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# Diversity Genomes Research Center Concept

May Council

May 16-17, 2022

Ebony Madden and Lorjetta Schools



National Human Genome  
Research Institute

—  
The **Forefront**  
of **Genomics**<sup>®</sup>  
—

# 2020 Strategic Vision and Action Agenda

## Box 1

### Guiding principles and values for human genomics

- **Maintain an overarching focus on using genomics to understand biology, to enhance knowledge about disease, and to improve human health** — genomics is now foundational across the entire continuum of biomedical research, from deciphering fundamental principles of biology to translating that knowledge into disease prevention and medical advances.
- **Strive for global diversity in all aspects of genomics research, committing to the systematic inclusion of ancestrally diverse and underrepresented individuals in major genomic studies** — attention to diversity in genomics research is both socially just and scientifically essential, which includes meaningful, sustained partnerships with diverse communities in the design and implementation of research studies, the propagation of research findings, and the development and use of new technologies.
- **Maximize the usability of genomics for all members of the public, including the ability to access genomics in healthcare** — engagement, inclusion, and understanding the needs of diverse and medically underserved groups are required to ensure that all members of society benefit equitably from genomic advances, with particular attention given to the equitable use of genomics in healthcare that avoids exacerbating and strives towards reducing health disparities.
- **Champion a diverse genomics workforce** — the promise of genomics cannot be fully achieved without attracting, developing, and retaining a diverse workforce, which includes individuals from groups that are currently underrepresented in the genomics enterprise.
- **Provide a conceptual research framing that consistently examines the role of both genomic and non-genomic contributors to health and disease** — routinely considering the

importance of social and environmental factors that influence human health (and the interactions among those components and genomics) will be important for the comprehensive understanding of most human diseases.



- **Promote robust and consistently applied standards in genomics research** — the use of carefully defined standards (for example, those for generating, analysing, storing, and sharing data) has benefited genomics in numerous ways, and this must include appropriate privacy and data-security protections for those participating in genomics research.
- **Embrace the interdisciplinary and team-oriented nature of genomics research** — starting with the Human Genome Project, some of the most challenging genomics endeavours have benefited from the creation and management of large, interdisciplinary research collaborations.
- **Adhere to the highest expectations and requirements related to open science, responsible data sharing, and rigor and reproducibility in genomics research** — the genomics enterprise has a well-respected history of leading in these areas, and that commitment must be built upon and continually reaffirmed.
- **Pursue advances in genomics as part of a vibrant global community of genomics researchers and funders** — the challenges in genomics require the collective energies and creativity of a collaborative international ecosystem that includes partnerships among researchers, funders, and other stakeholders from academia, government, and the commercial sector.



