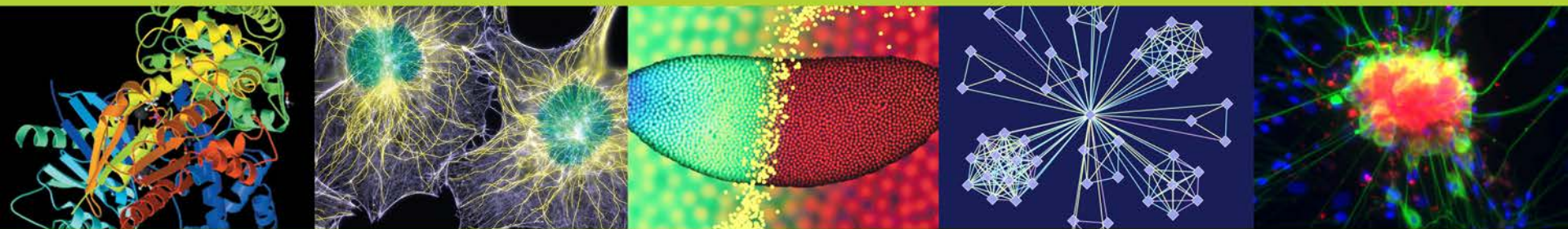


# Developing a More Productive, Efficient and Sustainable Biomedical Research Enterprise

Jon Lorsch



# NIGMS Mission

- Promote fundamental research on living systems to lay the foundation for advances in disease diagnosis, treatment and prevention.
- Enable the development of the best trained, most innovative and productive biomedical research workforce possible.

# NIGMS Program Divisions



Cathy Lewis

Cell Biology  
and  
Biophysics

Genetics and  
Developmental  
Biology

**Ongoing Search!**

Pharmacology,  
Physiology and  
Biological  
Chemistry

**Ongoing Search!**

Training,  
Workforce  
Development  
and Diversity



Alison Gammie  
(Starts Late Summer)

