

# The Impact of Racial Inequities in NIH Grant Funding On Faculty Retention

Michael A Taffe, Ph.D.  
Department of Psychiatry  
University of California, San Diego

*National Postdoctoral Association Panel  
Preparing Postdocs and Institutions for a New Faculty Diversity Intervention: Cluster Hiring  
Apr 29, 2022*

## Overview / Goals

**Educate on a NIH grant funding disparity suffered by Black PIs and the topics that are of interest to them**

**Discuss the implications for DEI hiring initiatives**

## Does the Bias in NIH Grant Award *matter*?

**Yes.**

***Retention* of new hires in the biomedical sciences depends on grant awards.**

## NIH Grants *matter* for UCSD Promotion

### Research Publications, Creative and Scholarly Activities

**Associate Prof:** Active research grant support, Independence, continued impactful research/publication productivity

**Acceleration (any stage):** Exceptional research productivity, quality and/or quantity of research publications, research grants. Acceleration in the service area could include earlier than usual appointment to a prestigious society (e.g., ACNP)

*Department of Psychiatry, UCSD: Academic Advancement Guidelines*

## NIH Grants *matter...* to Kent State University



### Chemical Physics Faculty Handbook

Indicators of the quality of a faculty member's research record include the quality and quantity of published work as well as the faculty member's success in obtaining extramural funds.

Excellent Scholarship: Demonstrated record of publications and grants\*

Very Good Scholarship: Demonstrated record of publications and "seed" grants\*

\*For NIH grants, this includes R01s, AREA grants, and others of sufficient magnitude as described herein. "Seed Grants" are extramural grants that are not of sufficient magnitude to fully support doctoral students or are intramural grants.

Kent State University Chemical Physics Faculty Handbook;  
<https://www.kent.edu/cpip-faculty-handbook/criteria-tenure-and-promotion>

## NIH Grants *matter...* to Tulane University School of Medicine



### Promotion to Associate Professor

Candidate must be nationally recognized at minimum. Evidence of this includes...Record of current funding

Research productivity is the most important ...Candidates must be actively publishing ...being cited as lead or senior author ...Impact factor will be considered.

Funding should be from NIH or equivalent agencies

### Promotion to Professor

Candidate must have current funding with record of renewal of funding

Tulane University SOM; Guidelines and Criteria for Faculty Tenure:  
<https://medicine.tulane.edu/appointment-promotion/tenure-track/guidelines>

## NIH Grants *matter...* to Duke University School of Medicine



It is expected that non-clinical faculty on the Faculty Tenure Track receive a majority of their research salary and research support from externally peer-reviewed grants, laboratory service agreements, collaborative research projects, or as independent principal investigators. ...a pattern and expectation of sustained career funding of an independent research or educational program must be established for ...[tenure].

### Associate Professor with tenure

Sustained success in the procurement and management of external funding is typical at this level.

*Receipt of multiple external federal grants (NIH K, P, R, or U mechanisms and / or renewals), or other national granting agencies such as the NSF, DOD or VA, will contribute toward the requirement for scholarship*

### Professor

Faculty at this rank will typically have an established record of sustained funding through peer-reviewed grants (e.g., NIH, NSF, DOD, VA, foundations, industry)

Duke University SOM; Faculty Tenure Track:

[https://medschool.duke.edu/sites/medschool.duke.edu/files/field/attachment/faculty\\_tenure\\_track.pdf](https://medschool.duke.edu/sites/medschool.duke.edu/files/field/attachment/faculty_tenure_track.pdf)

## NIH Grants *matter...* to the University of Nebraska, Lincoln

<https://executivevc.unl.edu/faculty/evaluation-recognition/guidelines>

### Promotion in Rank:

**Associate Professor:** To attain the rank of associate professor, the candidate should be an accomplished teacher, where teaching is an assigned responsibility, and have a significant record of scholarly and creative work in teaching, research, and service in keeping with the individual's job responsibilities.

