



GREAT MINDS THINK DIFFERENTLY

How Does Diversity Impact Biomedical Science? A Community Perspective

EVMS - Brock Institute Glennan Center Lecture

Marie A. Bernard, M.D., NIH Chief Officer for Scientific Workforce Diversity (COSWD)



National Institutes of Health

Office of the Director

Chief Officer for Scientific Workforce Diversity





- Data regarding the impact of diversity
- The case of aducanumab
- COSWD
- UNITE
- Case example

TRUE OR FALSE

- Scientific workforce diversity is an issue of justice
- Workforce diversity is associated with creativity and innovation
- Mentoring is critical to scientific progress and is compensated
- NIH does not fund community-based research
- NIH intends to provide a prize for institutional DEIA excellence



- **Data regarding the impact of diversity**
- The case of aducanumab
- COSWD
- UNITE
- Case example

WHY DIVERSITY MATTERS: STRONGER PERFORMANCE

Fact-Based Decision-Making

- Members of racially diverse mock jury panels exchanged more information, cited more facts, and made fewer errors.¹



Sources:

1. Sommers, S. (2006). On racial diversity and group decision-making: identifying multiple effects of racial composition on jury deliberations, *Interpersonal Relations and Group Processes* 90(4): 597-612.

2. Lyod, D. et al. (2013). Social category diversity promotes premeeting elaboration: the role of relationship focus, *Organization Science* 24(3): 757-772.

3. Levine, S. et al. (2014). Ethnic diversity deflates pricing bubbles, *PNAS* 111(52): 18524-18529.

For a useful review, see Phillips, K. (2014). How diversity makes us smarter. *Scientific American* 311(4): 43-47.

WHY DIVERSITY MATTERS: STRONGER PERFORMANCE

Preparation and Perspective-Taking

- Socially diverse contexts increase individuals' preparation, in anticipation of perspective differences, leading to better performance.²



Sources:

1. Sommers, S. (2006). On racial diversity and group decision-making: identifying multiple effects of racial composition on jury deliberations, *Interpersonal Relations and Group Processes* 90(4): 597-612.
2. Lyod, D. et al. (2013). Social category diversity promotes premeeting elaboration: the role of relationship focus, *Organization Science* 24(3): 757-772.
3. Levine, S. et al. (2014). Ethnic diversity deflates pricing bubbles, *PNAS* 111(52): 18524-18529.

For a useful review, see Phillips, K. (2014). How diversity makes us smarter. *Scientific American* 311(4): 43-47.

WHY DIVERSITY MATTERS: STRONGER PERFORMANCE

Information Diligence

- Ethnically diverse markets reduce traders' pricing errors, showing how social context influences decision-making and how diversity enhances information deliberation.³



Sources:

1. Sommers, S. (2006). On racial diversity and group decision-making: identifying multiple effects of racial composition on jury deliberations, *Interpersonal Relations and Group Processes* 90(4): 597-612.

2. Lyod, D. et al. (2013). Social category diversity promotes premeeting elaboration: the role of relationship focus, *Organization Science* 24(3): 757-772.

3. Levine, S. et al. (2014). Ethnic diversity deflates pricing bubbles, *PNAS* 111(52): 18524-18529.

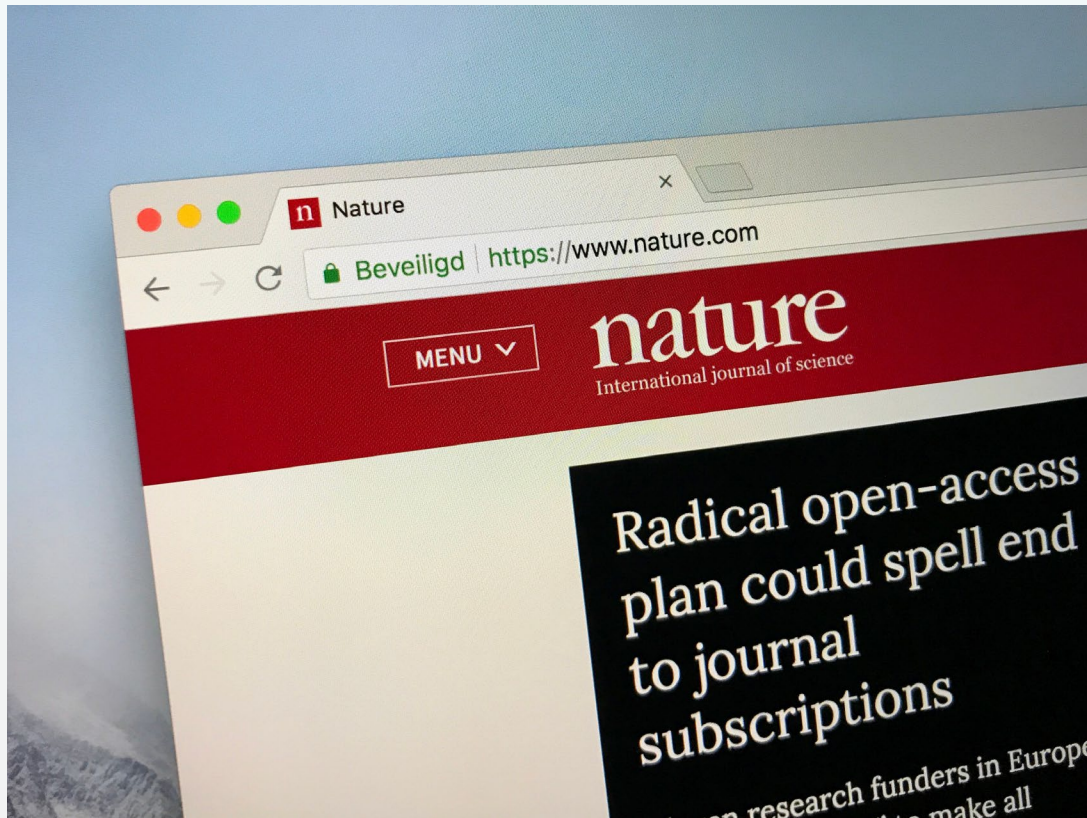
For a useful review, see Phillips, K. (2014). How diversity makes us smarter. *Scientific American* 311(4): 43-47.

THE NEED FOR DIVERSE PERSPECTIVES IN SCIENCE



Bernard MA, Johnson AC, Hopkins-Laboy T, Tabak LA. Nature Medicine DOI: 10.1038/s41591-021-01532-1. (2021)

DIVERSITY RESULTS IN MORE IMPACTFUL SCIENTIFIC PUBLICATIONS



- 2.5 million scientific journal articles
- Higher impact journals and more citations with:
 - Ethnic diversity
 - Geographic diversity
 - Information diversity

Source: Freeman & Huang (2015). Collaborating with people like me: ethnic co-authorship within the US. *Journal of Labor Economics* 33(3): S289-S318.

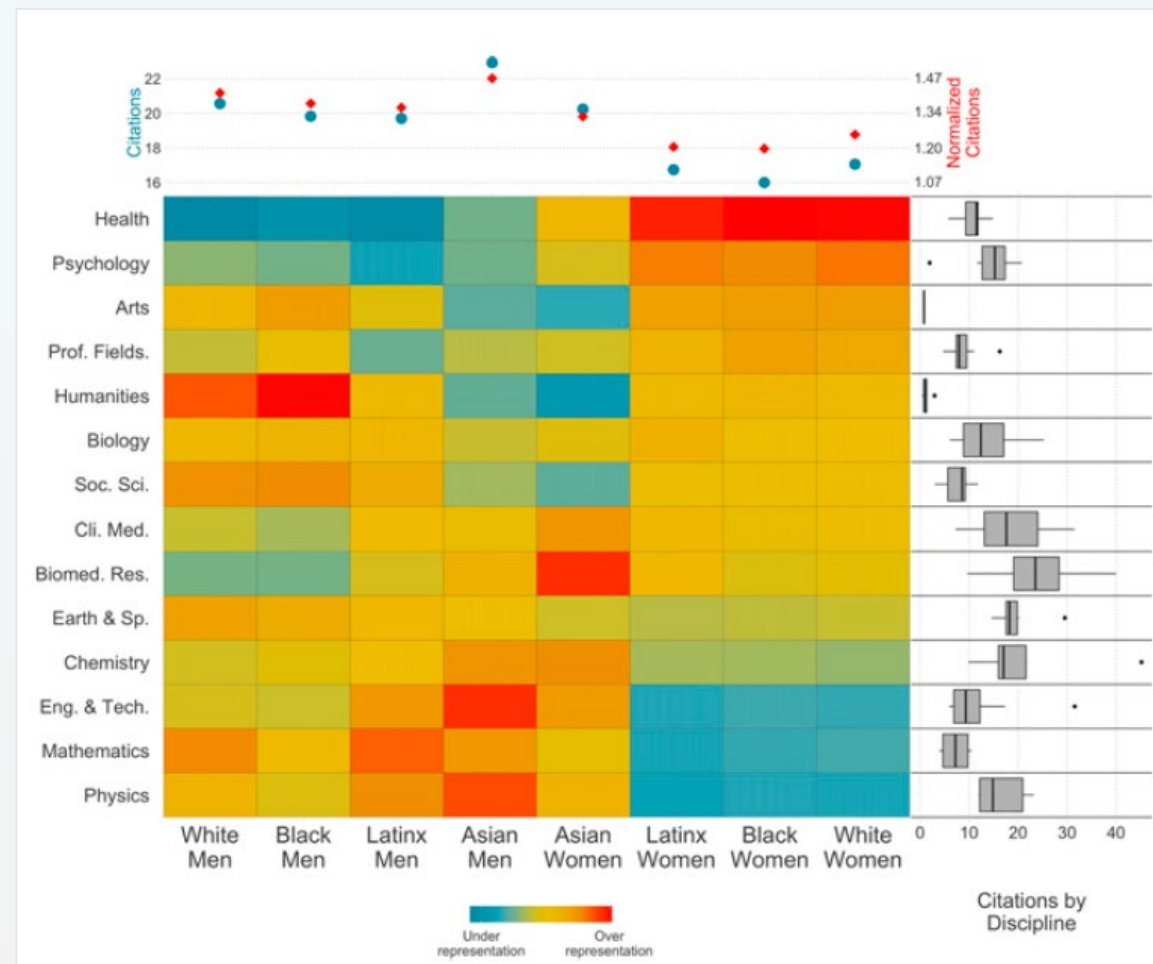
DIVERSITY LEADS TO NEW DISCOVERIES

- Bird song initially a male dominated scientific area
- Particular patterns, based on studies of male birds
- Female scientists found gender-based differences in bird song



Source: Haynes et al. The role of diversity in science: a case study of women advancing female birdsong research. *Animal Behaviour* Volume 168, October 2020, Pages 19-24.