Biomedical  
Technology,  
Bioinformatics,  
Computational  
Biology



Susan Gregurick



National Institute of  
General Medical Sciences

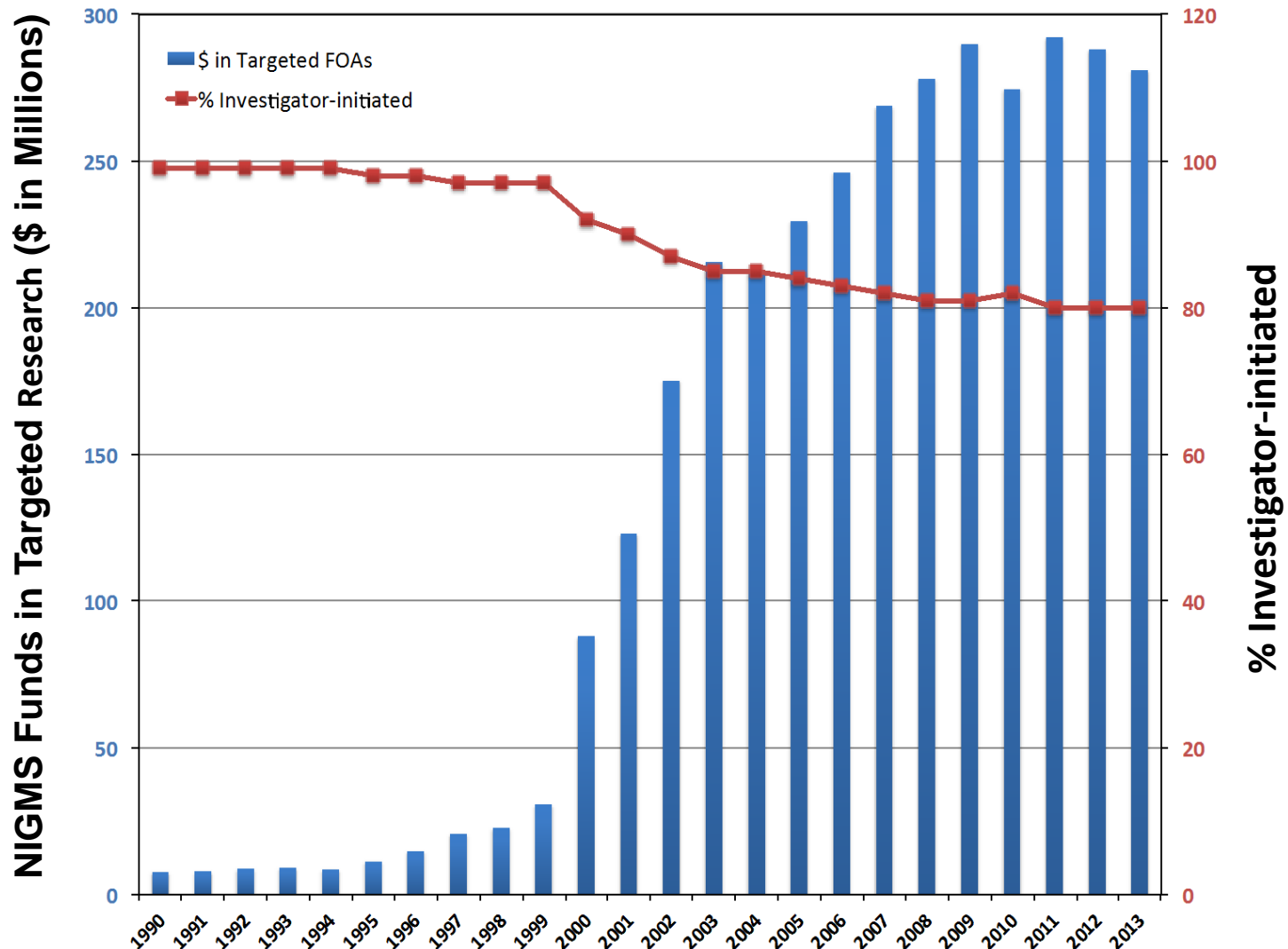
*Basic Discoveries for Better Health*

# **National Institute of General Medical Sciences 5-Year Strategic Plan**

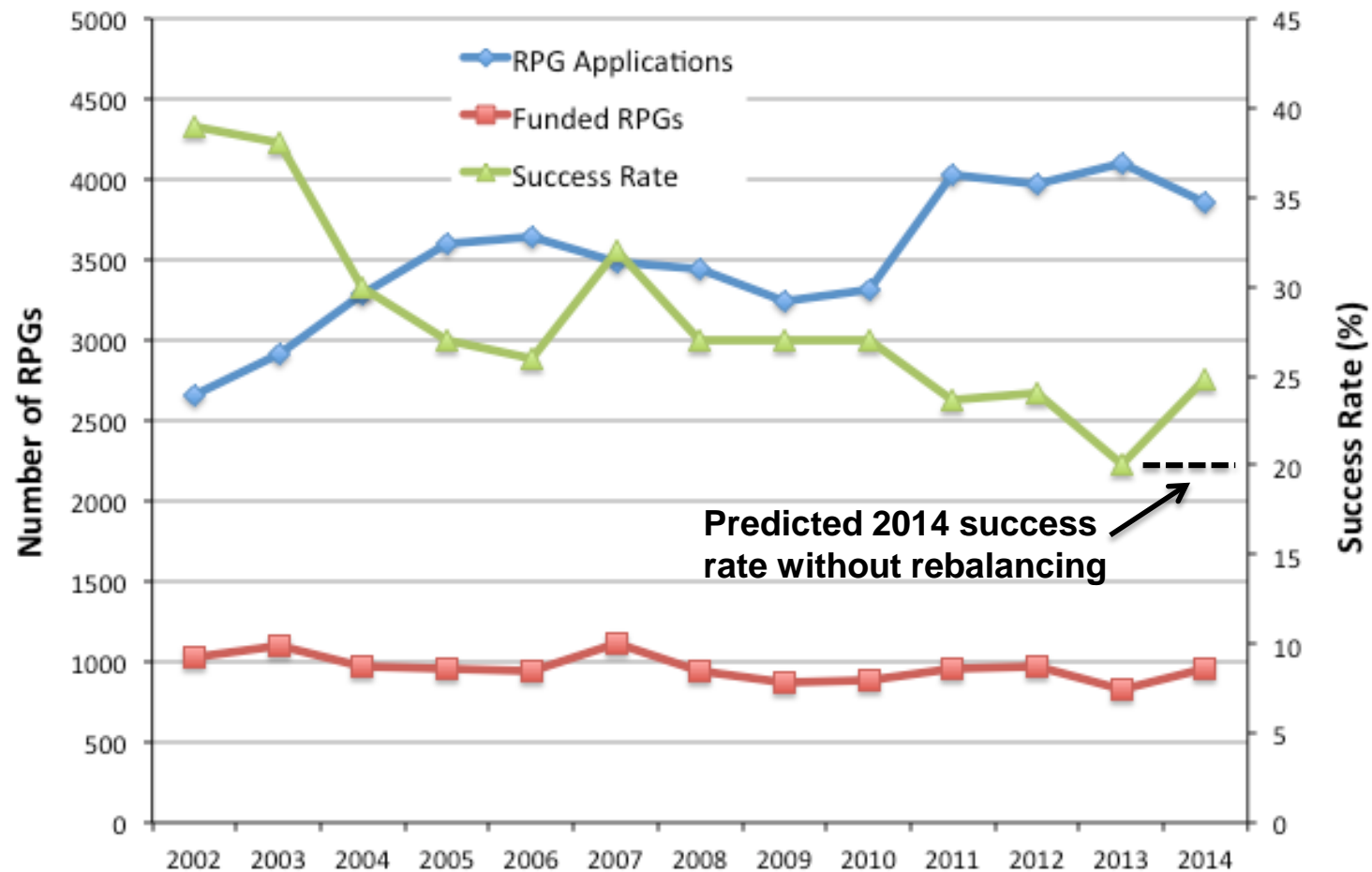
