STAR-PREP POST-BACCALUREATE PROGRAM INCREASES ASCENSION AND RETENTION OF UNDER-REPRESENTED STUDENTS TO PHD, MD-PHD, AND MD-DUAL DEGREE PROGRAMS

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STAR-PREP
Science Training for Advancing biomedical Research

Abstract and Introduction

Background: Population diversity in the U.S. is increasing. Currently, 40% of persons in the U.S. self-identifies as racially diverse. However, persons from these groups are also under-represented (UR) in biomedical research and healthcare professions. Less than 10% of PhD biomedical research degrees and about 20% of MD degrees are awarded to UR persons. There is a need to increase the diversity of the biomedical and healthcare workforces.

Description and Methods: The UMB STAR-PREP post-baccalaureate was designed to increase URM Scholars' enrollment into and ultimately completion of Ph.D. and M.D.-Ph.D degrees. A robust selection matrix and process are used to guide input scholar diversity. Selected scholars receive rigorous research and academic immersion in addition to social, professional-development and community-serving program elements to build identify and, to mitigate imposter syndrome.

Results: In 8 years, of 41 STAR-PREP alumni to date, 32/41 (78%) have ascended to PhD and MD-PhD degree tracks. Five Scholars (5/41, 12%) have ascended to MD, DO and MD-other dual degree tracks. The retention rate in terminal degree programs to date is 100%.

Conclusions: STAR-PREP has successfully employed both holistic and individualized components coupled to an intentional programming model that simultaneously addresses imposter syndrome, creates and instills a sense of belonging and, includes rigorous academic and research immersion to increase UR advancement to and retention in terminal degree programs in biomedical research and healthcare. Expansion of such programs may help meet workforce diversity goals.
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Need for a Diverse Biomedical and Healthcare Workforce

- *Diversity expands problem-solving capability*
- *Concordance – we work on the things that matter to us and our communities*
- *Concordance – we trust those who we can relate to and feel can relate to us*

History and Goals of PREP Programs

•NIH/NIGMS initiated in 2000

•Part of a larger effort to support and sustain the development of a highly skilled, creative and diverse biomedical workforce

•5-year programs each supporting 5 to 10 scholars/year

•Scholars spend 75% time as apprentice scientists; 25% academic and professional development activities

•UMB STAR-PREP Started 2026

•One of 2 programs in state of Maryland

•Only such program in the entire University System of Maryland

DELIVERABLES:

•At least 75% enrollees must advance to PhD or MD-PhD program

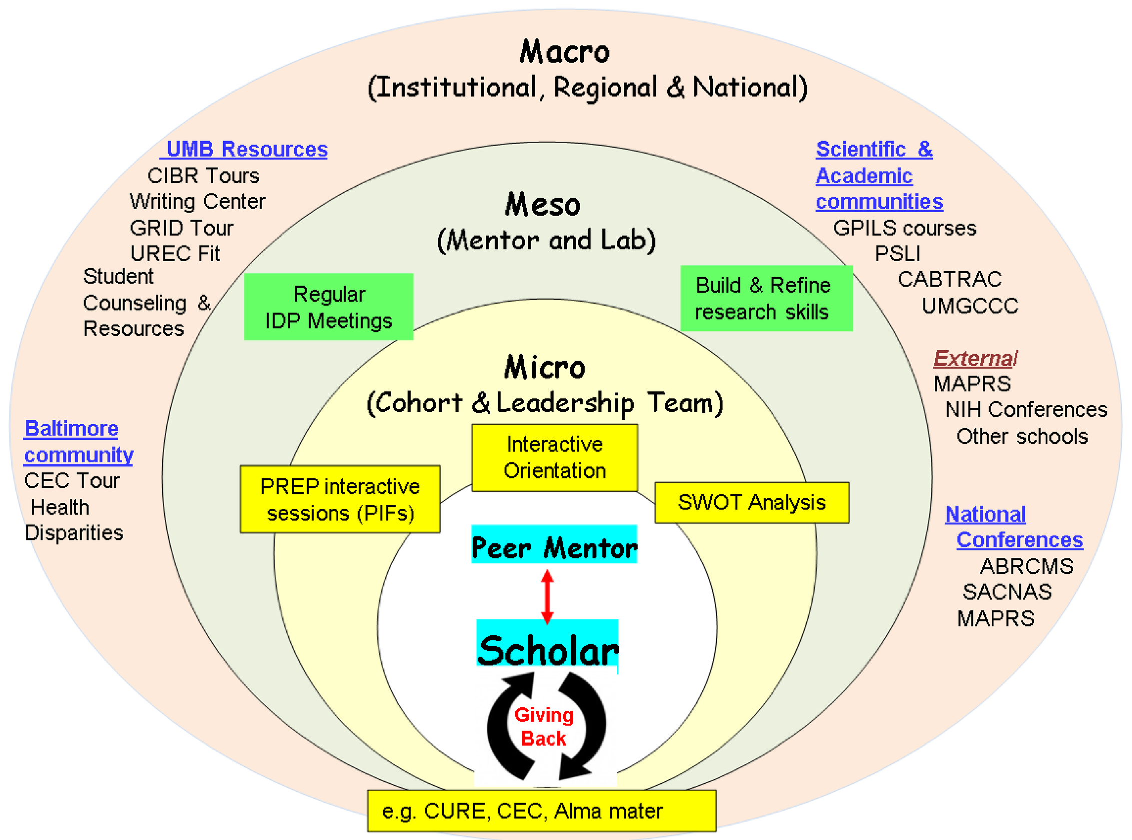
•At least 50% must ultimately graduate from their programs

