also provided a forum for NINDS to receive feedback from the T32 PIs, and T32 PIs to discuss various training-related issues among themselves. The following provides a brief synopsis of the guidance and resources discussed at the meetings with regard to diversity recruitment and retention. A companion [document](#) provides a synopsis of NINDS expectations for T32 programs and NINDS T32 review.

How should I define diversity for the T32 program?

T32 programs must provide a plan for increasing the recruitment and retention of trainees from underrepresented racial and ethnic groups, as well as individuals with disabilities. In addition, they must demonstrate successful efforts at training these groups. Both the programmatic plan and success in recruitment and retention are expected to address historically excluded groups that have a quantified underrepresentation specific to neuroscience ([2009 Survey Report Neuroscience Departments and Programs](#)). Training grant programs that support only graduate-level students and/or postdoctoral fellows are not required to submit a recruitment and retention plan addressing disadvantaged individuals. As with all NRSA support, trainees who are directly supported by the training grant must be citizens or noncitizen nationals of the United States or have been lawfully admitted for permanent residence at the time of appointment.

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Expectations of NINDS T32 Programs for Recruitment and Retention Plans to Enhance Diversity

(For guidance on general NIH expectations and policies with regard to recruitment and retention plans, see [NIH OER FAQs](#).)

1. [Recommendation from the Strategic Planning Advisory Panel on Workforce Diversity regarding NINDS T32s \(October 2010\)](#): “Because the number of URM PhD’s is relatively small, most programs document their efforts, but ultimately take the position that, despite these efforts, they are unable to find suitable candidates. The Sub-Committee strongly believes that this is no longer an adequate response. We strongly recommend that NINDS require both a demonstrated record of success in diversity for the institution’s training programs and a successful program of mentorship as a necessary precondition for receiving an award.

2. Implementation by NINDS

All NINDS T32 programs must actively seek talented, diverse investigators. Both excellence and diversity are critical – neither should be sacrificed for the other. Programs will be evaluated for both their plans and their success. Certainly, not all programs, new or renewal, will currently have a “demonstrated record of success” upon application. However, all programs must have a realistic, pro-active plan for increasing the number of diverse individuals who receive and benefit from the training program. This plan should evolve with experience, and will be expected to result in a record of success within a reasonable period of time.

A realistic plan that would be expected to yield positive results will be required for funding (the plan does not affect the overall impact score, but must be deemed acceptable prior to funding). In competing continuation applications, program performance will factor into the overall impact score. The following is a summary list of requirements with respect to T32s and diversity:

- Competing continuation and non-competing applications must include a detailed account of experiences in recruiting individuals from underrepresented groups during the previous funding period. Information must be included on aggregate information on the distribution of:
 - Students or postdoctorates who applied for admission or positions within the department(s)/programs(s) relative to the training grant,
 - Students or postdoctorates who were offered admission to or a position within the department(s)/program(s),
 - Students actually enrolled in the academic program relevant to the training grant,
 - Students or postdoctorates who were appointed to the research training grant.
- The program should demonstrate commitment and proactive recruitment efforts. Both the institution and the specific training grant program (e.g., program director and faculty) should be involved in the effort.
- With respect to retention and transition, the T32 Program Director must present an oversight plan that will ensure appropriate mentoring and pursuit of scholarly benchmarks such as publishing and submission of competitive grant applications. As with all trainees, each individual should leave the training program with competitive credentials, which include first author publications in high quality journals.
- The plans for recruitment and retention should be evaluated on a yearly basis. If these plans fail to achieve success, changes should be made in response to the experiences of the program. All progress reports must present a detailed description of recruitment and retention practices, experiences and outcomes. They should also include a description of planned changes in the diversity plan (what needs to be tweaked, what new efforts need to be made and what efforts will be eliminated).
- It is important that progress reports describe outcomes from both successful and unsuccessful recruitment strategies. NINDS expects that awareness and knowledge of both helpful and less impactful interventions will benefit the greater NINDS T32 community. While there is no single best

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practice for all environments, the lessons learned among programs will spread ideas, generate new approaches and ultimately facilitate success among the training programs.