***March 2015***



# A Major Strategic Goal for NIGMS Is to Refocus Our Portfolio on Investigator-Initiated Research



# Portfolio Rebalancing Contributed to a Jump in Success Rate in FY 2014



**Early career  
investigators**

**Reproducibility**

**Peer review**

**Diversifying Research**

**Distribution  
of funding**

**Size of workforce**

**Efficiency**

**Promoting  
creativity and  
innovation**

**Academic  
business model**

**Stability and  
sustainability**

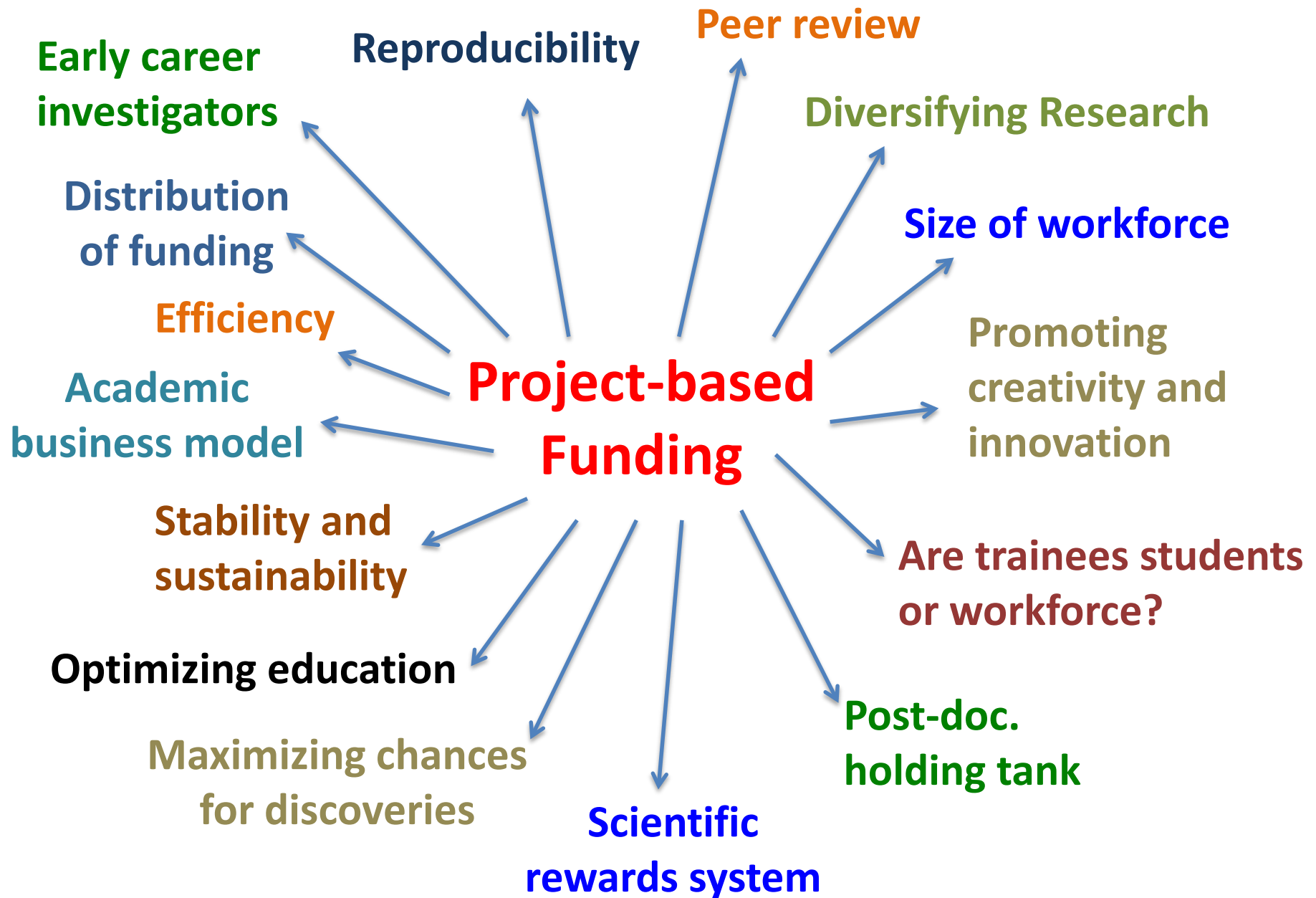
**Are trainees students  
or workforce?**

