

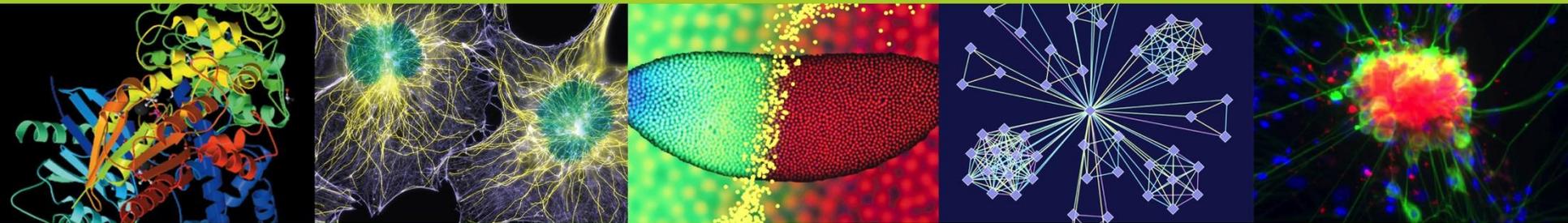


National Institute of
General Medical Sciences



The View from NIGMS

Jon R. Lorsch, Ph.D., Director
National Institute of General Medical Sciences



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 workforce possible.**

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NIGMS Program Divisions



Cathy Lewis

Cell Biology
and
Biophysics

Genetics and
Developmental
Biology



Judith Greenberg



Mike Rogers

Pharmacology,
Physiology and
Biological
Chemistry

Training,
Workforce
Development
and Diversity



Alison Hall

Biomedical
Technology,
Bioinformatics,
Computational
Biology



Susan Gregurick

Ongoing Searches

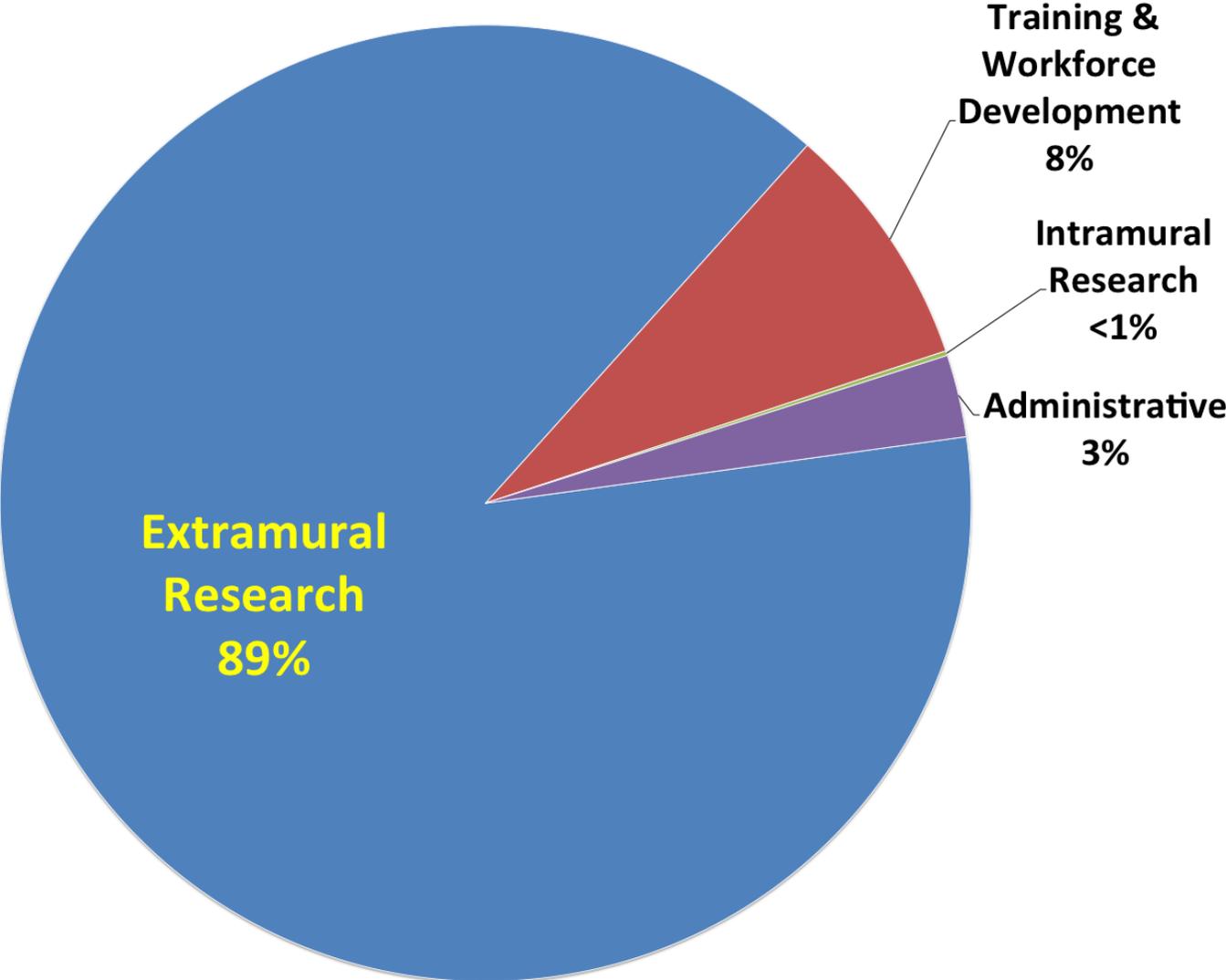
- **Deputy Director, NIGMS**
- **Director, Division of Training, Workforce Development and Diversity, NIGMS**