Some programs have already made significant progress in the recruitment and retention of diverse trainees. For others, the progress is much slower and much more sporadic. NINDS does not expect instant success, but does expect phased-in improvements. The evaluation of program achievement, both in peer review and at the program level, will factor in the starting baseline on a case by case basis. It is important, in all applications, that the PI be clear on where the program is with respect to diversity, and what actions are expected to improve diversity outcome. We often hear, “My science is a niche area with very small numbers - how will I be judged?” Always keep in mind, small numbers can be useful when you are in the business of small numbers. Again, PIs should be very careful to explain their situation and their efforts to improve success.

3. Inclusion of all T32-related program trainees in diversity effort, regardless of funding source

NINDS recognizes that the diversity training impact from a T32 program can be broader than just the financial “slots” provided. The ultimate goal of diversity efforts at NINDS is to increase diversity in the neuroscience workforce, and programs will be evaluated with respect to this goal. We recognize that there are institutional, individual and state-wide programs that provide resources to increase the representation of diversity researchers; the training grant is only one mechanism by which to directly support diverse trainees. Moreover, the T32 program can often be a source of recruitment of diverse trainees, even if those trainees are funded by another source. Although they receive funding from other sources, trainees may be full participants in the T32 programmatic activities. NINDS encourages T32 PIs to include trainees that fully participate in their program in all discussions of diversity efforts. All those claimed to be a part of a T32 program should be fully and demonstrably active in the specific activities associated with the program and must benefit fully from the resources, mentoring and network the program offers. The listed individuals cannot be loosely associated with the program; they must be students or postdocs fully embedded in the T32 environment. In addition, T32 PIs are welcome to explain the success of a larger program (for example, a department program in which the applicant’s training grant resides). The goal is to clearly portray the efforts and success of the training grant faculty in diversity recruitment and retention, regardless of funding source. It is important, both in progress reports and competing applications for PIs to fully explain programmatic (not institutional) efforts to enhance diversity of the workforce.

The efforts and success of a program will be considered at both the peer review and program level. PIs should provide a detailed explanation of their efforts and success in recruitment and retention, describe how many diverse trainees are financially supported by the T32, and how many by other sources (and describe those sources). However, PIs must be careful not to “double dip.” Multiple T32 programs may not claim “credit” for the recruitment, retention and success of the same diverse individuals at the same stage of career. Each may describe broader programmatic efforts, as long as these are clearly labeled as such. Each program, however, has individual responsibility for contributing to the endeavor.

You need a diversity strategy, not just a plan

- There should be institutional efforts and support for diversity recruitment and retention beyond an isolated T32. These activities should be described in all applications and progress reports.
- Selection at the level of graduate school admission often determines what your choices are for a predoctoral T32 program. Even advanced predoctoral training programs are encouraged to work with the institution in the admissions process in an effort to increase the diversity pipeline. Strategies for admission may mean using unconventional measures for your forecasting of what is a predictor of success (e.g. given the known racial/ethnic and gender differences for GRE scores this proxy may provide a filter that does not reliably predict potential performance but limits the diversity pool), and training programs may be well suited to informing those involved in admissions about predictors of success. Developing a suitable admissions strategy does not require a lowering of standards but, rather, taking a holistic approach to the admission

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process. Programs, should also consider developing relationships with [feeder schools that serve a significant number of diverse students](#). Expanding the pool of diverse applicants will undoubtedly expand the yield.

- Most successful recruitment activities take place before students are actively looking for a program. The greatest success will occur if you create on-going relationships through summer programs, seminars, personal contacts or scientific collaborations with universities or programs that have significant number of diverse students. When you travel to an institution to speak, ask to meet with all the students you can, and request a strong effort on the part of the host institution to have diverse students and postdocs to meet with you. Keep in mind that establishing partnerships and contacts requires credibility and long term commitment on behalf of the T32 faculty and the T32 Institution. Perhaps the most successful recruiting strategy is personal contact and demonstration of a serious interest in trainee success. And of course, successful outcomes can become a huge recruitment tool.
- It is important to create a “diversity friendly” environment where everyone feels socially and intellectually integrated. The development of such an environment is often facilitated, and institutionalized, as faculty and science leadership positions become more diverse. In addition, it is important to include diverse speakers in departmental and campus-wide seminar series. Indeed, reviewer scoring of T32 applications is often influenced by this record of inclusion.

Myth: “There are no qualified diversity students to recruit”

There is still a disparity of biomedical science representation when compared to the census and much work remains to be done in strengthening the pipeline from undergraduate → graduate → postdoc → faculty. However, a highly qualified pool of diverse students and postdocs does exist, many of whom have competed successfully in NIH and [NINDS-sponsored programs](#) for support of undergraduates, graduates and postdocs. A significant problem for many PIs is in creating the bridges and connections to this talented student pool.