**Optimizing education**

**Maximizing chances  
for discoveries**

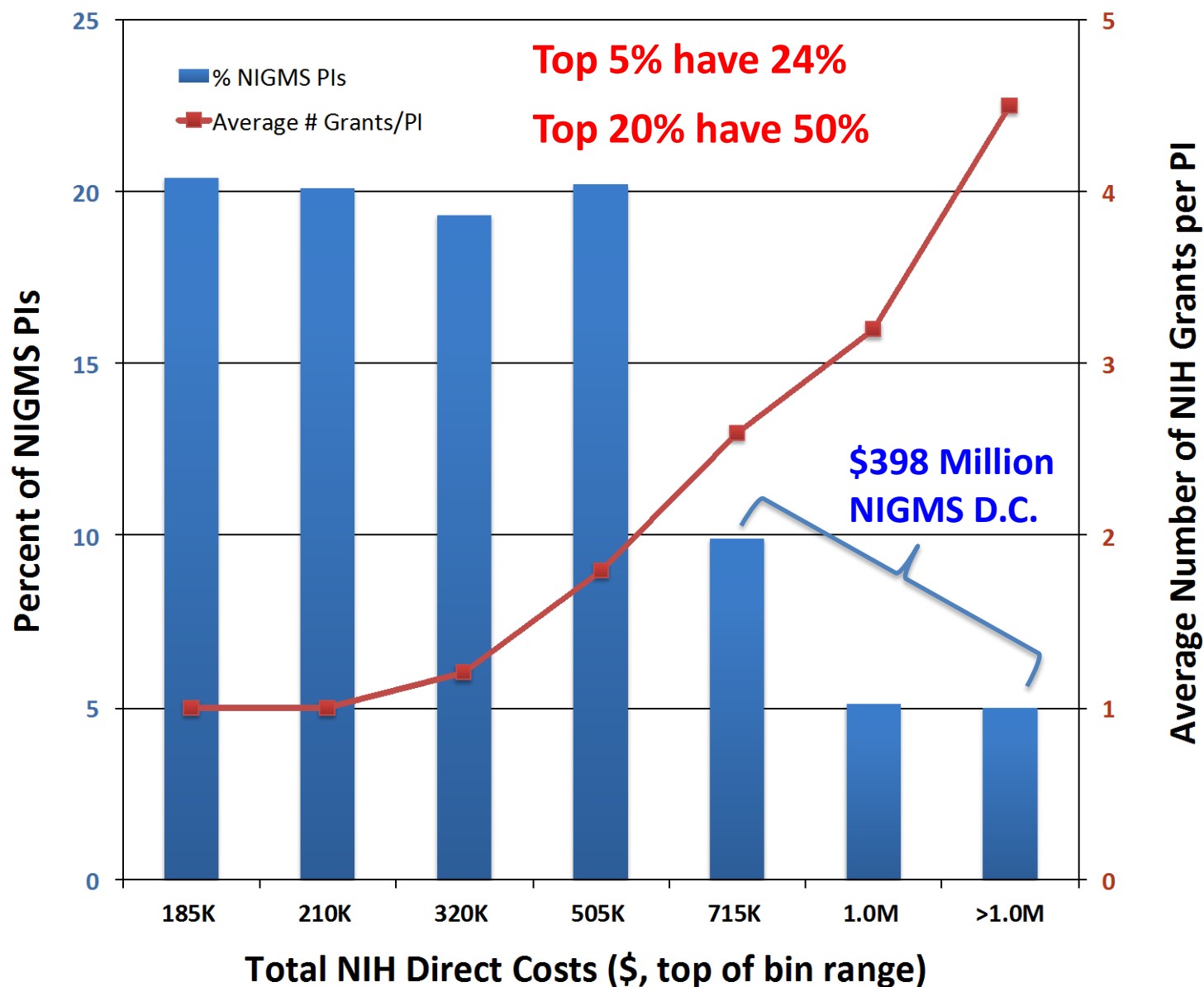
**Post-doc.  
holding tank**

**Scientific  
rewards system**

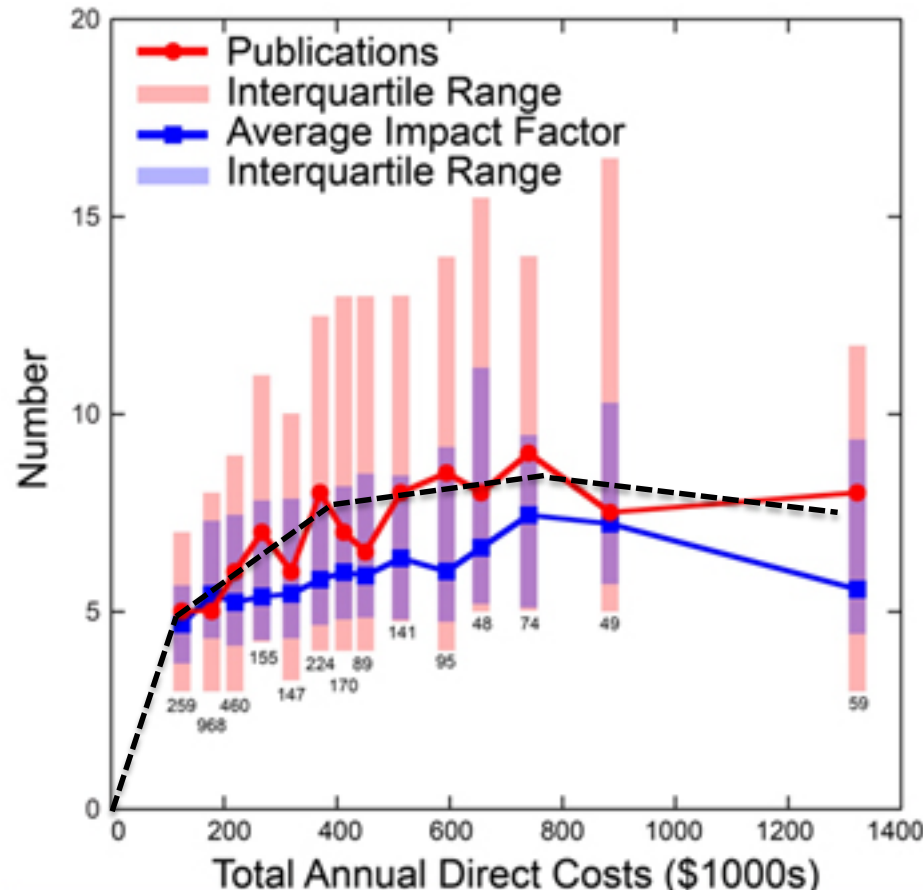




# Distribution of NIGMS Grantees' Total NIH Direct Costs



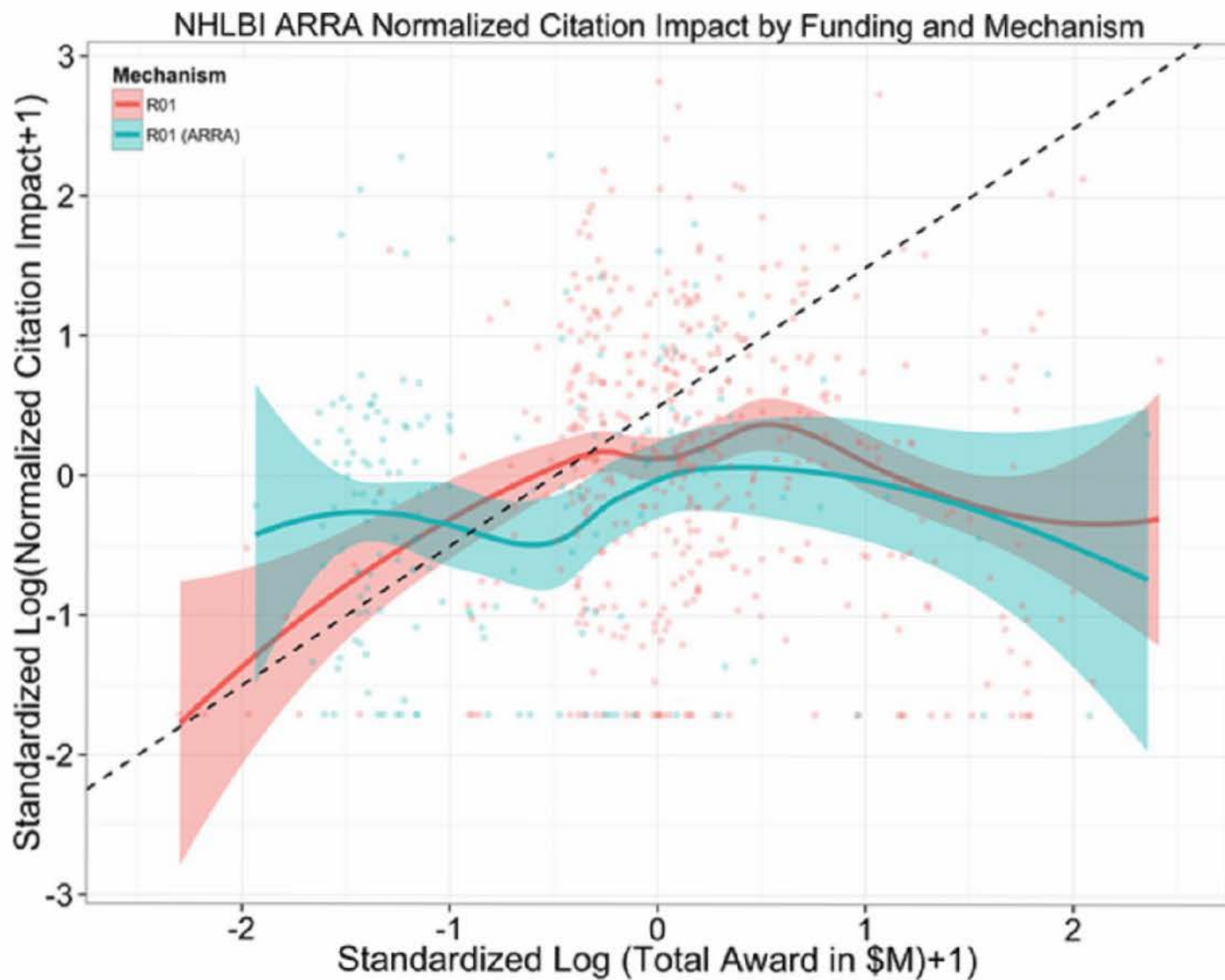
# Maximizing the Return on Our Investment of Taxpayer Dollars



Another R01 to someone who already has \$400K d.c. buys the taxpayers 1 extra paper

An R01 to a new PI or someone who will otherwise have nothing buys the taxpayers 5 papers

➡ 4 paper difference in yield



# What should our metric for funding be?

**# of Grants Awarded**

# What should our metric for funding be?

**# of Grants ~~Awarded~~**

**# of Investigators Supported**

# Funding Research *Programs* instead of Individual *Projects*

- Increase