Developing a More Productive, Efficient and Sustainable Biomedical Research Enterprise

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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.
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Our job is to ensure that the taxpayers’ money is invested in fundamental biomedical research in the most efficient and effective way possible.
Project-based Funding

- Early career investigators
- Distribution of funding
- Efficiency
- Academic business model
- Optimizing education
- Maximizing chances for discoveries
- Reproducibility
- Peer review
- Diversifying Research
- Size of workforce
- Promoting creativity and innovation
- Are trainees students or workforce?
- Post-doc. holding tank
- Stability and sustainability
- Scientific rewards system
- Maximizing chances for discoveries
Distribution of NIGMS Grantees’ Total NIH Direct Costs

- Top 5% have 24%
- Top 20% have 50%

Total NIH Direct Costs ($, top of bin range):
- 185K
- 210K
- 320K
- 505K
- 715K
- 1.0M
- >1.0M

Percent of NIGMS PIs

Average Number of NIH Grants per PI

$398 Million NIGMS D.C.

Data: Deatherage & Nie
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
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# 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
- 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
What MIRA Is Not

- Not targeted specifically at high-risk, high-potential-reward research
- Not targeted specifically at a perceived highly elite group of investigators

If it works, MIRA could support any investigator studying questions related to NIGMS’ mission
Questions or Comments?