How do I find students? How can NINDS help?

1. A great way to meet outstanding diverse students and postdocs is at meetings and poster sessions at national conferences with a high attendance of underrepresented students, such as the Annual Biomedical Research Conference for Minority Students (ABRCMS) and the Society for Advancement of Chicanos and Native Americans in Science (SACNAS). Sending students and postdocs to these meetings, in addition to faculty, can be a very successful recruitment strategy. These meetings offer the opportunity to meet in-person and engage scientifically with potential recruits, and there are opportunities to sign up to judge poster or oral presentations by the students.
2. Several NINDS-supported programs also offer an opportunity to meet and engage diverse neuroscience-trained students and fellows. These programs support individuals with strong research experience and academic profiles. For those who are interested, Dr. Michelle Jones-London at NINDS is willing to initiate an introduction to the appropriate contact at the specific institutions or events. NINDS-sponsored programs to enhance diversity of the neuroscience workforce are listed below.
3. Additionally, the National Institute of General Medical Sciences (NIGMS) offers a rich resource for connecting to a pool of diverse undergraduates that have participated in a research program. The interactive maps associated with each of the programs below provide information for possible geographic partnerships and places to target recruitment:
 - MARC Undergraduate Student Training in Academic Research (U-STAR) Awards (T34) - provide support for undergraduate students who are underrepresented in the biomedical and behavioral sciences to improve their preparation for high-caliber graduate training at the PhD level. Interactive map of participating Institutions.
 - Research Initiative for Scientific Enhancement (RISE) Program (R25)- RISE is a student development program for minority-serving institutions. Interactive map of participating Institutions.
 - Initiative for Maximizing Student Development (IMSD) Program (R25)- a student development program for institutions with research-intensive environments. The goal of the program is to increase the number of students from underrepresented groups in biomedical and behavioral research who complete PhD degrees in these fields.

Resources

Additional Resources

Reports/Studies on Effective Recruitment/Retention Strategies

- NIH Advisory Committee to the Director Working Group on Diversity in the Biomedical Research Workforce <http://acd.od.nih.gov/dbr.htm>
- Lewis, Dwight. *Sloan Guide for the Successful Recruitment of Minority Students into Science and Engineering Ph.D. Programs* (2nd Edition). (2009). West Lafayette, IN: Dwight Lewis. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.371.3586&rep=rep1&type=pdf>
- Committee on Underrepresented Groups and the Expansion of the Science and Engineering Workforce Pipeline; Committee on Science, Engineering, and Public Policy; Policy and Global Affairs; National Academy of Sciences, National Academy of Engineering, and Institute of Medicine. *Expanding Underrepresented Minority Participation: America's Science and Technology Talent at the Crossroads* (2011). Washington, DC: National Academies Press. http://www.nap.edu/catalog.php?record_id=12984
- American Speech-Language-Hearing Association. *Minority Student Recruitment, Retention and Career Transition Practices: A Review of the Literature*. <http://www.asha.org/practice/multicultural/recruit/litreview.htm> Note: Includes good list of references.
- Capomacchia, Anthony C. & Garner, Solomon T. *Challenges of Recruiting American Minority Graduate Students: The Coach Model*. American Journal of Pharmaceutical Education, 2004: 68 (4), Article 89 <http://www.ajpe.org/view.asp?art=aj680489&pdf=yes>
- Council of Graduate Schools. *Broadening Participation in Graduate Education*. 2009. Washington, DC: Council of Graduate Schools. <http://www.cgsnet.org/broadening-participation-graduate-education-0>
- Williams, Keith. *The Potential Role of Minority Student Organizations in the Recruitment and Retention Process at Urban Universities*. 2002. Lincoln, NE: University of Nebraska. <http://digitalcommons.unl.edu/pocpwi7/10/>
- *Secrets to Success in Recruiting Minority Students into Science* <http://newswise.com/articles/view/23116?print-article>
- Committee for the Assessment of NIH Minority Research Training Programs, Oversight Committee for the Assessment of NIH Minority Research Training Programs, Board on Higher Education and Workforce, National Research Council. *Assessment of NIH Minority Research and Training Programs: Phase 3*. (2005). Washington, DC: National Academies Press <http://www.nap.edu/catalog/11329.html>
- US Dept of Education List of Postsecondary Institutions Enrolling Populations with Significant Percentages of Minority Students <http://www2.ed.gov/about/offices/list/ocr/edlite-minorityinst.html>