the **stability of funding** to enhance investigators' willingness to take on ambitious scientific projects and to approach problems creatively.
- Increase **flexibility** for investigators to follow important new research directions as opportunities arise.
- Improve the **distribution of funding** among investigators to increase overall scientific productivity and the chances for important breakthroughs.
- Reduce the time spent by researchers **writing grant applications**, allowing them to spend more time conducting research.
- Reduce the time spent on **reviewing grant applications**.

# Maximizing Investigators' Research Award (MIRA)

- One NIGMS research grant per PI – R35
- Bigger and longer (5 years) than current R01 averages
- Direct cost range up to \$750K
- Not tied to specific aims
- Review based on track record and overall research ideas
  - Includes consideration of service & contributions to workforce development
- Budget could be modulated based on competing review in order to avoid abrupt termination of research groups
- Separate panels and modified review considerations for early-stage investigators

# Initial Implementation Plan

- Need to generate a moderate number of applications to test the MIRA application and review concepts.
- Applications from NIGMS established PIs with either  $\geq 2$  NIGMS R01s or 1 NIGMS R01 for  $\geq \$400K$  d.c.
- Applications from New Investigators.
- Separate FOAs, review panels, and review criteria for established PIs and New Investigators.
- If pilot phase is successful, expand the program to include all PIs working on questions relevant to NIGMS' mission.



# Questions or Comments?