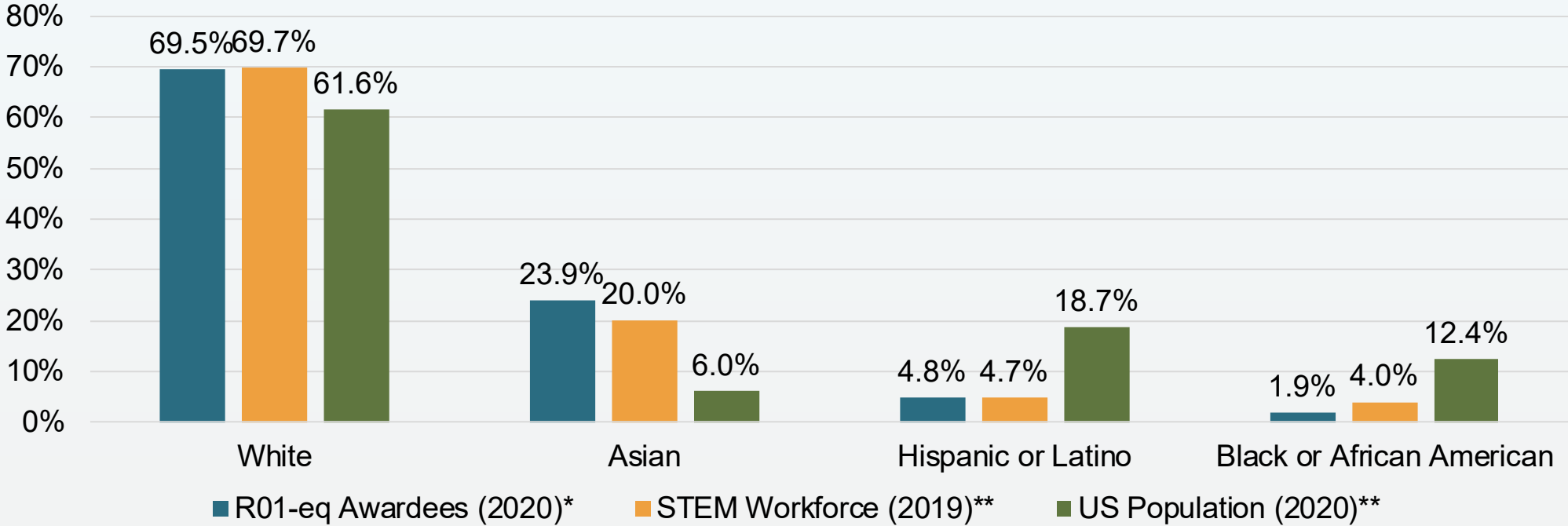
SCHOLARLY IMPACT BY RACE AND GENDER



Source: Kozlowski et al. (2022). Intersectional inequities in science. *PNAS* 119(2): e21132067119.

LACK OF UTILIZATION OF THE FULL TALENT POOL

Racial/Ethnic Representation Among NIH R01-eq Grantees, STEM Doctoral Workforce, and US Population (2019 and 2020)

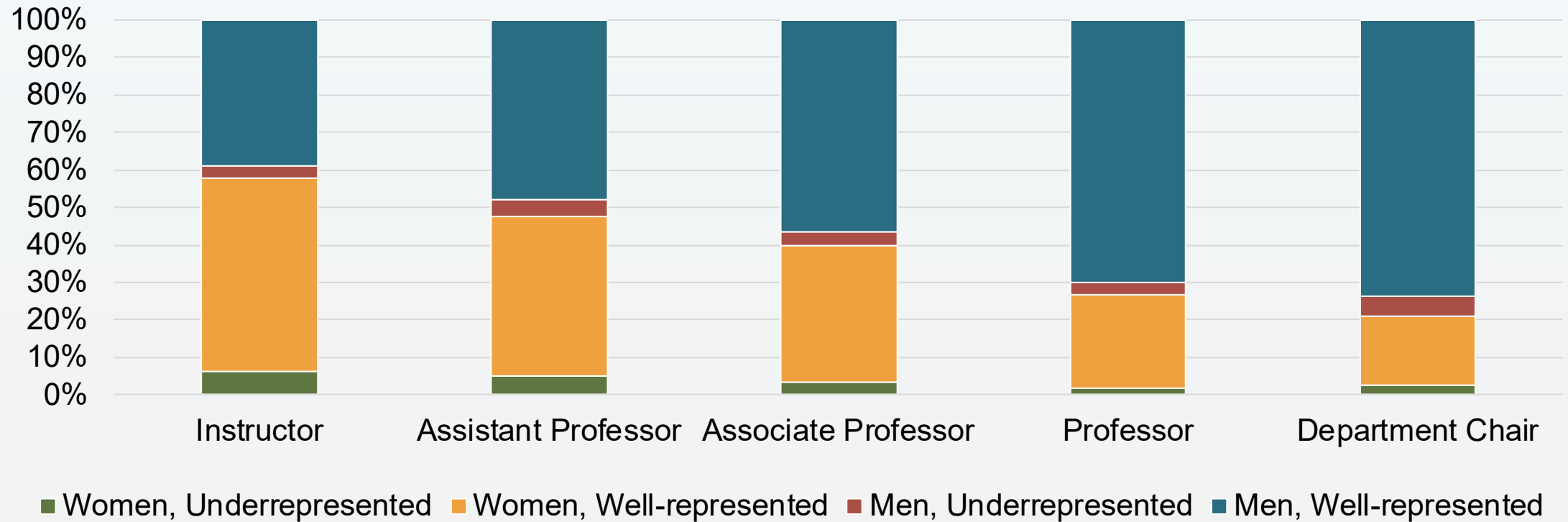


*NIH R01-eq Awardees data includes White, Asian, and Black/African American investigators of any ethnicity
 **STEM Workforce and US population data includes non-Hispanic White, Asian, and Black or African American individuals

Source: <https://www.census.gov/library/visualizations/interactive/race-and-ethnicity-in-the-united-state-2010-and-2020-census.html>

DIMINISHED USE OF FULL TALENT POOL ACROSS THE CAREER SPECTRUM

Proportion of **women** and **underrepresented men** diminishes in more advanced positions along the career path.



Source: <https://www.aamc.org/data-reports/faculty-institutions/interactive-data/2020-us-medical-school-faculty>



- Data regarding the impact of diversity
- **The case of aducanumab**
- COSWD
- UNITE
- Case example

The Case of Aducanumab

- Aducanumab approved by FDA through accelerated approval pathway.
- FDA approved based on effectiveness of aducanumab in reducing amyloid plaques.
- Clinical trials limited to people diagnosed with mild cognitive impairment or early-stage Alzheimer's.
- After initial broad indications, revised labeling to be consistent with testing
- Subsequently approved for Medicare coverage *when* utilized in a clinical trial

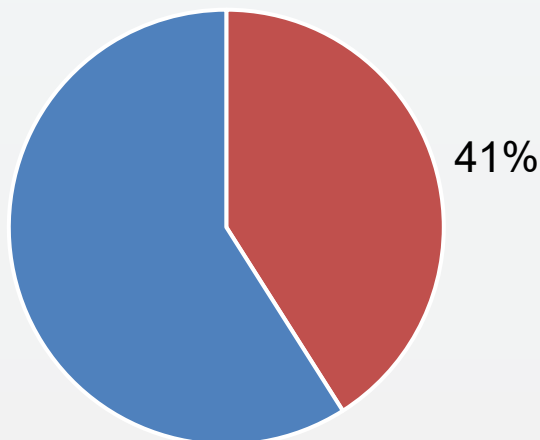


The Case of Aducanumab

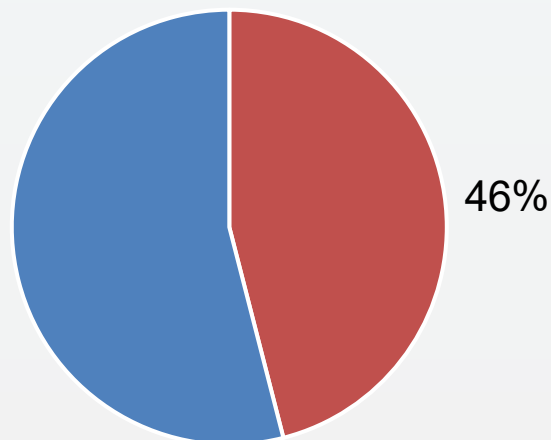
- URGs more often experience missed or delayed diagnosis of dementia than Whites.

Proportion of missed or delayed diagnoses of dementia in claims data by race/ethnicity (red = missed/delayed)