Organizations of/for Diversity in Science

- Society for the Advancement of Chicanos and Native Americans in Science (SACNAS) <http://sacnas.org>
- Annual Biomedical Research Conference for Minority Students (ABRCMS) <http://www.abrcms.org>
- FASEB Society Programs for Underrepresented Students and Scientists <http://faseb.org/Professional-Development-and-Diversity-Resources/Diversity-in-Science/Resources-to-Enhance-Diversity-in-Science.aspx>
- FASEB Minority Access to Research Careers Program <http://faseb.org/Professional-Development-and-Diversity-Resources/Diversity-in-Science.aspx>
- National Science Foundation Research Experiences for Undergraduates (REU) Program http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5517&from=fund

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- Council of Graduate Schools Inclusiveness Initiatives – includes multiple projects and reports <http://cgsnet.org/inclusiveness>
- AAAS projects on diversity: <http://www.aaas.org/programs/education/CareersAll/index.shtml>
- AAAS Center for Advancing Science and Engineering Capacity: seeks to reinforce those bonds. As a human resource development consulting service, it provides institutions of higher education with assistance in achieving their educational mission in STEM fields. <https://www.aaas.org/program/center-advancing-science-engineering-capacity>

Download this document: https://www.ninds.nih.gov/sites/default/files/T32_role.pdf

NINDS R25 Programs

SUMMER RESEARCH PROGRAMS – High School and Undergraduate

The NIH Summer Research Experience Program is an award to provide high quality research experience for students during the summer academic break.

Columbia University

Summer Program for Under Represented Students (SPURS)

PI(s): Siegelbaum, Steven A.

Career Stage Target: **Undergraduate**

Delaware State University

A Neuroscience-Focused Undergraduate Research Program at an HBCU

PI(s): Harrington, Melissa A.

Career Stage Target: **Undergraduate**

The Jackson Laboratory

Summer Research Experience in Neurobiology

PI(s): Burgess, Robert W.

Career Stage Target: **High School** and **Undergraduate**

Massachusetts General Hospital

Neurogenetics Undergraduate Summer Research Program

PI(s): Slaughter, Susan A.

Career Stage Target: **Undergraduate**

University of Arizona

High School Student NeuroResearch Program

PI(s): Witte, Marlys Hearst and Porreca, Frank

Career Stage Target: **High School**

University of Miami

NIH Neurotrauma Summer Research Experience Program

PI(s): Dietrich, W. Dalton and Anderson, Kimberly

Career Stage Target: **Undergraduate**

University of Miami

Summer Research Experience in Biological and Computational Sciences

PI(s): Vance, Jeffery M.

Career Stage Target: **High School**

University of Minnesota

University of Minnesota Summer Research in Neuroscience

PI(s): Meisel, Robert and Ebner, Timothy

Career Stage Target: **Undergraduate**

University Of Texas Medical Branch Galveston

Summer Research Experiences in Neurological Dysfunction

PI(s): Taglialetela, Giulio

Career Stage Target: **Undergraduate**

University of Vermont

Summer Research Experience in Neuroscience for Undergraduates

PI(s): Scott, Rod Craig

Career Stage Target: **Undergraduate**

University of Washington

Summer Research Experience in Translational Neuroscience and Neurological Surgery

PI(s): Ellenbogen, Richard G.

Career Stage Target: **High School** and **Undergraduate**

University of Wisconsin-Madison

Summer Research Experience for Undergraduates in Neuroscience

PI(s): Jackson, Meyer B.

Career Stage Target: **Undergraduate**

NINDS R25 Programs

BP-ENDURE – Undergraduate Research Training

The Blueprint initiative "Enhancing Neuroscience Diversity through Undergraduate Research Education Experiences (ENDURE)" aims to raise interest and opportunities in neuroscience research for individuals who are typically underrepresented in the field. These programs are funded by the NIH Blueprint for Neuroscience Research.

The goal is to provide such individuals with training at the undergraduate level, so that they are prepared to enter and successfully complete neuroscience PhD programs. ENDURE provides this undergraduate training through partnerships between research-intensive institutions and institutions with a substantial enrollment of neuroscience majors from diverse groups.