Specific Aims

- **Aim 1**): *We will maximize student academic and research preparedness through intense lab and graduate course experiences.*
- **Aim 2**): *We will strengthen and prepare the scholars holistically (academically, mentally, emotionally) for the rigors of graduate school through courses and professional development activities.*
- **Aim 3**): *We will use STAR-PREP and lessons learned to widen its impact to collaboratively shape the culture and expectations of the higher-learning institution to receive and nurture UR scholars.*

Methods and Approach

STAR-PREP Social Ecological Model



Overview

- STAR-PREP operates from Strength-based and Ecological framework models.

Together, these models acknowledge:

- Scholars possess wealth of skills **already**
- Scholars bring experiential and cultural knowledge and wealth

Building Cohort and Belonging:

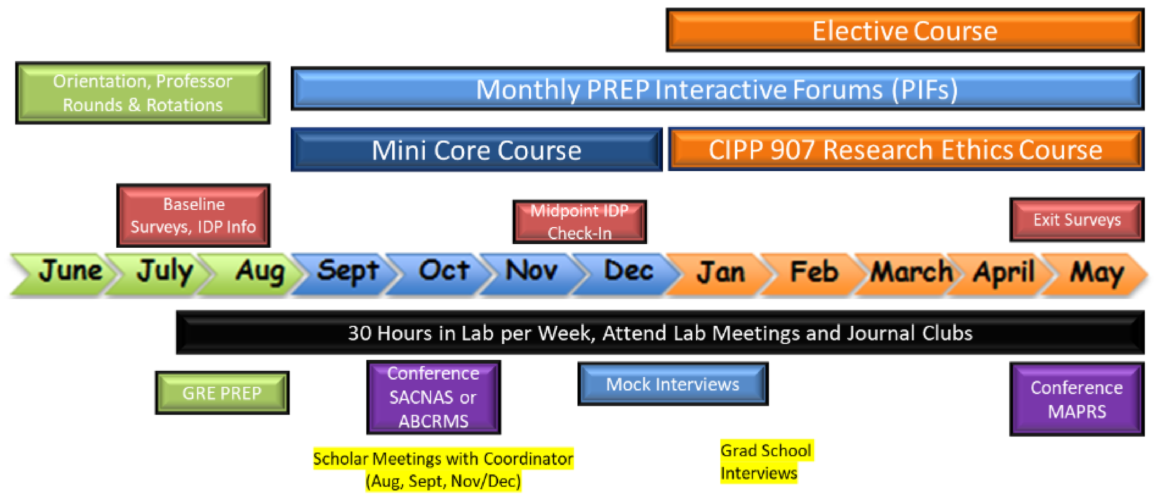
- Form cohort
- Intentional weaving into fabric of UMB academy and that of Collaborators
- Create and building on comprehensive individualized development plan (IDP), between each Scholar, mentor and STAR-PREP Leadership,
- Scholars are ***immersed*** and ***integrated*** within a variety of contexts (above) including lab and classroom rigor and, community-building and engagement
- Student and program are monitored, at multiple points and levels
- Program metrics are obtained and communicated at multiple levels, including the impact to broader scientific and local communities (at the macro level), outcomes within their cohort and the lab they conduct their research (at the meso level), and individual achievements and service to others (at the micro level).