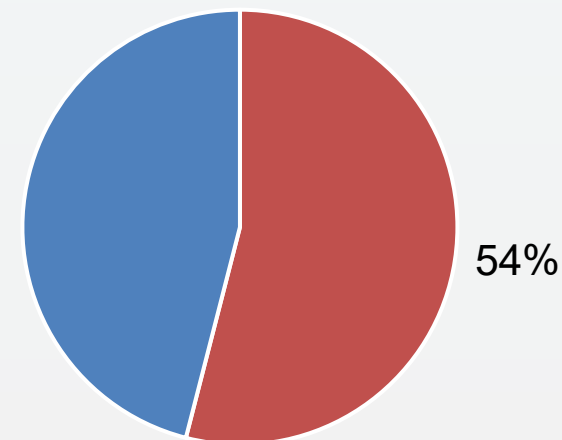
Non-Hispanic White



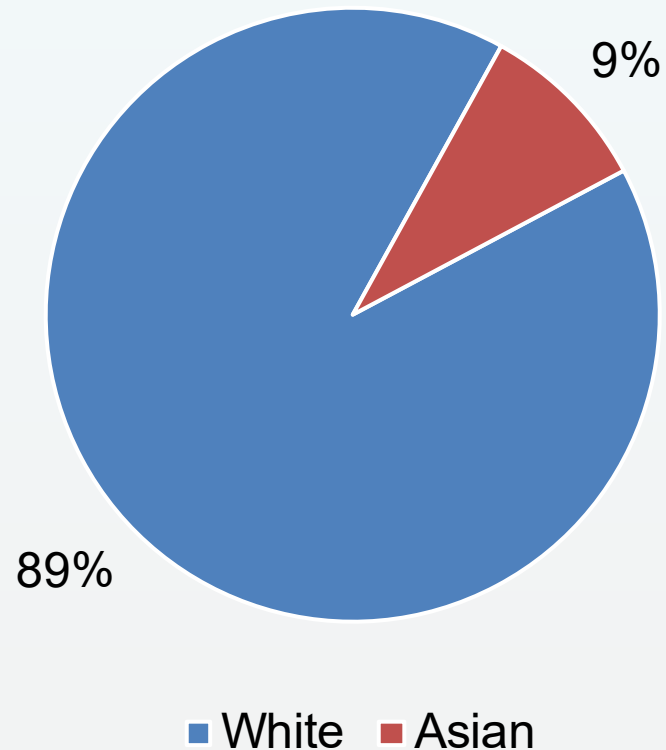
Non-Hispanic Black



Hispanic



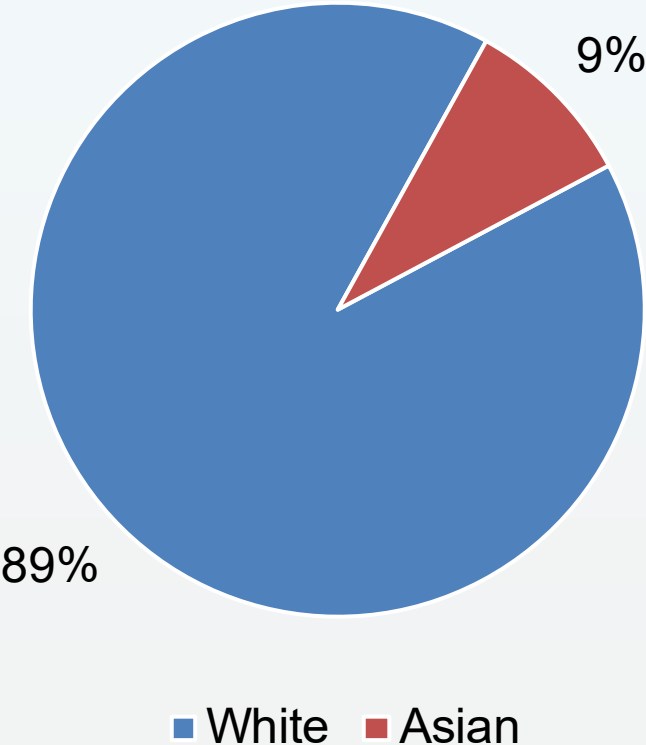
The Case of Aducanumab



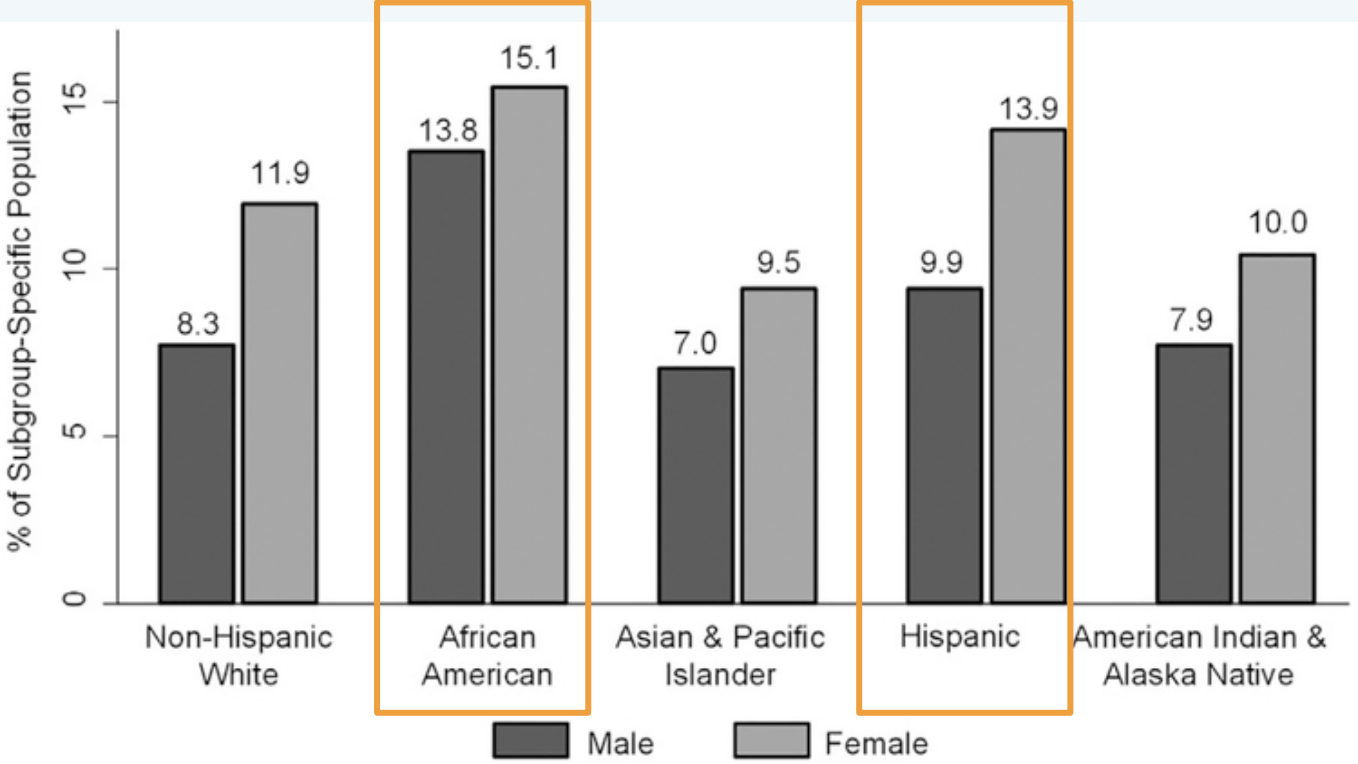
In Biogen's phase 3 trials, **89% of participants were White** and 9% were Asian.

Source: [November 6, 2020: Meeting of the Peripheral and Central Nervous System Drugs Advisory Committee Meeting Announcement - 11/06/2020 - 11/06/2020 | FDA](#)

The Case of Aducanumab



However, in the US population, Alzheimer’s prevalence **differs by race and ethnicity**.



Source: November 6, 2020: Meeting of the Peripheral and Central Nervous System Drugs Advisory Committee Meeting Announcement - 11/06/2020 - 11/06/2020 | FDA

Source: Matthews, K. A., Xu, W., Gaglioti, A. H., Holt, J. B., Croft, J. B., Mack, D., & McGuire, L. C. (2019). Racial and ethnic estimates of Alzheimer’s disease and related dementias in the United States (2015-2060) in adults aged ≥65 years. *Alzheimer’s & dementia : the journal of the Alzheimer’s Association*, 15(1), 17–24. <https://doi.org/10.1016/j.jalz.2018.06.3063>

The Case of Aducanumab

- **Increasing diversity in the scientific workforce** is essential in the drug development process to address the needs of underrepresented groups.

The Case of Aducanumab

- **Increasing diversity in the scientific workforce** is essential in the drug development process to address the needs of underrepresented groups.



B/AA, Hispanic, and Native-American physicians more likely than white physicians to practice in underserved communities (1).

1 - Kington R, Tisnado D, Carlisle DM. Increasing racial and ethnic diversity among physicians: an intervention to address health disparities? In Smedley BD, Stith AY, Colburn L, Evans CH, (eds.). *The Right Thing to Do, The Smart Thing to Do: Enhancing Diversity in the Health Professions*. Washington, DC: National Academy Press, 2001.

The Case of Aducanumab

- **Increasing diversity in the scientific workforce** is essential in the drug development process to address the needs of underrepresented groups.



B/AA, Hispanic, and Native-American physicians more likely than white physicians to practice in underserved communities (1).



Racial and ethnic minority patients who have a choice are more likely to select health care professionals of their own racial or ethnic background (2).

1 - Kington R, Tisnado D, Carlisle DM. Increasing racial and ethnic diversity among physicians: an intervention to address health disparities? In Smedley BD, Stith AY, Colburn L, Evans CH, (eds.). *The Right Thing to Do, The Smart Thing to Do: Enhancing Diversity in the Health Professions*. Washington, DC: National Academy Press, 2001.

2 - Saha S, Taggart SH, Komaromy M, Bindman AB. Do patients choose physicians of their own race? *Health Affairs*. 2000; 19: 76-83.



- Data regarding the impact of diversity
- The case of aducanumab
- **COSWD**
- UNITE
- Case example



GREAT MINDS THINK DIFFERENTLY

NIH Chief Officer for Scientific Workforce Diversity (COSWD) Strategic Plan



National Institutes of Health
Office of the Director
Chief Officer for Scientific Workforce Diversity

FISCAL YEARS

2022-2026

CHIEF OFFICER FOR SCIENTIFIC WORKFORCE DIVERSITY (COSWD)

VISION

To enable NIH and NIH-funded institutions to benefit from the nation's full range of talent and foster creativity and innovation in science.

CHIEF OFFICER FOR SCIENTIFIC WORKFORCE DIVERSITY (COSWD)

VISION

To enable NIH and NIH-funded institutions to benefit from the nation's full range of talent and foster creativity and innovation in science.

MISSION

To be the NIH thought leader in the science of scientific workforce diversity, using evidence-based approaches to catalyze cultures of inclusive excellence.




CHIEF OFFICER FOR SCIENTIFIC WORKFORCE DIVERSITY (COSWD)

VISION

To enable NIH and NIH-funded institutions to benefit from the nation's full range of talent and foster creativity and innovation in science.

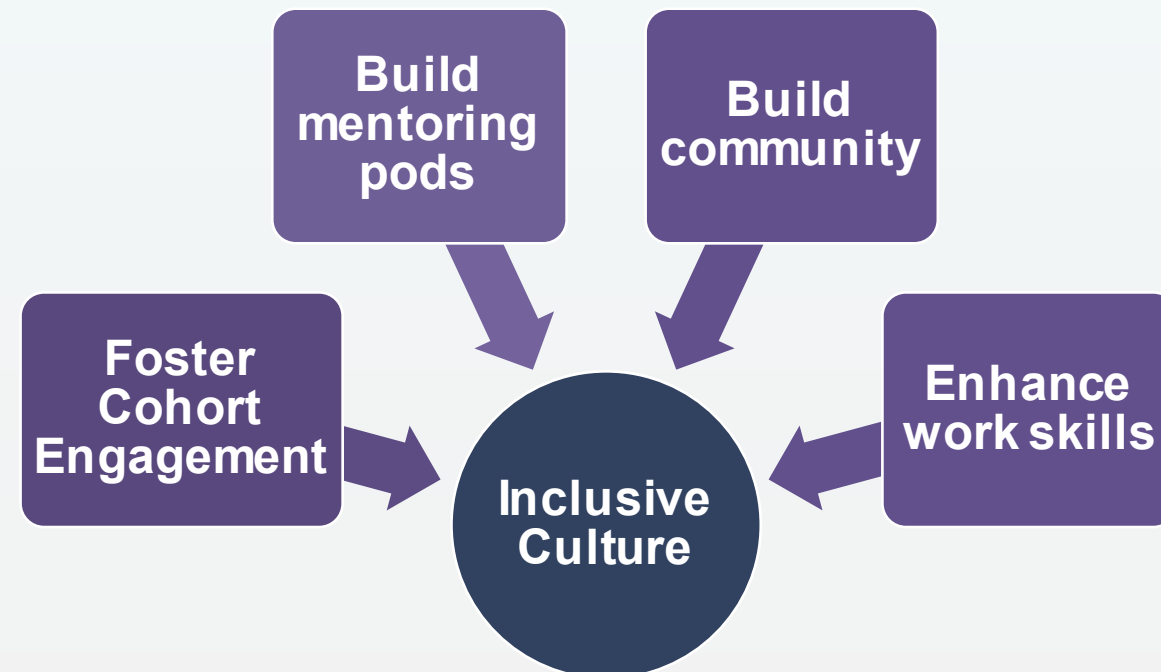
MISSION

To be the NIH thought leader in the science of scientific workforce diversity, using evidence-based approaches to catalyze cultures of inclusive excellence.