ENDURE undergraduate training programs support a range of activities to increase student interest and involvement in the neurosciences, including research experiences, core and advanced neuroscience courses, seminars, and journal clubs.

Hunter College of the City University of New York

Partner Institution: New York University
BP-ENDURE at Hunter and NYU
PI(s): Quiñones-Jenab, Vanya and Miranda, Regina
Career Stage Target: [Undergraduate](#)

Michigan State University

Partner Institutions: St. Mary's University, Northern New Mexico College, UPR-Arecibo, UPR-Humacao
Bridge to the PhD in Neuroscience
PI(s): Atchison, William D.
Career Stage Target: [Undergraduate](#)

Tennessee State University

Partner Institution: Vanderbilt University
Tennessee State University-Neuroscience Education and Research Vanderbilt Experience (TSU-NERVE)
PI(s): Kelly, Kiesa G.
Career Stage Target: [Undergraduate](#)

University of Colorado Denver

Partner Institution: New Mexico State University
BRAiN: Building Research Achievement in Neuroscience
PI(s): Restrepo, Diego; Bland, Sondra; and Lyons, Barbara
Career Stage Target: [Undergraduate](#)

University of Puerto Rico – Rio Piedras

Partner Institutions: Inter-American University of Puerto Rico, Bayamon Campus and Universidad del Este
Neuroscience Research Opportunities to Increase Diversity (NeuroID)
PI(s): García-Arrarás, José and Maldonado-Vlaar, Carmen
Career Stage Target: [Undergraduate](#)

Washington University in St. Louis

Partner Institutions: University of Missouri St. Louis and Harris-Stowe State University
BP-ENDURE St. Louis: A Neuroscience Pipeline
PI(s): Herzog, Erik
Career Stage Target: [Undergraduate](#)

NINDS R25 Programs

MENTORING PROGRAMS – Graduate Students Through Junior Faculty

The goal of the “NINDS Neuroscience Development for Advancing the Careers of a Diverse Research Workforce” is to support NINDS mission-relevant programs to: 1) increase the pool of PhD-level research scientists from diverse backgrounds underrepresented in biomedical research who are neuroscience researchers (participation is limited to graduate, postdoctoral and/or junior-faculty career levels only); and 2) facilitate career advancement/transition of the participants to the next step of their neuroscience careers.

Medical University of South Carolina and American Academy of Neurology

Training in Research for Academic Neurologists to Sustain Careers and Enhance the Numbers of Diverse Scholars (TRANSCENDS)

PI(s): Ovbiagele, Bruce

Career Stage Target: **Clinical Fellows** and **Junior Faculty**

New York University School of Medicine

Congruent Mentorship to Reach Academic Diversity (COMRADE) in Neuroscience Research

PI(s): Jean-Louis, Girardin and Ogedegbe, Olugbenga

Career Stage Target: **Postdoctoral**

Society for Neuroscience

Next-Generation Neuroscience Scholars Program

PI(s): Ramirez, Julio and Poe, Gina

Career Stage Target: **Graduate** and **Postdoctoral**

University of Alabama at Birmingham

UAB Neuroscience Roadmap Scholars Program

PI(s): McMahon, Lori and Lubin, Farah

Career Stage Target: **Graduate**

University of Florida and University of Pittsburgh

Mentoring Institute for Neuroscience Diversity Scholars (MINDS)

PI(s): Torres, Gonzalo and Zigmond, Michael

Career Stage Target: **Junior Faculty**

University of Washington

BRAINS: Broadening the Representation of Academic Investigators in NeuroSciences

PI(s): Mizumori, Sheri J. Y.

Career Stage Target: **Postdoctoral** and **Junior Faculty**

Wake Forest University

Training in Health Disparity Research for a Diverse Neuroscience Workforce

PI(s): Milligan, Carol and Bertoni, Alain Gerald

Career Stage Target: **Graduate (Master's Degree)**

NINDS and Jointly-Sponsored T32 Programs

Alabama

University of Alabama at Birmingham
Training Program in Brain Tumor Biology
PI(s): Benveniste, Ety
Career Stage Target: [Graduate](#) and [Postdoctoral](#)

University of Alabama at Birmingham
Training Program in the Neurobiology of Cognition
and Cognitive Disorders
PI(s): Hablitz, John J.
Career Stage Target: [Graduate](#)

University of Alabama at Birmingham
UAB Training Program in Neurodegeneration
PI(s): Standaert, David
Career Stage Target: [Graduate](#)