Program Pillars

- Outstanding and diverse mentors and leaders
- Graduate and MD-PhD program application prep.
- Academic rigor and excellence
- Research rigor and excellence
- Presentation and science communication
- Integration into campus community and others
- Mentoring at near-peer and pathway levels
- CV/Biosketch Clinic
- Science article *digestion* clinic
- Research in progress presentations

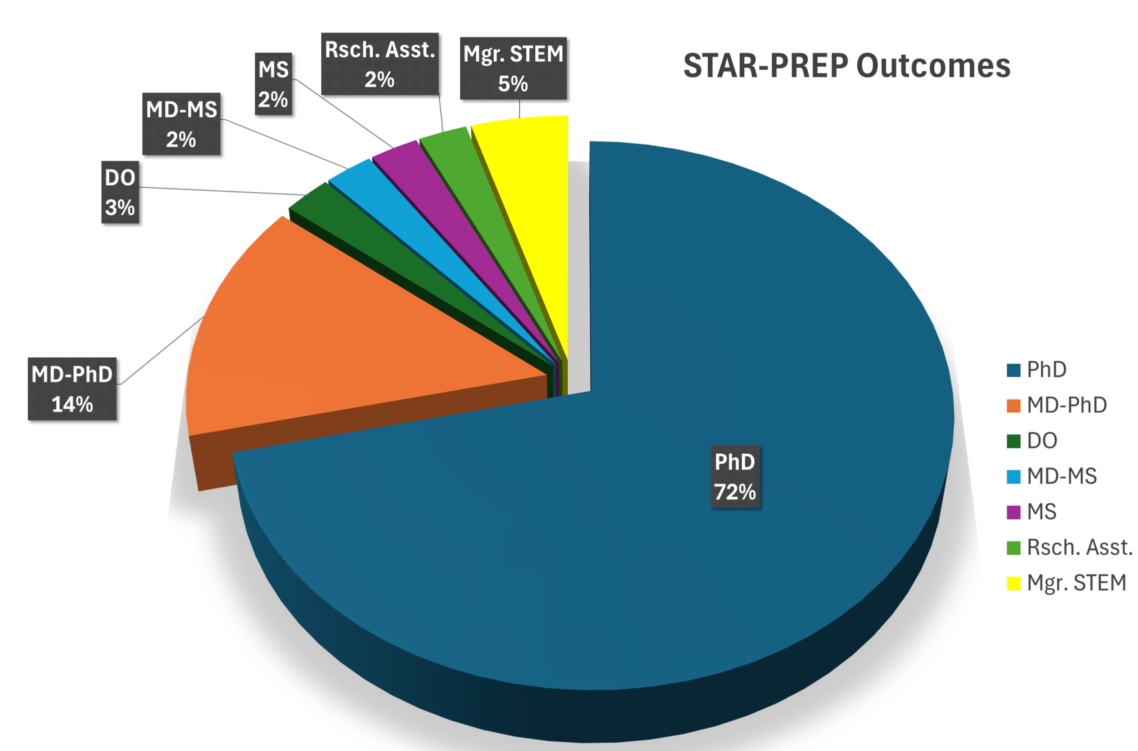
Year At a Glance

Curriculum for Year 1



Outcomes

Where Are They Now?



Degree	PhD	MD-PhD	DO	MD-MS	MS	Rsch. Asst.	Mgr. STEM	Total
N=	30	6	1	1	1	1	2	42

	Total	URM	# of Women	# Men	Publications/ Productivity
STAR-PREP Trainees	46	100	32	13	Over 25 Scholar publications

Highlights

STAR-PREP scholars stay active attending national and regional conferences. Note science identity. Scholars multi-year winners at the *National Academy of Sciences and Medicine's annual "Public Health Challenge". Scholars give back in various outreach activities to inspire, excite and support future generations and increase the number of UR in biomedical research and healthcare professions.*

Conclusions STAR-PREP:

- Uses intentional holistic and individualized components
- Couples rigorous lab and class programming to focus on wellness and emotional wellbeing
- Builds belonging and identity in science and medicine
- Addresses isolation and imposter syndrome head on
- This has successfully increased UR advancement and retention in terminal degree programs in biomedical research and healthcare
- **Strengthening and expansion of such programs ~~may~~ will help meet workforce diversity goals.**

- **Next Steps:**
  - *Additional publications to share outcomes*
  - *Strengthening mentor preparedness to successfully mentor diverse student trainees*

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