<https://cas.unl.edu/p-t-candidate-file-preparation>

### Research Statement Examples:

**Sciences:** "This research is supported by the NSF...\$490.5K"; "...by NSF CAREER....\$538.5K"

**Social Sciences:** "I obtained grants from the NIH totaling over \$739,000"; "NIH grant application...two recent NIH grant applications..."

## **Does the Bias in NIH Grant Award *matter?***

Yes. Obtaining major funding, often specified as NIH major funding and even the R01 specifically, is essentially a *requirement* for Associate Professor / tenure.

A sustained pattern of funding with NIH awards is an *expectation* for Full Professor.

**Efforts to diversify Universities and academic research will *fail* if we do not ~~fix~~ account for the “Ginther Gap”.**

# Ginther et al., 2011

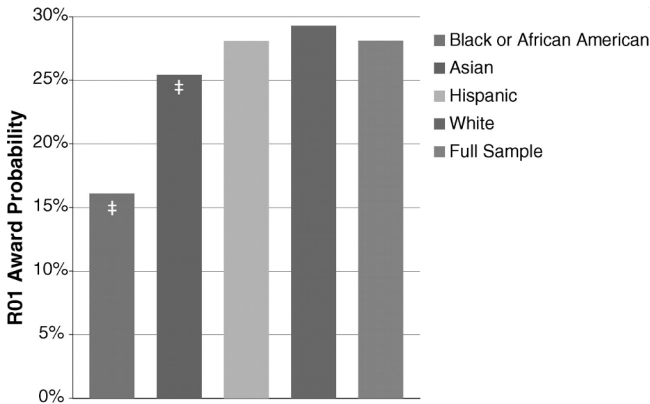
NIH Type 1 (new) R01 (FY2000-FY2006)

17.1% AA/B PI vs 29.3% white PI success rate

(25.5% for Asian PIs)

58.4% of the chance, for Black PIs

1.7-fold advantage for white PIs



Ginther et al. (2011) Race, Ethnicity, and NIH Research Awards, Science, 333(6045):1015-1019

# Hoppe et al., 2019

NIH Type 1&2 R01 (FY2011-FY2015)

10.7% AA/B PI vs 17.7% white PI success rate

60.5% of the chance, for Black PIs

1.65-fold advantage for white PIs

|                          | Apps from<br>AA/B<br>investigators | Apps from<br>WH<br>investigators |
|--------------------------|------------------------------------|----------------------------------|
| % discussed              | 44.0%                              | 57.4%**                          |
| % of funded if discussed | 24.2%                              | 30.8%**                          |
| % funded overall         | 10.7%                              | 17.7%**                          |

Hoppe et al. (2019) Topic choice contributes to the lower rate of NIH awards to African-American/black scientists, Science Advances, 5(10): eaaw7238

# Hoppe et al., 2019 : Topic Choice

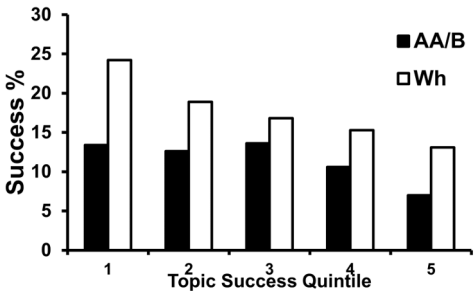
NIH Type 1&2 R01 (FY2011-FY2015)

10.7% AA/B PI vs 17.7% white PI success rate

“we used *word2vec*, an informatics approach that uses word embedding of text to build document vectors suitable for grouping applications into clusters based on the similarity of their content...150 topic-based clusters”

“37.5% of applications from AA/B PIs mapped to 8 of the 150 topic clusters. Of those eight, six had award rates that were significantly below the NIH average”

“WH applicants also experienced lower award rates in these clusters, but the disparate outcomes between AA/B and WH applicants remained”



Graph of tabular data in Supp Figure S6

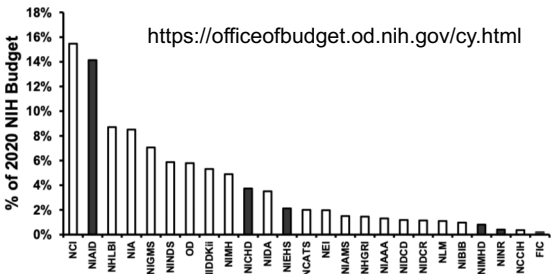
Hoppe et al. (2019) Topic choice contributes to the lower rate of NIH awards to African-American/black scientists, *Science Advances*, 5(10): eaaw7238