California

University of California Irvine
Epilepsy Research Training Program
PI(s): Baram, Tallie Z.
Career Stage Target: [Graduate](#) and [Postdoctoral](#)

University of California Davis
Jointly Sponsored Institutional Predoc Training
Program in the Neurosciences
PI(s): Carter, Cameron S.
Career Stage Target: [Graduate](#)

University of California Berkeley
Jointly Sponsored Institutional Predoc Training
Program in the Neurosciences
PI(s): Feldman, Daniel
Career Stage Target: [Graduate](#)

University of California Los Angeles
Training Program in Neural Microcircuits
PI(s): Feldman, Jack L.
Career Stage Target: [Graduate](#) and [Postdoctoral](#)

University of California Los Angeles
Training Grant in Neurobehavioral Genetics
PI(s): Freimer, Nelson
Career Stage Target: [Graduate](#) and [Postdoctoral](#)

University of California San Diego
Jointly Sponsored Institutional Predoc Training
Program in the Neurosciences
PI(s): Gentner, Timothy
Career Stage Target: [Graduate](#)

Stanford University
Jointly Sponsored Institutional Predoc Training
Program in the Neurosciences
PI(s): Huguenard, John
Career Stage Target: [Graduate](#)

Stanford University
Epilepsy Training Program
PI(s): Huguenard, John
Career Stage Target: [Postdoctoral](#)

University of Southern California
Jointly Sponsored Institutional Predoc Training
Program in the Neurosciences
PI(s): Levitt, Pat R.
Career Stage Target: [Graduate](#)

University of California San Diego
Neurobiology Training Grant
PI(s): Spitzer, Nicholas C.
Career Stage Target: [Postdoctoral](#)

University of California Irvine
Training Program in Stem Cell Translational
Medicine for Neurological Disorders
PI(s): Thompson, Leslie
Career Stage Target: [Graduate](#)

Colorado

University of Colorado Denver
Jointly Sponsored Institutional Predoc Training
Program in the Neurosciences
PI(s): Vijayaraghavan, Sukumar and Restrepo,
Diego
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Connecticut

Yale University
Neurobiology of Cortical Systems
PI(s): Crair, Michael
Career Stage Target: [Graduate](#) and [Postdoctoral](#)

NINDS and Jointly-Sponsored T32 Programs

Yale University
Jointly Sponsored Institutional Predoc Training
Program in the Neurosciences
PI(s): Greer, Charles A. and Keshishian, Haig S.
Career Stage Target: [Graduate](#)

District of Columbia

Georgetown University
Training in Neural Injury and Plasticity
PI(s): Maguire-Zeiss, Kathleen
Career Stage Target: [Graduate](#)

Georgetown University
Jointly Sponsored Institutional Predoc Training
Program in the Neurosciences
PI(s): Malkova, Ludise and Rebeck, G. William
Career Stage Target: [Graduate](#)

Florida

University of Florida
Interdisciplinary Training in Movement Disorders
and Neurorestoration
PI(s): Bowers, Dawn and Vaillancourt, David E.
Career Stage Target: [Graduate](#)

Georgia

Emory University
Training in Translational Research in Neurology
PI(s): Levey, Allan I.
Career Stage Target: [Graduate](#) and [Postdoctoral](#)

Emory University
Jointly Sponsored Institutional Predoc Training
Program in the Neurosciences
PI(s): Smith, Yoland
Career Stage Target: [Graduate](#)

Illinois

Northwestern University
Training Program in the Neuroscience of Human
Cognition
PI(s): Paller, Ken
Career Stage Target: [Graduate](#) and [Postdoctoral](#)

Washington University in St. Louis
Nervous System Development and Injury
PI(s): Holtzman, David M.
Career Stage Target: [Postdoctoral](#)

Iowa

University of Iowa
Interdisciplinary Training Program in Pain
Research
PI(s): Hammond, Donna
Career Stage Target: [Graduate](#) and [Postdoctoral](#)

University of Iowa
Jointly Sponsored Institutional Predoc Training
Program in the Neurosciences
PI(s): Tranel, Daniel T.
Career Stage Target: [Graduate](#)

Kentucky

University of Kentucky
Neurobiology of CNS Injury and Repair
PI(s): Hall, Edward and Geddes, James
Career Stage Target: [Graduate](#)