CONSENSUS STUDY REPORT

# MINORITY SERVING INSTITUTIONS

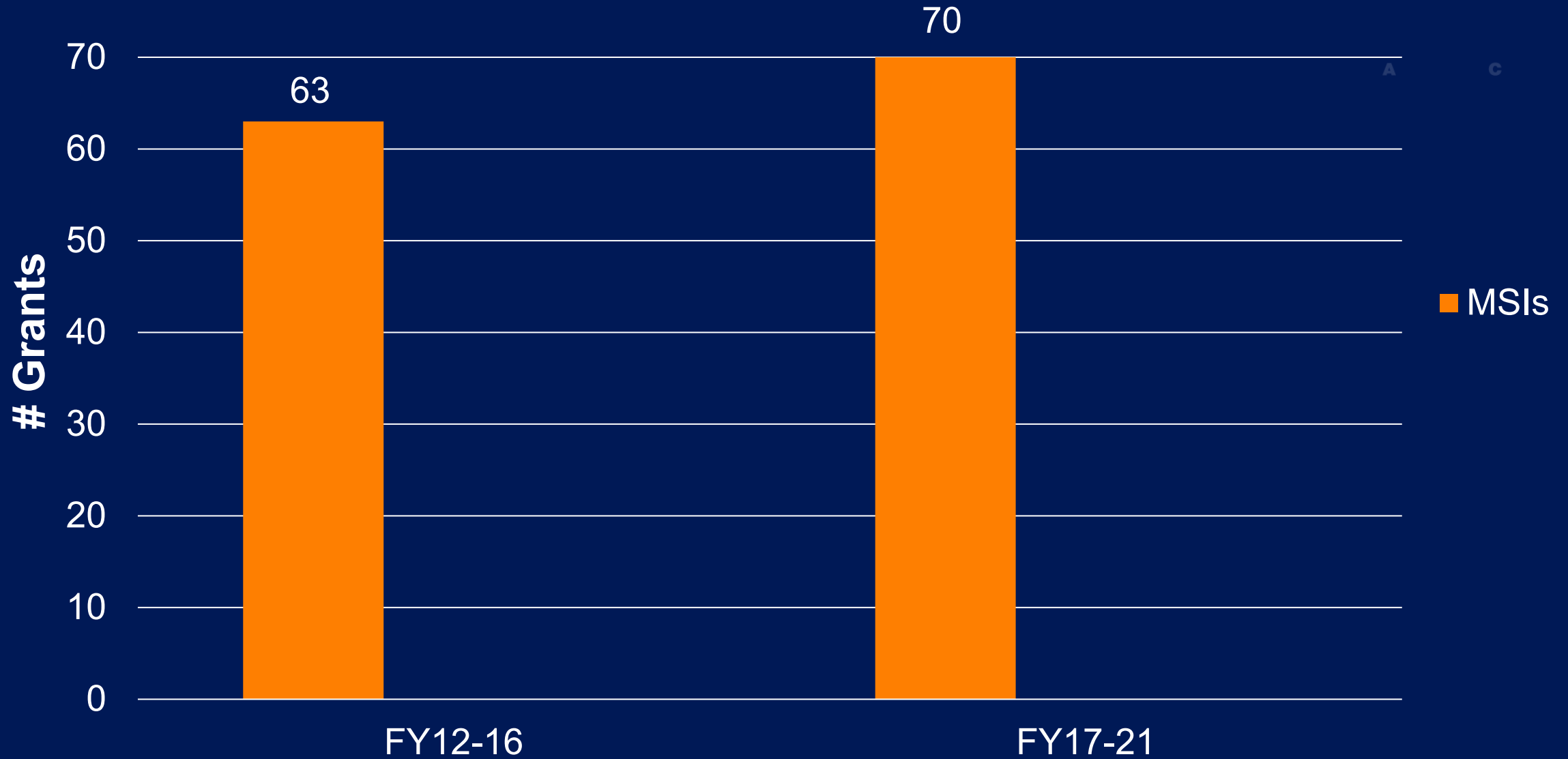
America's Underutilized Resource for  
Strengthening the STEM Workforce