-  **BUILD** the evidence – using NIH as a test bed
-  **DISSEMINATE** the evidence – across the biomedical research workforce ecosystem
-  **ACT** on the evidence – by advancing integrated, institution-wide systems

21st Century Scholars Program

- Modeled after successful Distinguished Scholars Program, applied to extramural workforce
- Designed to build self-reinforcing culture of mentoring and support at NIH
- Focus on the science of scientific workforce diversity
- Inaugural cohort graduated September 21, 2022



HOW DO DIVERSITY SUPPLEMENTS IMPACT CAREER SUCCESS?

Thursday, November 17, 2022

1:30 –3:00 p.m. ET



Albert Avila,
PhD.,

Director, Office of
Diversity and Health
Disparities and
Deputy Director,
Office of Research
Training, NIDA, NIH



Jamelle Banks,
MPH,

Senior Health
Science Policy
Analyst, Office of
Planning, Analysis,
and Evaluation, NIA,
NIH



Dowin Boatright,
MD, MBA, MHS.,

Assistant Professor
Adjunct; Officer for
Diversity and
Inclusion,
Emergency
Medicine, Yale
University School of
Medicine



Ericka Boone,
PhD

Director, Division
of Biomedical
Research
Workforce, Office
of Extramural
Research, NIH



Michelle Jones-
London, PhD.,

Chief, Office of
Programs to
Enhance
Neuroscience
Workforce
Diversity, NINDS,
NIH



Jose Alejandro
Luchsinger, MD

Stuart Professor of
Medicine and
Epidemiology
Vice Chair for Clinical
and Epidemiological
Research
Columbia University
Irving Medical Center

CATALYZING RECOGNITION OF DEIA MENTORING

- **Notice of Special Interest (NOSI):
Administrative Supplements to Recognize
Excellence in Diversity, Equity, Inclusion, and
Accessibility (DEIA)**
 - Notice Number: NOT-OD-22-057
- Supplements to already funded research
- Prioritizing mentors who will enhance outreach to scientists in keeping with the NIH NOSI in diversity





- Data regarding the impact of diversity
- The case of aducanumab
- COSWD
- **UNITE**
- Case example

The NIH UNITE Initiative

Driven by events of 2020

- Disparate morbidity and mortality of the COVID-19 pandemic
- The murder of George Floyd
- Shortly after public unveiling, the killings of Asian women in Atlanta

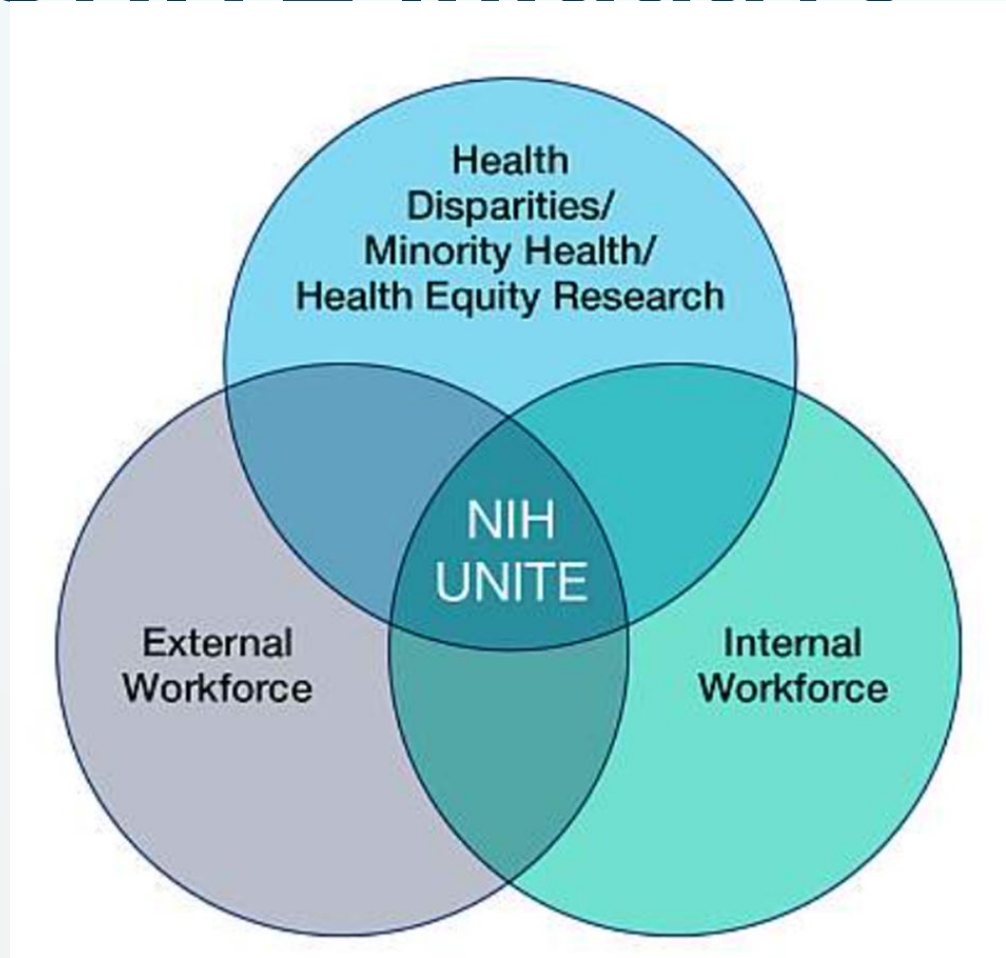


The NIH UNITE Initiative

- This brought into sharp relief the ongoing reality of **racial and ethnic injustice** in our country
- **We could not be silent.**
- We developed a **shared commitment to address structural racism** in the biomedical research enterprise.

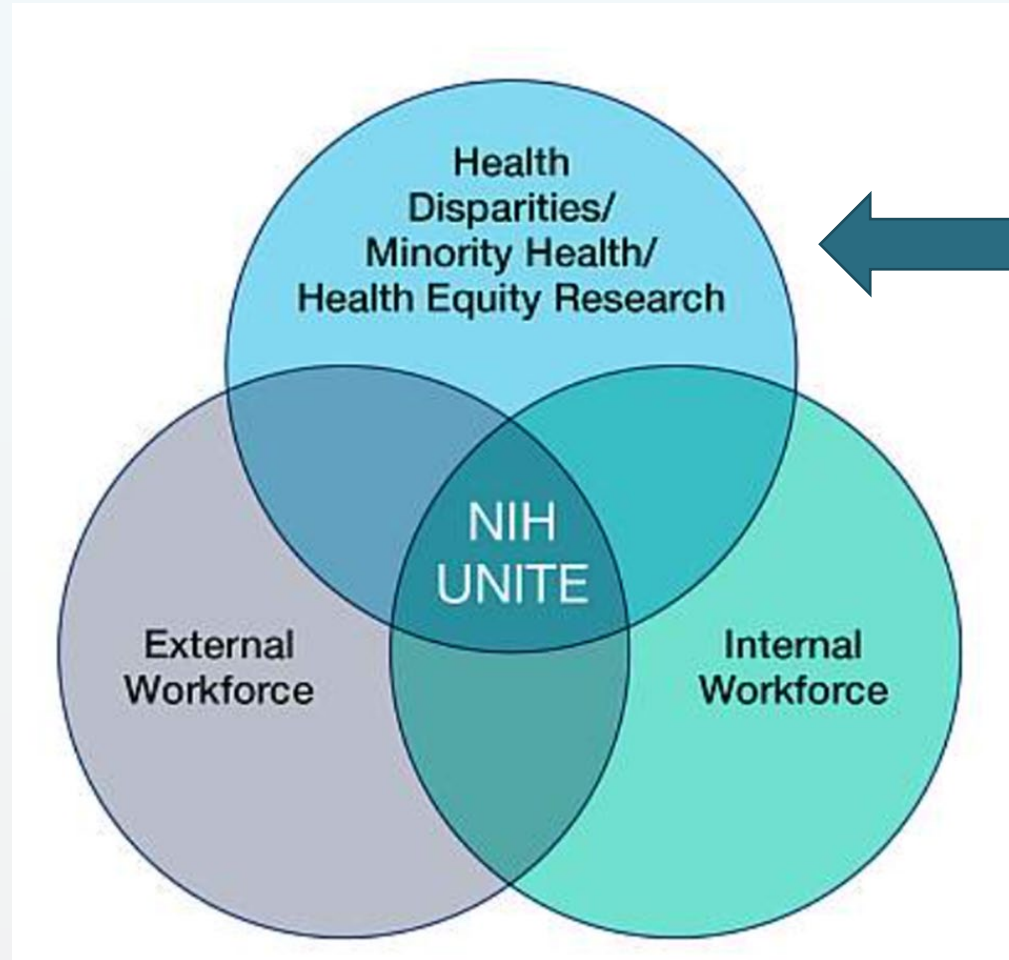


The NIH UNITE Initiative

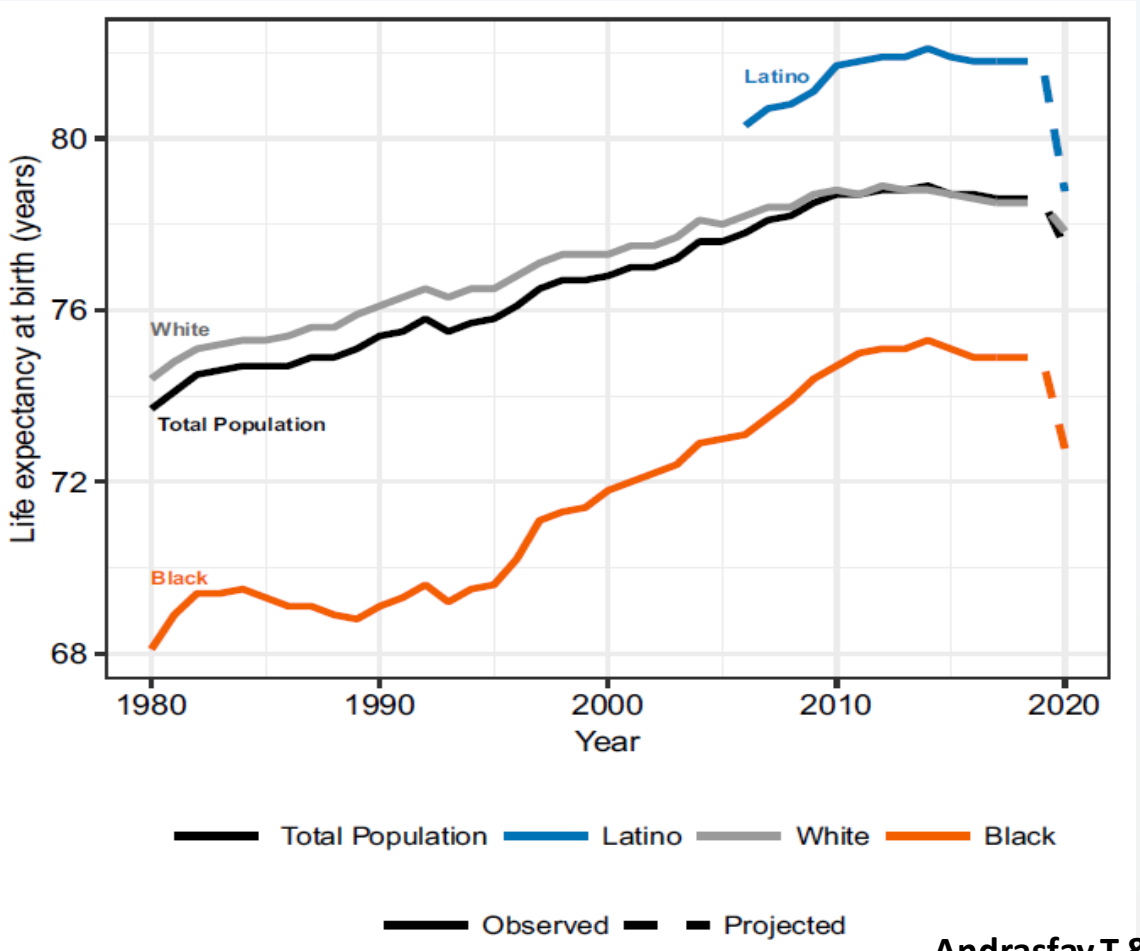


Bernard, MA Johnson AC, Hopkins-Laboy T, Tabak LA. Nature Medicine. [DOI: 10.1038/s41591-021-01532-1](https://doi.org/10.1038/s41591-021-01532-1) (2021)