# Lauer, et al. 2021

“ICs have widely varying award rates (the ratio of funded applications to all applications). These marked variations (from 9.1% to 26.9%)”

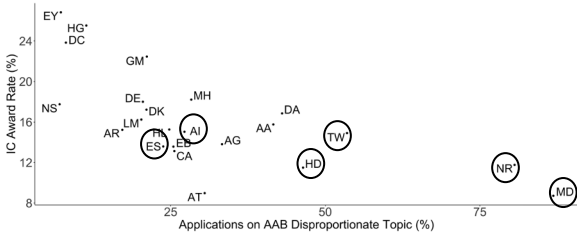
“five of the six ICs that received a higher than average proportion of applications from African American and Black PIs – *Minority Health Disparities, Nursing Research, Child Health and Human Development, Environmental Health Sciences, and Allergy and Infectious Diseases* – had an R01 award rate that is below the NIH average”

“...received 19% of all R01 applications for FY2011-2015, but they accounted for 35% of applications from AAB PIs”



<https://officeofbudget.od.nih.gov/cy.html>

IC Award Rates and Proportion of Applications on AAB Disproportionate Topics (r = -0.45)



Lauer, M., et al. Associations of topic-specific peer review outcomes and institute and center award rates with funding disparities at the National Institutes of Health, *eLife* 2021;10:e67173 doi: 10.7554/eLife.67173

## NIH Grant Disparity *matters...* to Black Faculty

### Probability of at least one award:

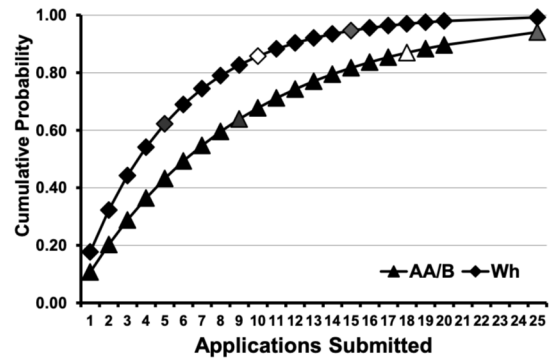
9 AA/B applications to equal 5 Wh applications.  
(18/10; 25/18)

NIH Cycles: Oct/Nov; Feb/Mar; Jun/Jul

Reviews often not returned in time for sequential submissions.

One revision, then proposals must be “new”. Unwise to have multiple proposals in one study section

Preliminary data are required for all R01 proposals. This takes time and precious startup money to generate.



## Lessons for Institutional DEI efforts (Cluster hiring or other)

If Black Assistant Professors are to succeed, they need:

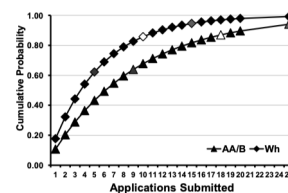
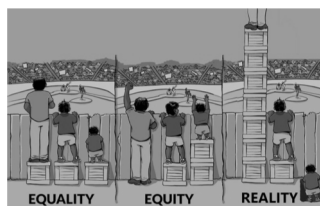
- more *time to write proposals*, revise/resubmit proposals
- more *startup money* to devote to preliminary studies
- more *trainees* (program support, T32 support, SURF programs, etc.)
- more runway to sustain initial laboratory growth for extra *years*
- non-exploitative collaborations* with established faculty
- recognition of the higher grant funding hurdles* at the tenure decision.

Ginther et al. (2011, 2018) showed that *the disparity still exists for Full Professors* and those with grant experience. Hoppe et al. (2019) showed it exists *across all topic domains*, regardless of fundability.