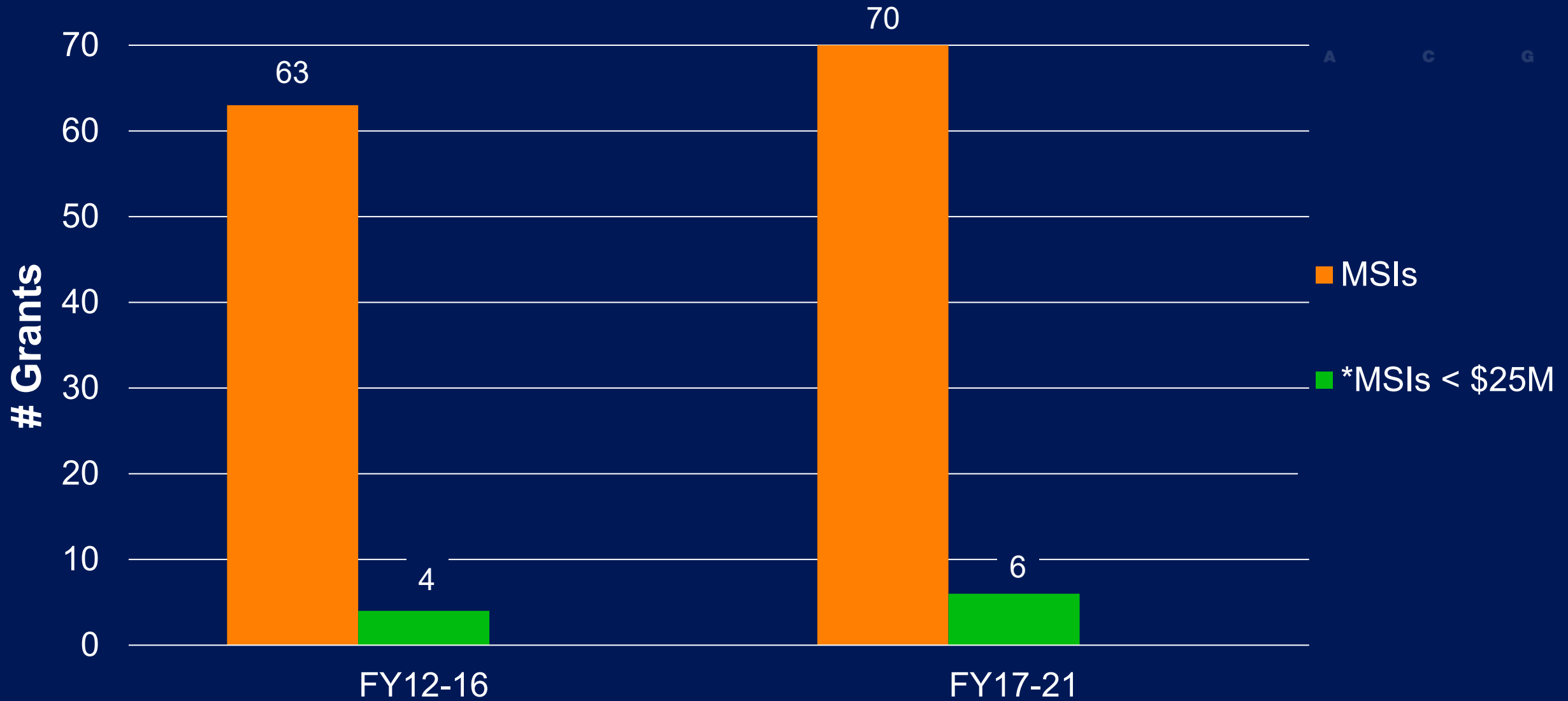
## Background

- Genomics workforce is not a reflection of the US population
- Diverse investigators bring innovative ideas and increase objectivity in research