The NIH UNITE Initiative

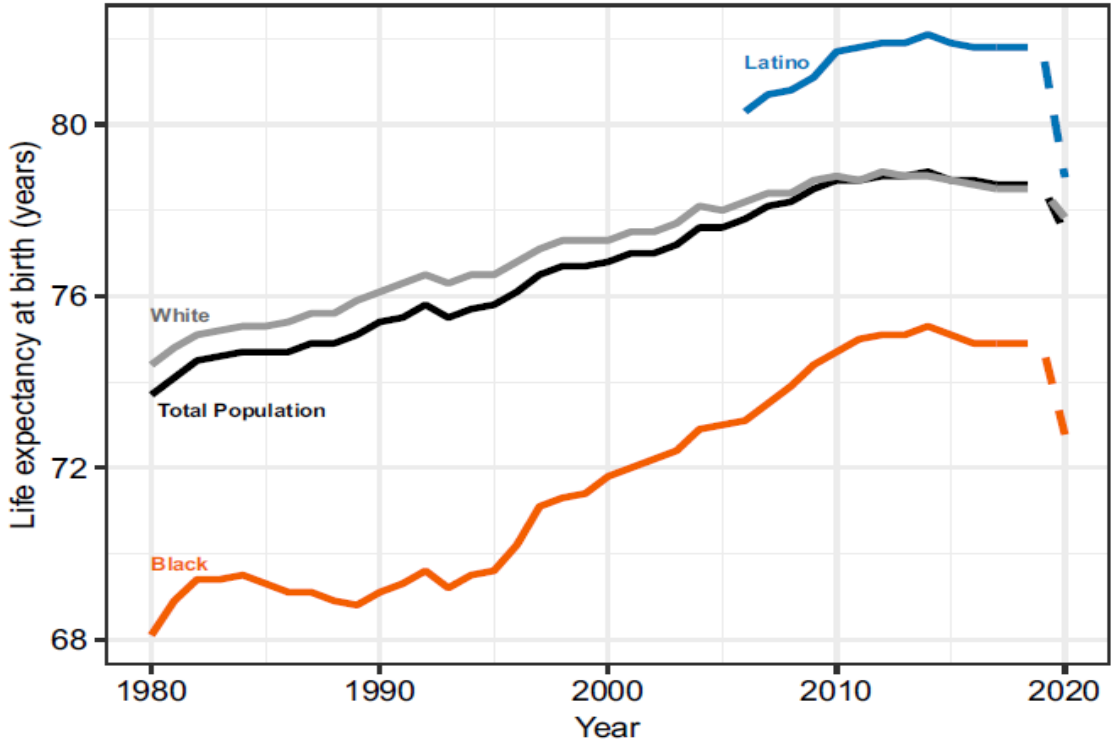


Reductions in U.S. Life Expectancy due to COVID-19



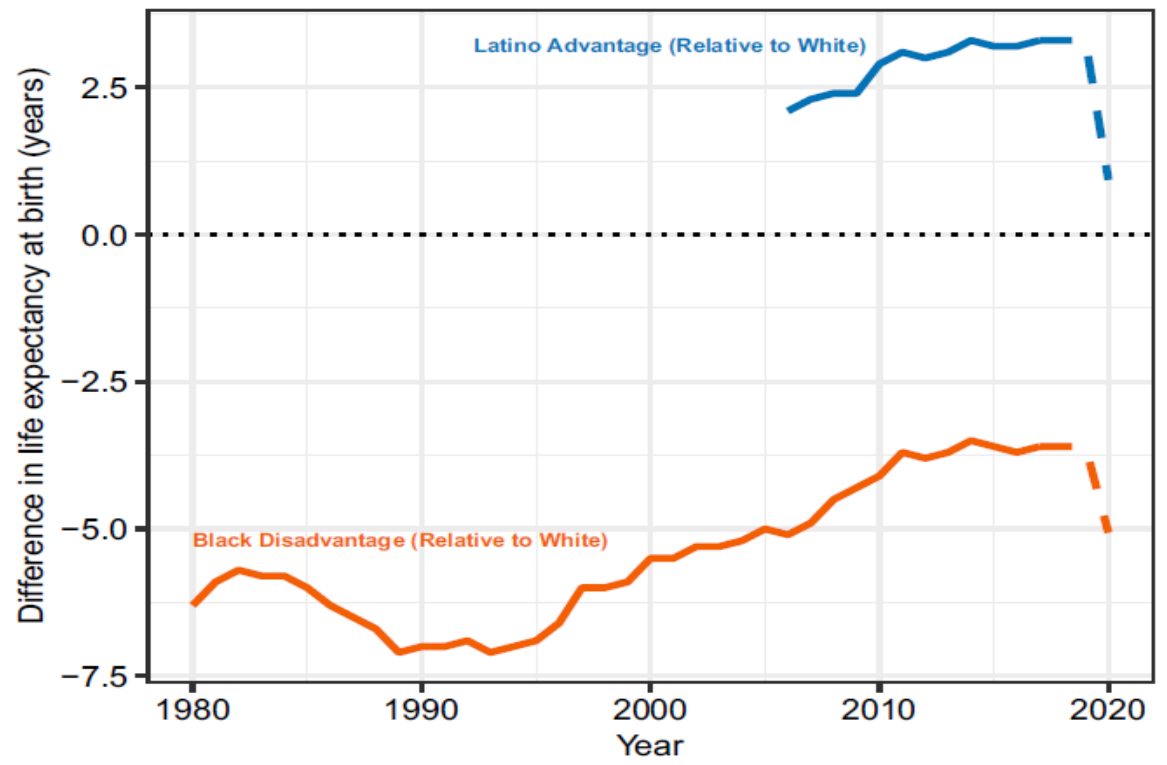
Andrasfay T & Goldman N PNAS 2021

Reductions in U.S. Life Expectancy due to COVID-19



— Total Population — Latino — White — Black

— Observed — Projected



— Latino-White — Black-White

— Observed — Projected

Andrasfay T & Goldman N PNAS 2021

Action



NIH Common Fund Transformative Research to Address Health Disparities and Advance Health Equity – Committed up to \$58M

Two FOAs released 3/26/21: **11 awards announced 10/13/21**

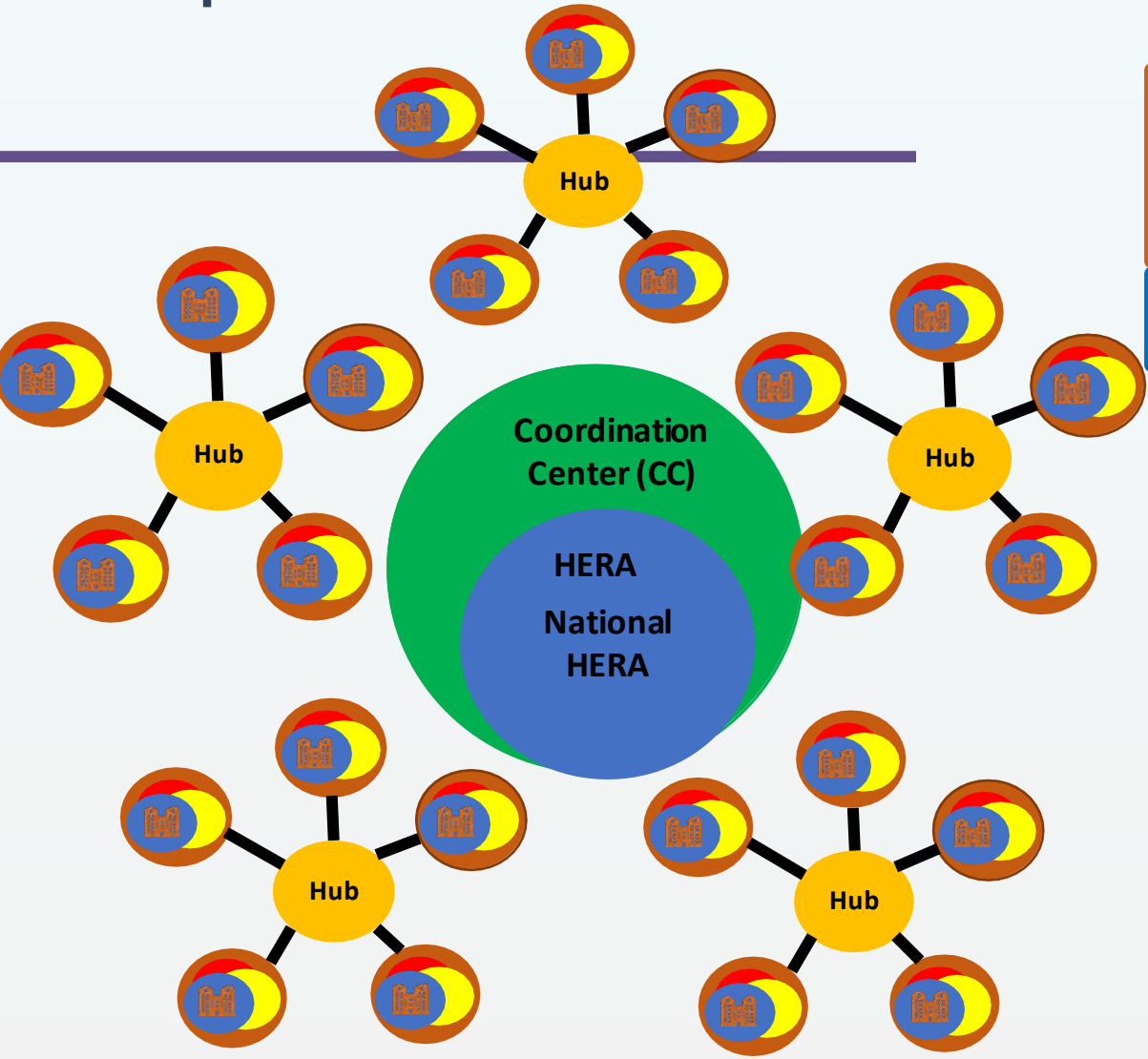
- 1) RFA-RM-21-021 Transformative Research to Address Health Disparities and Advance Health Equity (U01 Clinical Trial Allowed) – **6 awards**
- 2) RFA-RM-21-022 Transformative Research to Address Health Disparities and Advance Health Equity at Minority Serving Institutions (U01 Clinical Trial Allowed) - **5 awards; additional competition FY 22**