Maryland

Johns Hopkins University
Jointly Sponsored Institutional Predoc Training
Program in the Neurosciences
PI(s): Bergles, Dwight E.
Career Stage Target: [Graduate](#)

University of Maryland Baltimore
Jointly Sponsored Institutional Predoc Training
Program in the Neurosciences
PI(s): Mong, Jessica
Career Stage Target: [Graduate](#)

Johns Hopkins University
Interdisciplinary Training in Biobehavioral Pain
Research
PI(s): Smith, Michael and Dong, Xinzhong
Career Stage Target: [Postdoctoral](#)

NINDS and Jointly-Sponsored T32 Programs

Massachusetts

Harvard University School of Public Health
Training in Neurostatistics and
Neuroepidemiology
PI(s): Betensky, Rebecca
Career Stage Target: [Graduate](#) and [Postdoctoral](#)

Tufts University Boston
Synapse Neurobiology Training Program
PI(s): Jacob, Michele H.
Career Stage Target: [Graduate](#)

Brandeis University
Jointly Sponsored Institutional Predoc Training
Program in the Neurosciences
PI(s): Lisman, John E.
Career Stage Target: [Graduate](#)

Brandeis University
Neurobiology: Genes, Channels, & Behavior
PI(s): Marder, Eve E.
Career Stage Target: [Postdoctoral](#)

Massachusetts General Hospital
Training Program in Recovery and Restoration of
CNS Health and Function
PI(s): Rosand, Jonathan
Career Stage Target: [Postdoctoral](#)

Children's Hospital Boston
Developmental Neurology
PI(s): Schwarz, Thomas L.
Career Stage Target: [Postdoctoral](#)

Harvard University
Jointly Sponsored Institutional Predoc Training
Program in the Neurosciences
PI(s): Segal, Rosalind A.
Career Stage Target: [Graduate](#)

Michigan

University of Michigan Ann Arbor
Training in Clinical and Basic Neuroscience
PI(s): Feldman, Eva
Career Stage Target: [Postdoctoral](#)

Michigan State University
Jointly Sponsored Institutional Predoc Training
Program in the Neurosciences
PI(s): Sisk, Cheryl L.
Career Stage Target: [Graduate](#)

University of Michigan Ann Arbor
Jointly Sponsored Institutional Predoc Training
Program in the Neurosciences
PI(s): Stuenkel, Edward L. and Altschuler, Richard
Career Stage Target: [Graduate](#)

New York

Columbia University Health Sciences
Advanced Graduate Training Program in
Theoretical Neuroscience
PI(s): Abbott, Laurence
Career Stage Target: [Graduate](#)

New York University School of Medicine
Training Program in Molecular, Cellular, and
Translational Neuroscience
PI(s): Dasen, Jeremy
Career Stage Target: [Graduate](#)

Columbia University Health Sciences
Neuroepidemiology Training Program
PI(s): Elkind, Mitchell
Career Stage Target: [Postdoctoral](#)

Rockefeller University
Jointly Sponsored Institutional Predoc Training
Program in the Neurosciences
PI(s): Gilbert, Charles
Career Stage Target: [Graduate](#)

Columbia University Health Sciences
Advanced Graduate Training Program in
Neurobiology & Behavior
PI(s): Greene, Lloyd A. and Di Paolo, Gilbert
Career Stage Target: [Graduate](#)

University of Rochester
Experimental Therapeutics in Neurological
Disease
PI(s): Griggs, Robert C.
Career Stage Target: [Postdoctoral](#)

NINDS and Jointly-Sponsored T32 Programs

Columbia University
Jointly Sponsored Institutional Predoc Training
Program in the Neurosciences
PI(s): Grueber, Wesley
Career Stage Target: [Graduate](#)

New York University School of Medicine
Jointly Sponsored Institutional Predoc Training
Program in the Neurosciences
PI(s): Rudy, Bernardo and Klann, Eric
Career Stage Target: [Graduate](#)

Mount Sinai School of Medicine
Jointly Sponsored Institutional Predoc Training
Program in the Neurosciences
PI(s): Salton, Stephen R.
Career Stage Target: [Graduate](#)

North Carolina

Wake Forest University
Training Program in Multisensory Processes
PI(s): Stein, Barry E.
Career Stage Target: [Graduate](#) and [Postdoctoral](#)

University of North Carolina Chapel Hill
Jointly Sponsored Institutional Predoc Training
Program in the Neurosciences
PI(s): Stuber, Garret
Career Stage Target: [Graduate](#)