- MSIs award 25% of all science PhDs, MDs, and health profession degrees to Black and Hispanic students each year
- NHGRI does not have a strong track record of funding MSIs

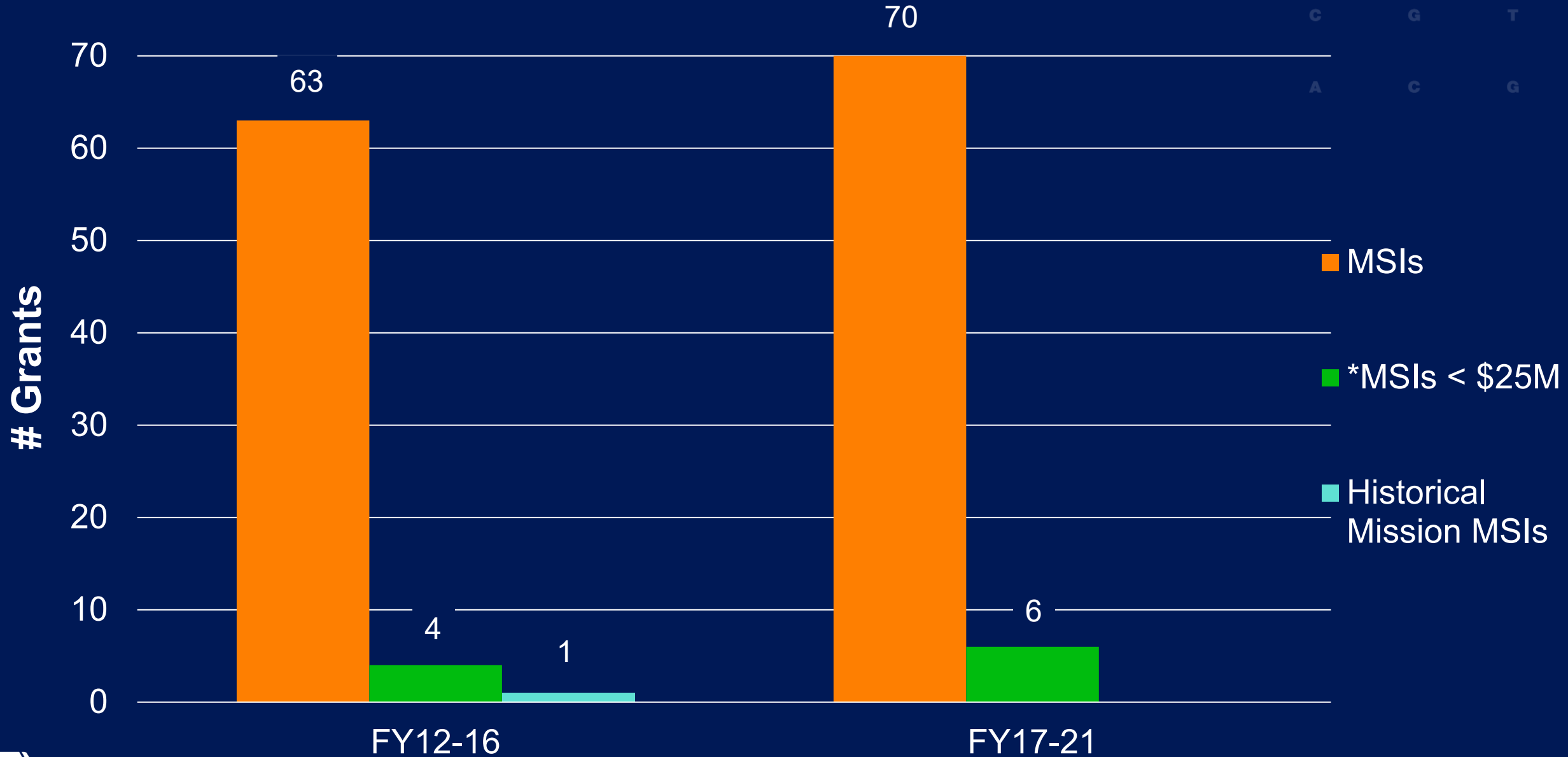
# NHGRI Grants Funded at MSIs in the Last 10 Years