Community Partnerships to Advance Science for Society (ComPASS)

Lead ICOs: NIMH, NIMHD, NINR, ORWH, THRO

Working Group: CSR, NCI, NEI, NHGRI, NHLBI, NIA, NIAMS, NICHD, NIDA, NIDDK, NIEHS,
NIMH, NIMHD, NINDS, NINR, NLM, OBSSR, ODP, ORWH, SGRMO, THRO

Proposed ComPASS Initiatives



Community-Driven, Health Equity Structural Interventions

Local Health Equity Research Assembly (LocalHERA)

Coordination Center with

National Health Equity Research Assembly (NationalHERA)

Health Equity Research Hubs for Scientific Support and Partnership

Community Partnerships to Advance Science for Society (ComPASS)

FUNDING OPPORTUNITIES

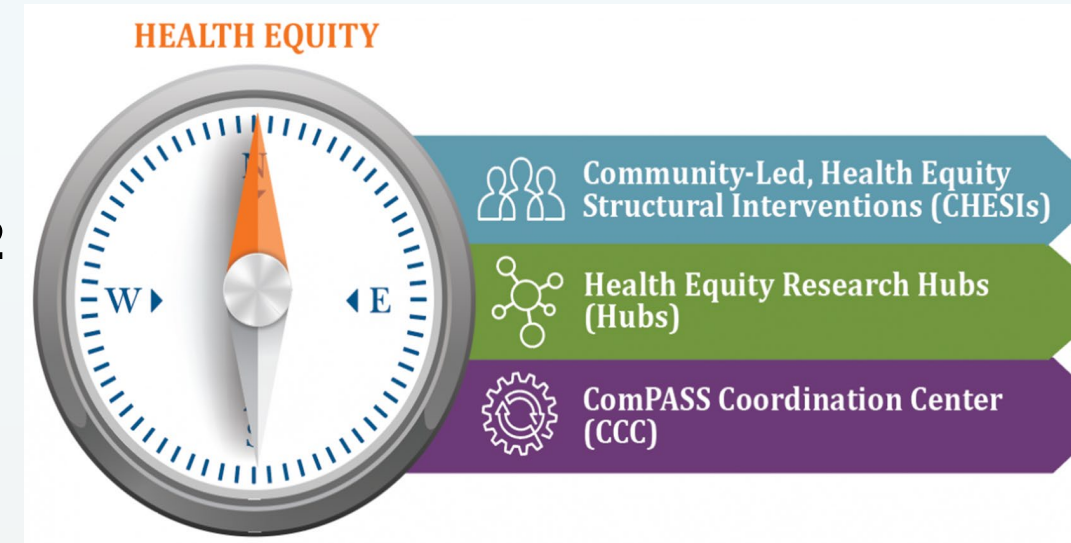
- [OTA-22-007](#): ComPASS Program: Community -Led, Health Equity Structural Interventions Initiative
 - **Required Letter of Intent Due: November 18, 2022**



Community Partnerships to Advance Science for Society (ComPASS)

FUNDING OPPORTUNITIES

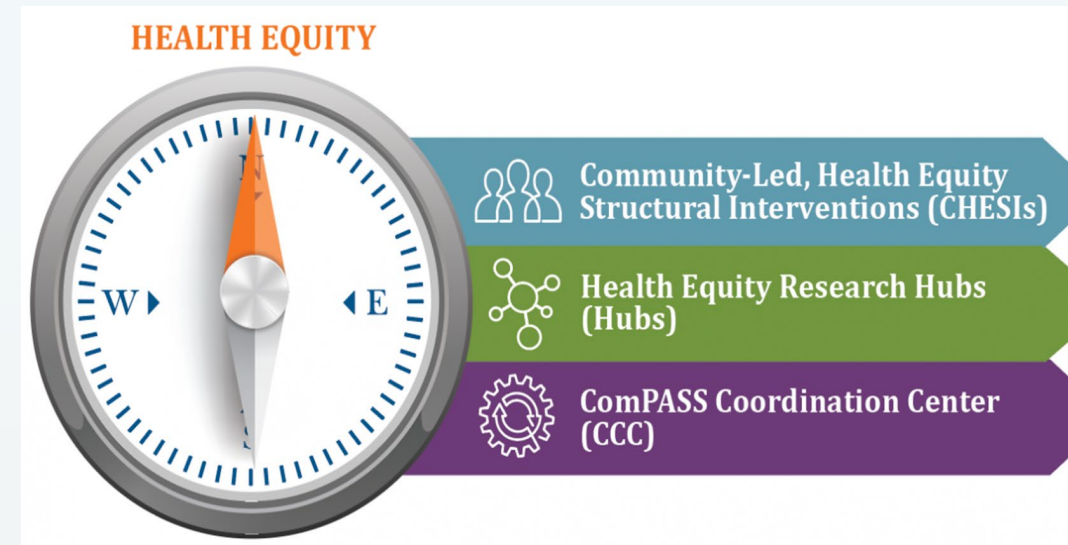
- [OTA-22-007](#): ComPASS Program: Community -Led, Health Equity Structural Interventions Initiative
 - **Required Letter of Intent Due: November 18, 2022**
- [RFA-RM-23-001](#): Community Partnerships to Advance Science for Society (ComPASS): Coordination Center (U24 - Clinical Trial Optional)
 - **Application Due: January 27, 2023**



Community Partnerships to Advance Science for Society (ComPASS)

FUNDING OPPORTUNITIES

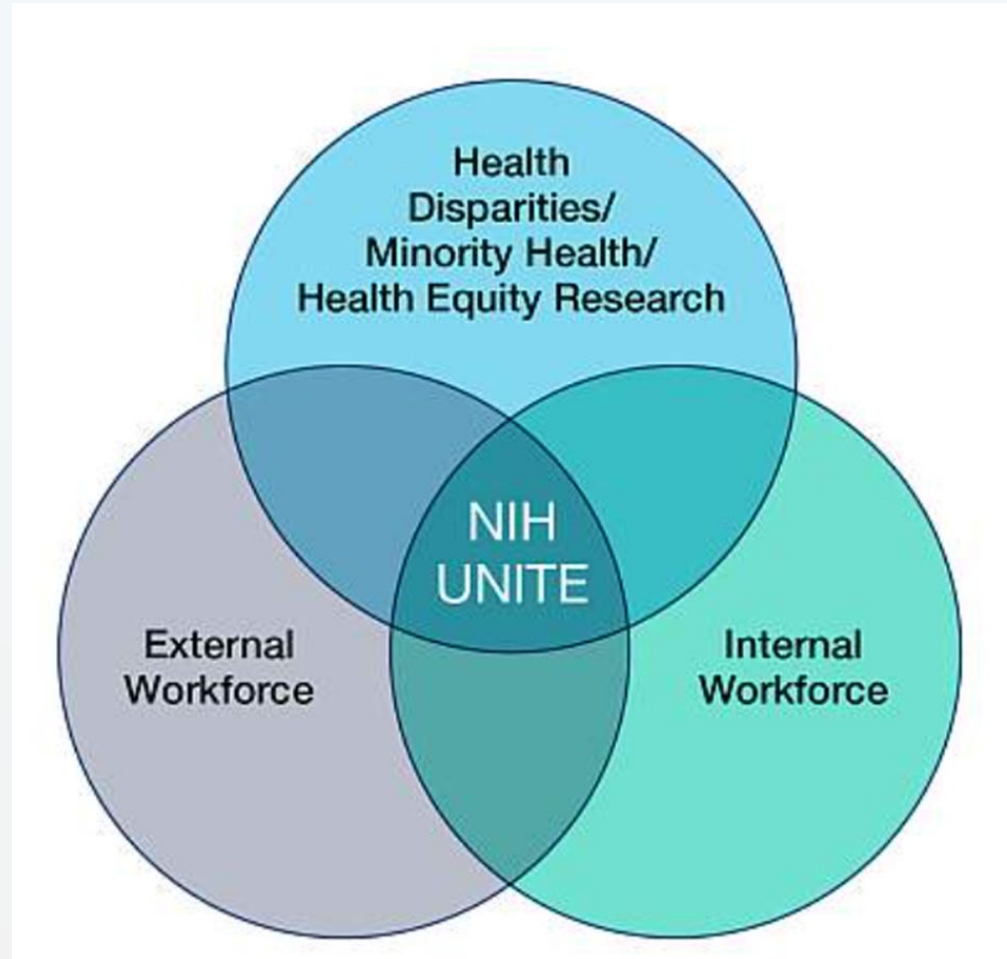
- [OTA-22-007](#): ComPASS Program: Community -Led, Health Equity Structural Interventions Initiative
 - **Required Letter of Intent Due: November 18, 2022**
- [RFA-RM-23-001](#): Community Partnerships to Advance Science for Society (ComPASS): Coordination Center (U24 - Clinical Trial Optional)
 - **Application Due: January 27, 2023**



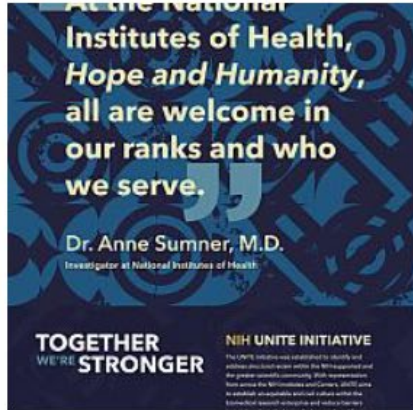
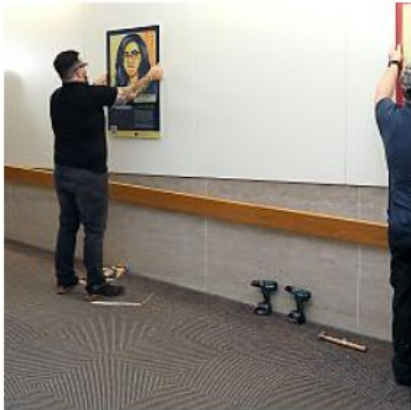
ComPASS RESOURCES

- 
- ComPASS Website: <https://commonfund.nih.gov/compass>
 - Registration for Pre-Application ComPASS Coordination Center [Webinar](#)
 - Registration for Community-Led Health Equity Structural Intervention Initiatives Office Hours: <https://commonfund.nih.gov/compass/meetings>
 - ComPASS Frequently Asked Questions: <https://commonfund.nih.gov/compass/faqs>