Ohio

The Ohio State University
Training in Neuromuscular Diseases
PI(s): Guttridge, Denis C.
Career Stage Target: [Graduate](#) and [Postdoctoral](#)

University of Cincinnati
Jointly Sponsored Institutional Predoc Training
Program in the Neurosciences
PI(s): Herman, James P.
Career Stage Target: [Graduate](#)

University of Cincinnati
Cerebrovascular Fellowship Training Program
PI(s): Kleindorfer, Dawn
Career Stage Target: [Postdoctoral](#)

Case Western Reserve
Training in Neurodegenerative Diseases
PI(s): Zhu, Xiongwei
Career Stage Target: [Graduate](#)

Oregon

Oregon Health and Science University
Jointly Sponsored Institutional Predoc Training
Program in the Neurosciences
PI(s): Westbrook, Gary
Career Stage Target: [Graduate](#)

Pennsylvania

University of Pennsylvania
Remapping neurology through translation and
innovation
PI(s): Dichter, Marc A. and Jensen, Frances E.
Career Stage Target: [Postdoctoral](#)

University of Pennsylvania
Neurologic Clinical Epidemiology Training
Program
PI(s): Feldman, Harold I.
Career Stage Target: [Postdoctoral](#)

University of Pittsburgh
Training in Mechanisms and Clinical Presentation
of Pain
PI(s): Gutstein, Howard
Career Stage Target: [Graduate](#) and [Postdoctoral](#)

University of Pennsylvania
Training Program in Neuroengineering and
Medicine
PI(s): Litt, Brian
Career Stage Target: [Graduate](#) and [Postdoctoral](#)

Children's Hospital of Philadelphia
Training Grant in Neurodevelopmental Disabilities
PI(s): Robinson, Michael
Career Stage Target: [Postdoctoral](#)

University of Pennsylvania
Brain Injury Training Grant
PI(s): Smith, Douglas Hamilton
Career Stage Target: [Postdoctoral](#)

NINDS and Jointly-Sponsored T32 Programs

University of Pittsburgh
Training in the Neurobiology of
Neurodegenerative Disease
PI(s): Strick, Peter
Career Stage Target: **Postdoctoral**

University of Pittsburgh
Jointly Sponsored Institutional Predoc Training
Program in the Neurosciences
PI(s): Sved, Alan F.
Career Stage Target: **Graduate**

University of Pennsylvania
Training in Neurovirology
PI(s): Weiss, Susan R.
Career Stage Target: **Graduate** and **Postdoctoral**

Rhode Island

Brown University
Neuroscience Advanced Predoctoral Institutional
Training Grant
PI(s): Lipscombe, Diane
Career Stage Target: **Graduate**

Brown University
Jointly Sponsored Institutional Predoc Training
Program in the Neurosciences
PI(s): Lipscombe, Diane and Sheinberg, David L.
Career Stage Target: **Graduate**

Tennessee

Vanderbilt University
Training Program in Ion Channel and Transporter
Biology
PI(s): Knollmann, Bjorn
Career Stage Target: **Postdoctoral**

Vanderbilt University
Jointly Sponsored Institutional Predoc Training
Program in the Neurosciences
PI(s): Winder, Danny G. and McMahon, Douglas
Career Stage Target: **Graduate**

Texas

University of Texas Austin
Jointly Sponsored Institutional Predoc Training
Program in the Neurosciences
PI(s): Harris, Robert and Harris, Kristen
Career Stage Target: **Graduate**

University of Texas Health Science Center at San
Antonio
Jointly Sponsored Institutional Predoc Training
Program in the Neurosciences
PI(s): Morilak, David A.
Career Stage Target: **Graduate**

University of Texas Health Science Center
Houston
The University of Texas Houston Stroke Training
Program
PI(s): Savitz, Sean
Career Stage Target: **Postdoctoral**

Baylor College of Medicine
Multidisciplinary Training; Brain Disorders &
Development
PI(s): Swann, John W.
Career Stage Target:

Utah

University of Utah
Jointly Sponsored Institutional Predoc Training
Program in the Neurosciences
PI(s): Keefe, Kristen A.
Career Stage Target: **Graduate**

Washington

University of Washington
Jointly Sponsored Institutional Predoc Training
Program in the Neurosciences
PI(s): Sullivan, Jane M. and Wong, Rachel O.
Career Stage Target: **Graduate**

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