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\*Grants at terminal degree granting MSIs receiving less than \$25M in RPG funding in last 3 fiscal years

# Diversity Genome Research Centers Concept

## SUPPORT

Development of innovative genomic research projects  
Formation of interdisciplinary research teams  
Infrastructure building

## ENHANCE

Research capacity for a diverse genomic workforce

## INCREASE

Access to diverse populations in genomics research

# Scope and Objectives

- Increase diversity in the genomics research workforce by supporting genomic research infrastructure enhancement;
- Enable the formation of interdisciplinary research teams; and
- Facilitate cutting-edge genomic research at MSIs with a mission to serve historically underrepresented populations
- Centers will develop **2-3 interrelated research projects** that will address critical issues in genomics
- Research experiences and capacity building opportunities within each project



# Genomic Research Areas

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- Genomic technology and methods development
- Genome structure
- Genome function
- Genomics of disease
- Use and impact of genomic information in clinical care
- Ethical, legal, and social implications of genomic research
- Computational genomics

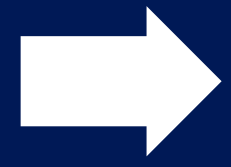
# Diversity Genome Research Centers

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Potential MSI applicants



More developed genomic capacity & infrastructure

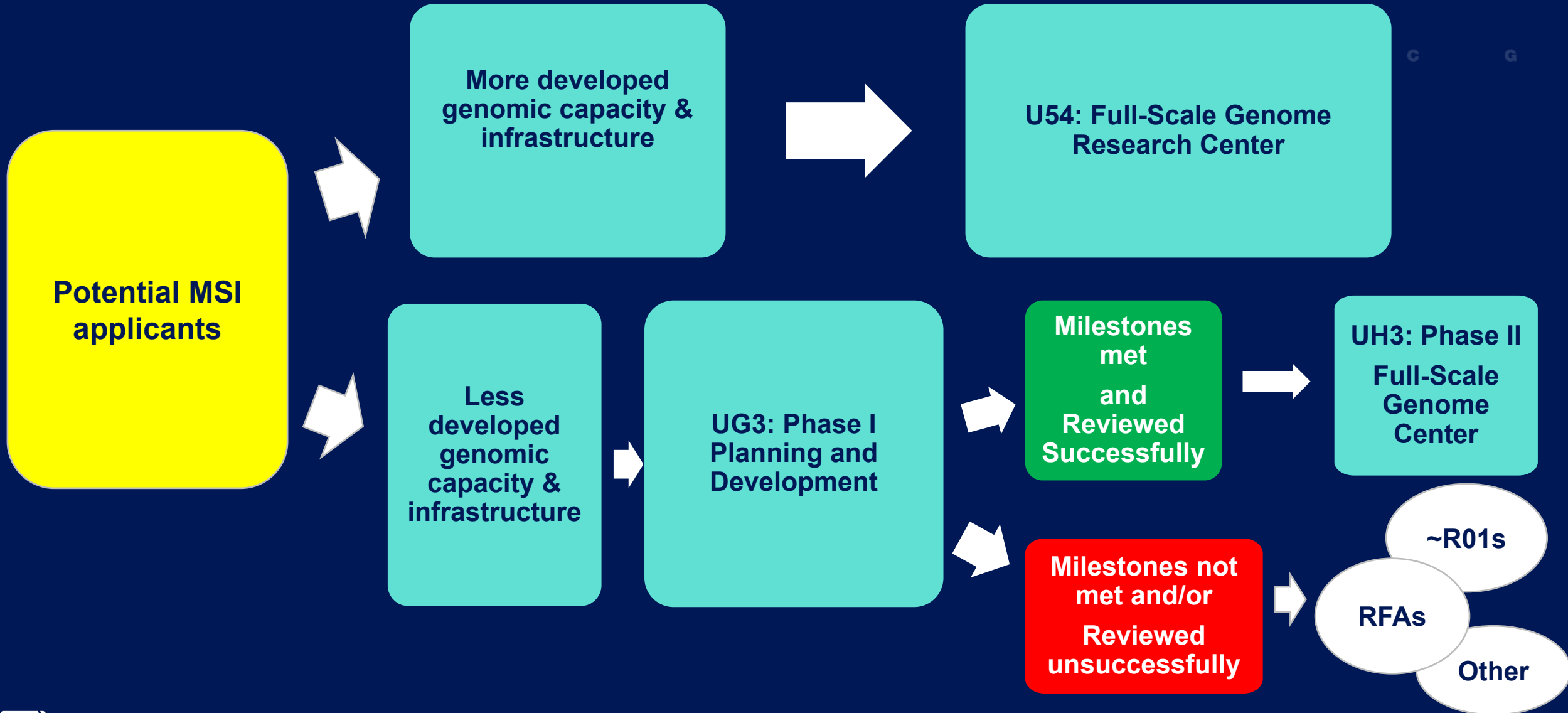


U54: Full-Scale Genome Research Center

# U54 FOA: Full-Scale Genome Research Centers

- Centers include cores for:
  - Administration
  - Research capacity
  - Community engagement
- Cores structured around the 2-3 genomic research projects
- MSI will need to be the lead for cores and projects
- Up to 5 years total

# Diversity Genome Research Centers



# UG3/UH3 FOA: Phased Approach to Full-scale Diversity Genome Research Center

## Phase I (1-3 years):

- Develop plans for full-scale genomic research center
- Formulate protocols, procedures and equipment needs
- Recruit staff
- Identify and provide solutions for any logistical problems
- Test protocols and procedures

## Phase II (4-5 years):

- Implement the plans developed during Phase I
- Need to operate at full-scale by second year of Phase II

\*There will be clear criteria and metrics of success to assess the Centers ability to become full-scale. If the awardee does not achieve Phase II funding, the planning and capacity building will help investigators compete for R01 or equivalent awards. Total project period 7 years.

# Collaborations

- Collaborations with research-intensive institutions and industry can be included
- 70% of the budget will need to go to the lead MSI
- Collaborations required within the Research Center and encouraged between Centers in the consortium and other NHGRI Consortia
- Collaborations must provide the complete capacity needed to carry out the genomic research projects and the didactic and practicum experiences
- Consortium meetings twice per year

# Successful Diversity Genome Research Centers



Carry out innovative genomic research studies



Enhance institutional genomic research capacity



Enable investigators to become successful in obtaining competitive extramural support for genomic research



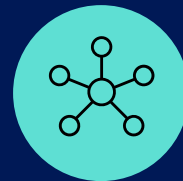
Foster research career development and enhancement for students and investigators



Enhance the genomic infrastructure, computational and/or analytical capability within their institutions



Establish sustainable partnerships with relevant stakeholders to increase collaboration