## The same standard for ~~UN-Lincoln~~ Promotion

From: Elizabeth Spiller, Executive Vice Chancellor  
Re: Promotion and/or Tenure in 2021-22  
Date: (March 9, 2021):



Every tenure or promotion decision should be judged *against the same standard*: a proven record of achievement that suggests a sustained career typified by true excellence and distinction.

<https://executivevc.unl.edu/faculty/Promotion-and-Tenure-Memo-2021-22.pdf>

# Thank you for attending



FEATURE ARTICLE



EQUITY, DIVERSITY AND INCLUSION

## Racial inequity in grant funding from the US National Institutes of Health

**Abstract** Biomedical science and federal funding for scientific research are not immune to the systemic racism that pervades American society. A groundbreaking analysis of NIH grant success revealed in 2011 that grant applications submitted to the National Institutes of Health in the US by African-American or Black Principal Investigators (PIs) are less likely to be funded than applications submitted by white PIs, and efforts to narrow this funding gap have not been successful. A follow-up study in 2019 showed that this has not changed. Here, we review those original reports, as well as the response of the NIH to these issues, which we argue has been inadequate. We also make recommendations on how the NIH can address racial disparities in grant funding and call on scientists to advocate for equity in federal grant funding.

MICHAEL A TAFFE\* AND NICHOLAS W GILPIN\*

### A call to action

This article is a call to action for all of those involved in the biomedical research enterprise, especially for those in leadership positions at the NIH and universities (such as deans and departmental chairs), those involved in the review of grants at the NIH (including NIH staff

**The NIH must acknowledge that systemic and structural racism exists within its Institutes and Centers, and it must create a plan with actionable items that will have a real and lasting impact on the racial disparities discussed in this article.**

Taffe and Gilpin. eLife 2021;10:e65697. DOI: <https://doi.org/10.7554/eLife.65697>

## Commentary: Fund Black Scientists

Cell

Leading Edge

CellPress

Commentary

### Fund Black scientists

Kelly R. Stevens,<sup>1,\*</sup> Kristyn S. Masters,<sup>2</sup> P.I. Imoukhuede,<sup>3</sup> Karmella A. Haynes,<sup>4</sup> Lori A. Setton,<sup>5</sup> Elizabeth Cosgriff-Hernandez,<sup>6</sup> Muyinatu A. Lediju Bell,<sup>6</sup> Padmini Rangamani,<sup>7</sup> Shelly E. Sakiyama-Elbert,<sup>8</sup> Stacey D. Finley,<sup>9</sup> Rebecca K. Willits,<sup>9</sup> Abigail N. Koppes,<sup>9</sup> Naomi C. Chesler,<sup>10</sup> Karen L. Christman,<sup>11</sup> Josephine B. Allen,<sup>12</sup> Joyce Y. Wong,<sup>13</sup> Hana El-Samad,<sup>14</sup> Tejal A. Desai,<sup>15</sup> and Omolola Eniola-Adefeso<sup>16,\*</sup>

#### Action for the National Institutes of Health

Explicitly state that racism persists in the US research enterprise and that it must be expelled  
 Institute policies to immediately achieve racial funding equity  
 Make diversity score-driving criteria, prioritize diverse teams for funding, and diversify review panels  
 Train and empower NIH leadership, staff, and grant reviewers and recipients to recognize and stop racism

Stevens et al., *Fund Black scientists*, Cell (2021),  
<https://doi.org/10.1016/j.cell.2021.01.011>

## **NIH Grant Proposals With African-American/Black PIs Are Less Likely to Be Funded**

Ginther et al. (2011) **Race, Ethnicity, and NIH Research Awards**, *Science*, 333(6045):1015-1019

Ginther et al. (2016) **Gender, Race/Ethnicity, and National Institutes of Health R01 Research Awards: Is There Evidence of a Double Bind for Women of Color?**, *Academic Medicine*, 91(8):1098-1107.

Ginther et al. (2018) **Publications as predictors of racial and ethnic differences in NIH research awards**, *PLoS ONE*, Nov 14;13(11):e0205929.

Hoppe et al. (2019) **Topic choice contributes to the lower rate of NIH awards to African-American/black scientists**, *Science Advances*, 5(10): eaaw7238