The NIH UNITE Initiative

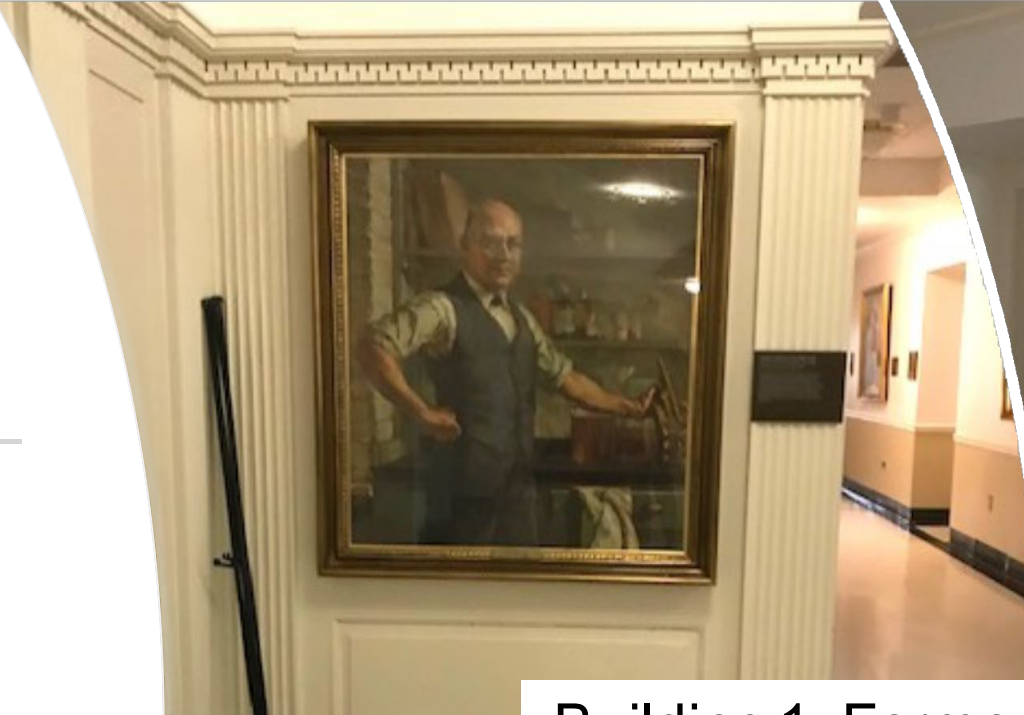


Power of an Inclusive Workforce Recognition Project

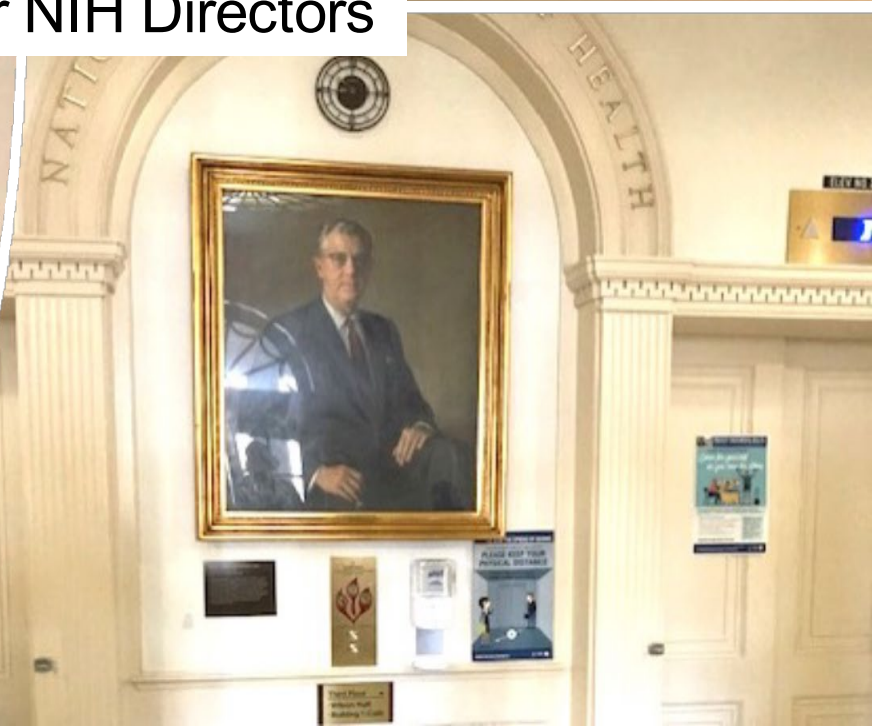


<https://www.statnews.com/2022/04/11/the-power-of-inclusion-overturning-the-white-wall-standard/>

The Power of an Inclusive Workplace Recognition Project:



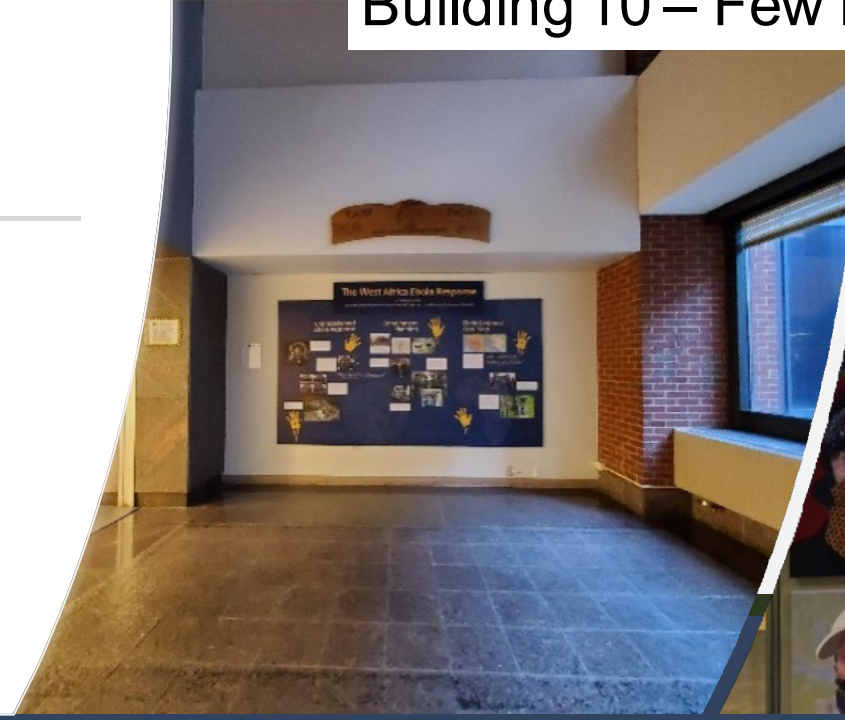
Building 1: Former NIH Directors

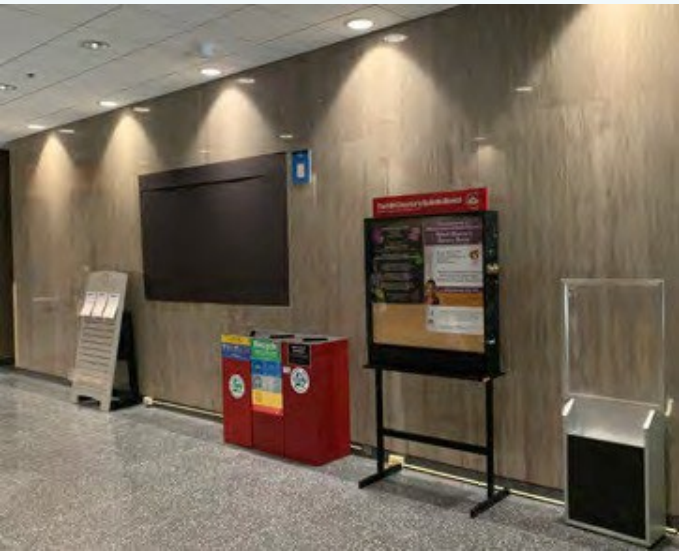


The Power of an Inclusive Workplace Recognition Project:



Building 10 – Few Diverse Exhibits





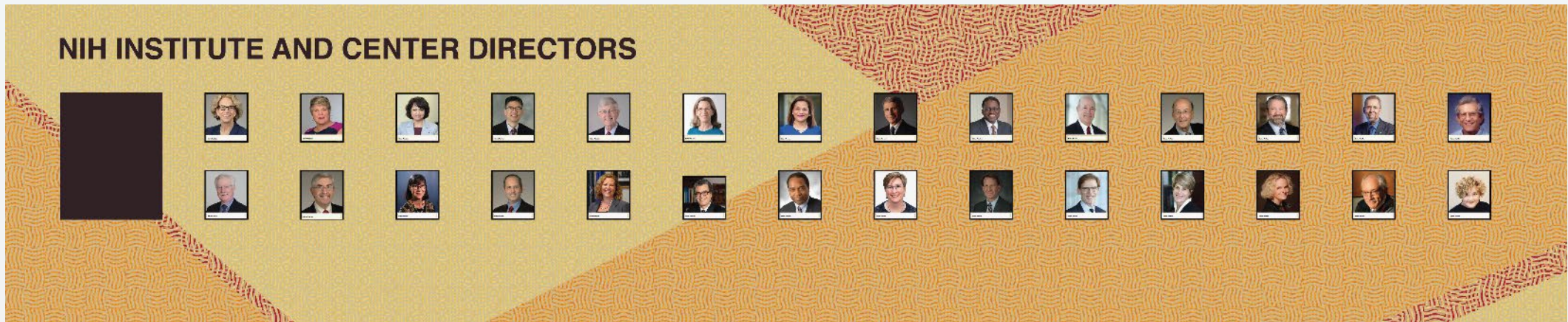
Before



After



After with Recognition



The Power of an Inclusive Workplace Recognition Project:

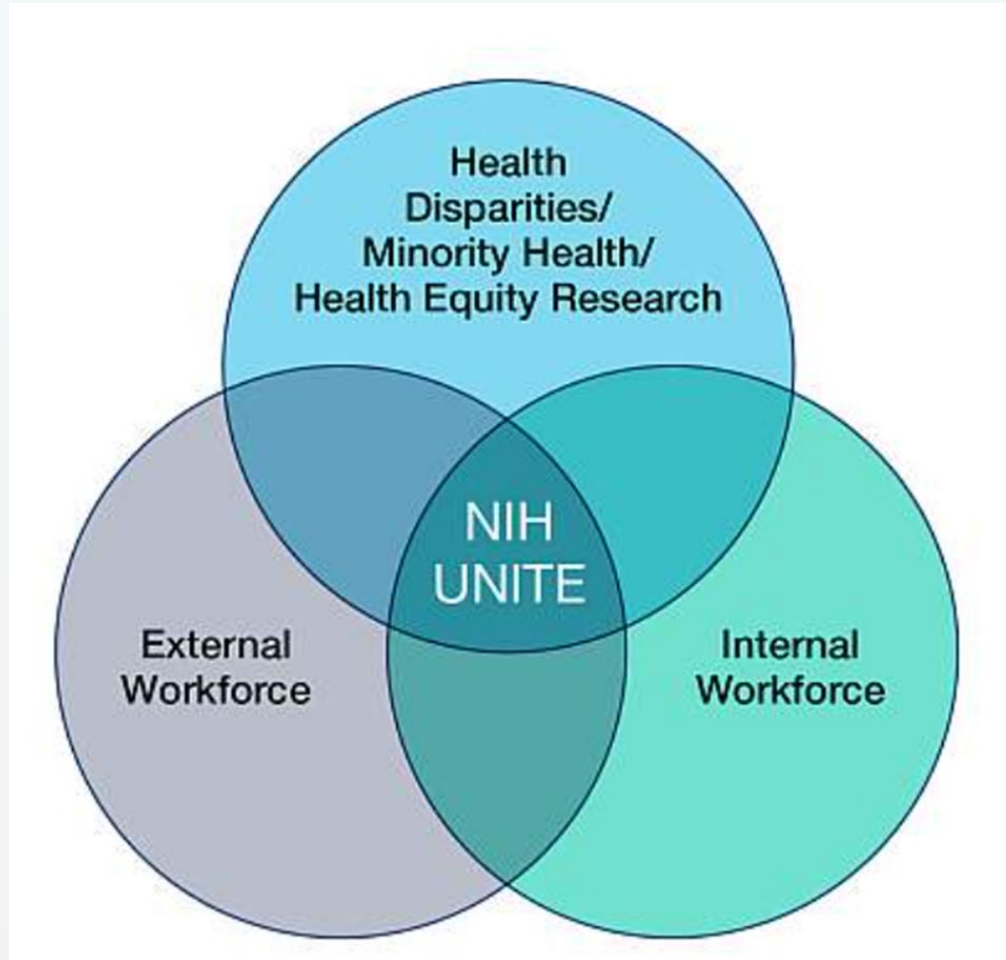
Buildings 31 and 1

Power of an Inclusive Workforce Recognition Project



The Power of an Inclusive Workplace Recognition Project:
Buildings 31

The NIH UNITE Initiative



INCLUSIVE EXCELLENCE BEST PRACTICES: DISTINGUISHED SCHOLARS PROGRAM (DSP)

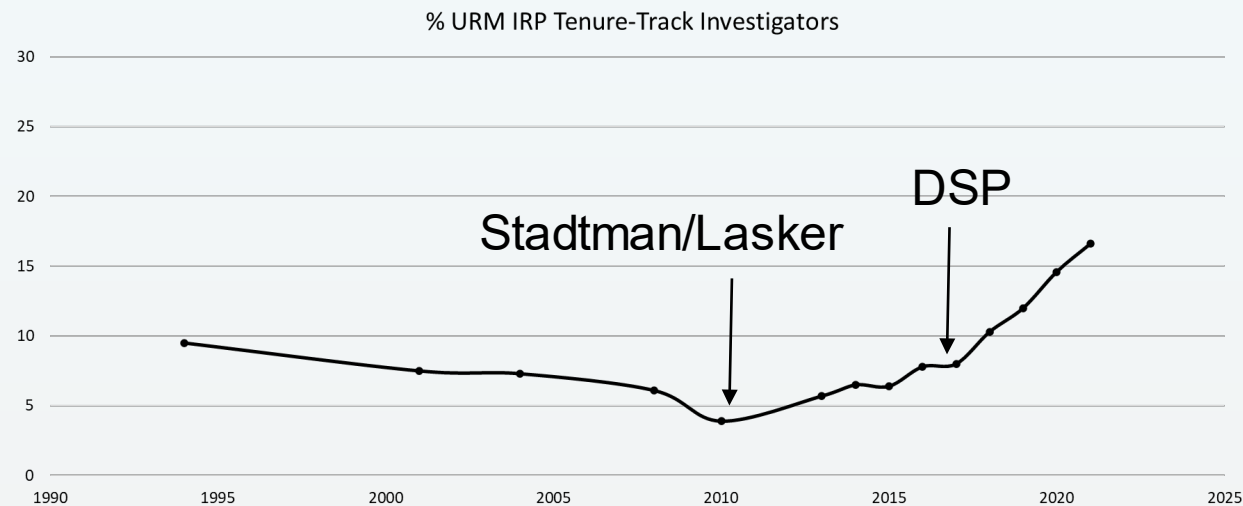
- Built upon the Stadtman and Lasker investigator programs
- Self-reinforcing community of PIs devoted to diversity and inclusion



URM=Underrepresented minority (Black, Hispanic [any race], American Indian, Alaska/Hawaii natives);

Source: [OIR](#)

INCLUSIVE EXCELLENCE BEST PRACTICES: DISTINGUISHED SCHOLARS PROGRAM (DSP)



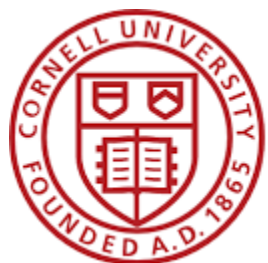
URM=Underrepresented minority (Black, Hispanic [any race], American Indian, Alaska/Hawaii natives);

Source: [OIR](#)

FACULTY INSTITUTIONAL RECRUITMENT FOR SUSTAINABLE TRANSFORMATION (FIRST)

- **Overarching Goal** - Create cultures of inclusive excellence
- **Program Objectives**
 - Faculty cohort model for hiring, multi-level mentoring, professional development
 - Integrated, institution-wide systems to address bias, faculty equity, mentoring, and work/life issues
- **Estimated Funds: \$241 M over 9 yrs from NIH Common Fund**

INSTITUTIONAL CULTURE CHANGE: INITIAL FIRST COHORTS – 6 COHORTS INVOLVING 7 UNIVERSITIES



Cornell University.



SAN DIEGO STATE
UNIVERSITY



TUSKEGEE
UNIVERSITY



Icahn
School of
Medicine at
Mount
Sinai



THE UNIVERSITY OF
ALABAMA AT BIRMINGHAM



INSTITUTIONAL CULTURE CHANGE – FY 22 Cohorts



Northwestern
University



UNIVERSITY OF
MARYLAND

UNIVERSITY of MARYLAND
BALTIMORE



THE UNIVERSITY OF
NEW MEXICO.



UNIVERSITY OF
South Carolina

UC San Diego

INSTITUTIONAL CULTURE CHANGE: FIRST COORDINATION AND EVALUATION CENTER



Supporting a Safe and Respectful Workplace at Institutions that Receive NIH Funding



<https://grants.nih.gov/grants/policy/harassment.htm>.

Priorities for the External Workforce

- Science Education Partnership Awards (SEPA) – 17 ICOs signed on

Concepts approved by NIGMS Council:

- Institutional Climate Assessment and DEI Action Plan Development Grants
- Excellence in DEIA Investigator's Grants
- Instrumentation Grant Program for Minority-Serving Institutions

Concept approved by NIMHD Council:

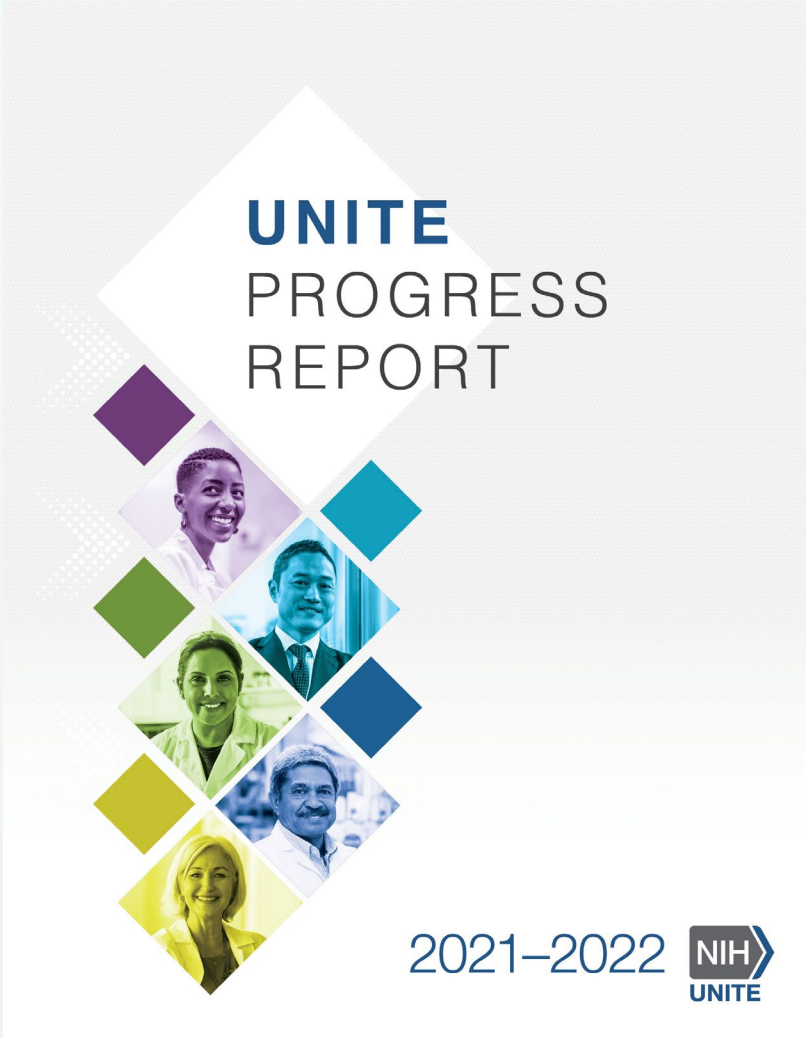
- Institutional Research Capacity Building Needs Assessment and Action Plan Development Grants

NIH Development of a Prize Competition for Institutional Excellence in Diversity, Equity, Inclusion, and Accessibility (DEIA)

- To acknowledge transformative cultures, systems, projects, and processes that institutions of higher education have developed to achieve inclusive excellence.
- To highlight practices that have resulted in measurable change and created a more inclusive environment for students and faculty.
- Anticipate announcement of the competition late fall/winter 22/23



UNITE Progress Report





- Data regarding the impact of diversity
- The case of aducanumab
- COSWD
- UNITE
- **Case example**

Case Example



Cristal M Hill, PhD.
Postdoctoral Researcher
Neurosignaling
Adipocyte Biology
Pennington Biomedical Research Center
Louisiana State University

- MOSAIC K99/R00 – 2021
- Future Research Leaders Conference (FRLC) - 2019
- NIDDK Network of Minority Health Research Investigators (NMRI) 2017- present
- NRSA (F32-NIDDK) - 2017
- R01 diversity supplement – 2016
- BW Scholars – 2015
- NIA Technical Assistance Workshop - 2010

Case Example





- Data regarding the impact of diversity
- The case of aducanumab
- COSWD
- UNITE
- Case example






TRUE OR FALSE

- Scientific workforce diversity is an issue of justice
- Workforce diversity is associated with creativity and innovation
- Mentoring is critical to scientific progress and is compensated
- NIH does not fund community-based research
- NIH intends to provide a prize for institutional DEIA excellence



GREAT MINDS THINK DIFFERENTLY

CONTACT US

-  Check out our website diversity.nih.gov
-  Sign up for our [quarterly newsletter](#) and visit our [COSWD blog](#) for twice monthly updates
-  Follow us on [Twitter @NIH_COSWD](#)
-  Follow us on [LinkedIn @NIH Chief Officer for Scientific Workforce Diversity](#)
-  Email us at SWD_Talks@nih.gov



National Institutes of Health

Office of the Director

Chief Officer for Scientific Workforce Diversity