Disseminate resources and findings

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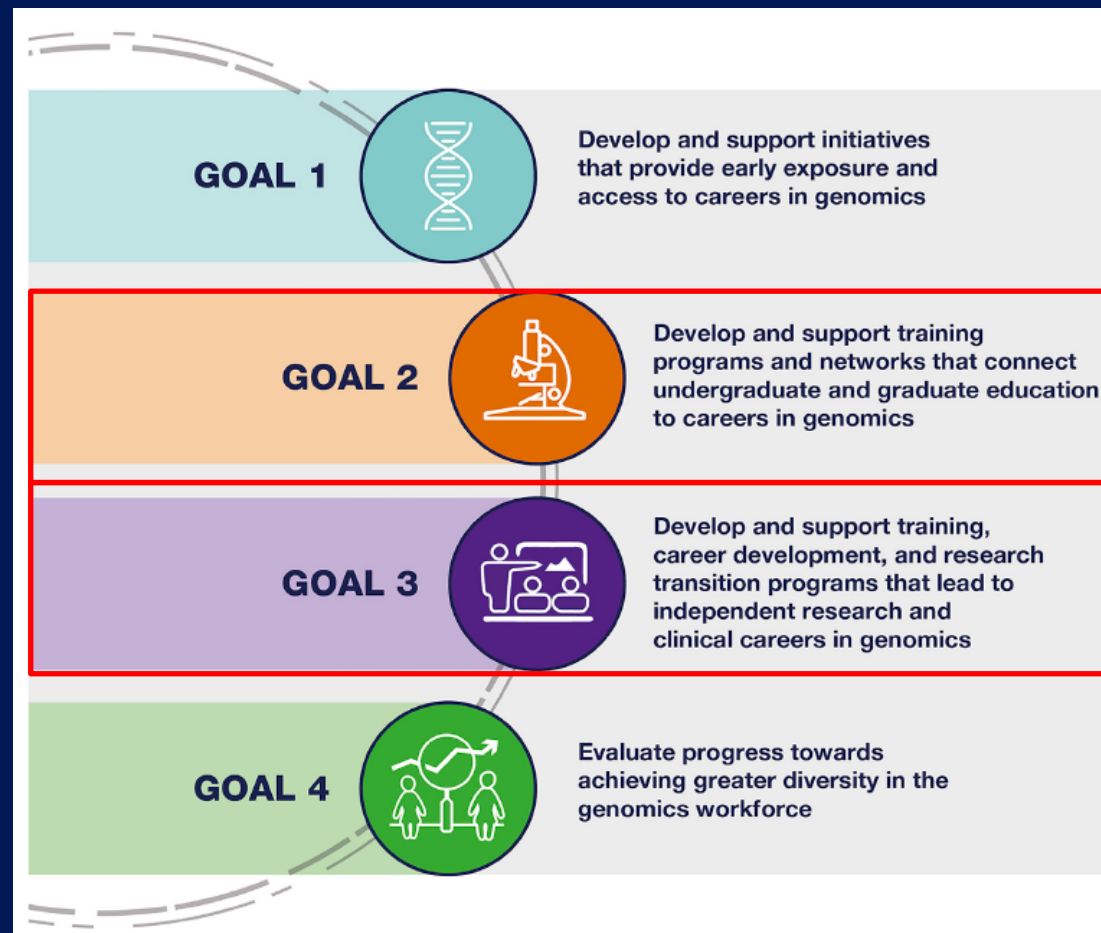
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# Diversity Genome Centers Concept Budget

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	FY23	FY24	FY25	FY26	FY27	FY28	FY29	Total costs
*^U54	\$2.5M (1)	\$4.5M (2)	\$4M (2)	\$4M (2)	\$4M (2)	\$2M (1)	\$0	\$21M
*#^UG3/ UH3	\$900K (3)	\$900K (3)	\$3.1M (2 UG3; 1 UH3)	\$4.5M (2)	\$4M (2)	\$4M (2)	\$4M (2)	\$21.4M
<b>Total</b>	<b>\$3.4M</b>	<b>\$5.4M</b>	<b>\$7.1M</b>	<b>\$8.5M</b>	<b>\$8M</b>	<b>\$6M</b>	<b>\$4M</b>	<b>\$42.4M</b>

Total costs (# of awards)

\*Multiple receipt dates

# Budget: \$300K TC for Phase 1/\$2M TC for Phase II

^ Additional \$500K for infrastructure in 1<sup>st</sup> year of U54 and Phase II

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# Feedback and Questions