NIGMS Feedback Loop

<https://loop.nigms.nih.gov>

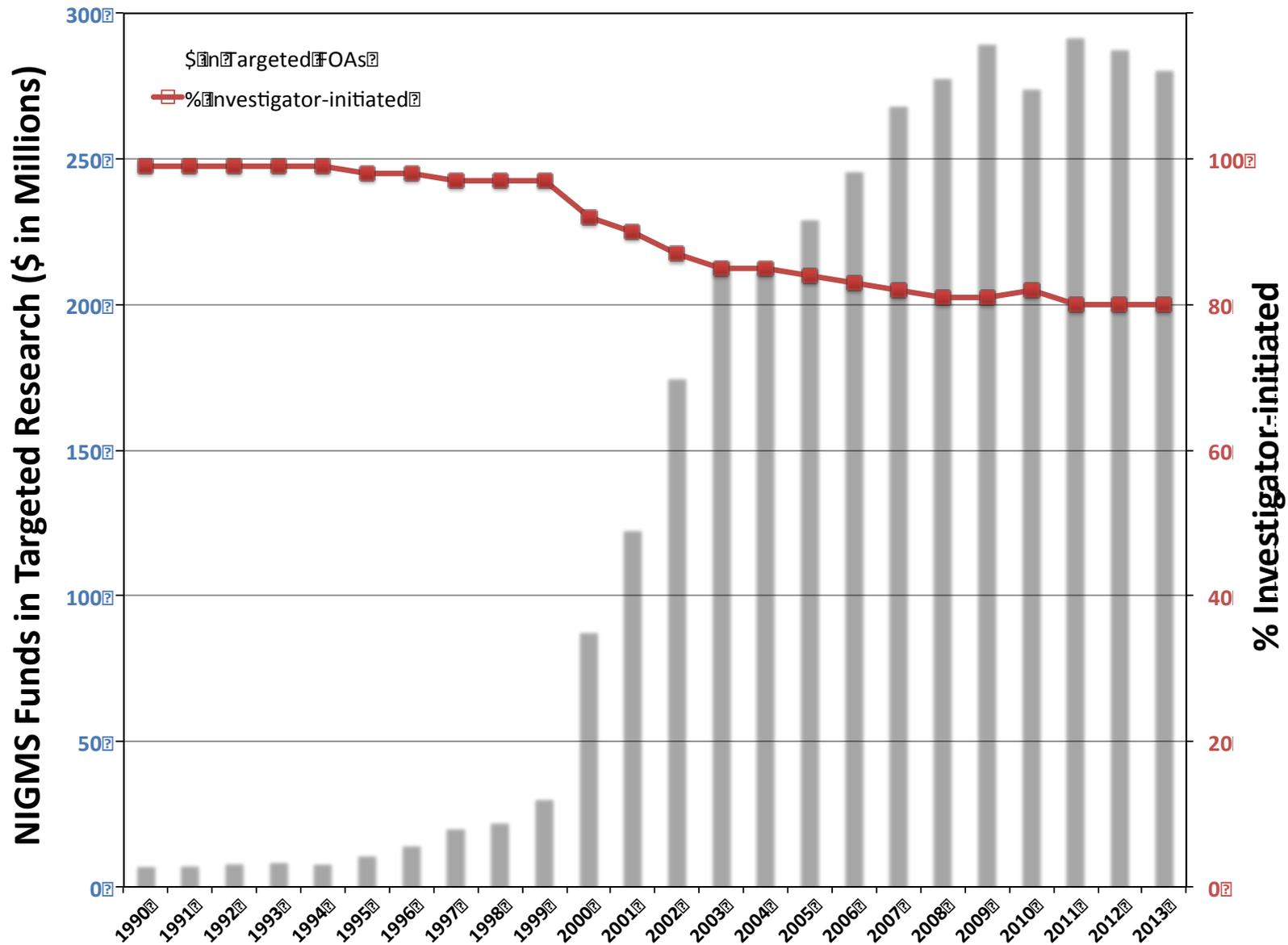
2014 NIGMS budget is \$2.36 Billion



Hot Issues

- **Renew and reinvigorate commitment to *investigator-initiated, question-driven* research**
 - **Single PI and team-based research**

Targeted support for specific areas of research increased during the budget doubling



Hot Issues

- **Renew and reinvigorate commitment to *investigator-initiated, question-driven* research**
 - **Single PI and team-based research**
- **Explore the development of more stable, flexible and efficient funding mechanisms**
 - **Support for a PI's overall research program instead of individual projects?**

NHGRI-NIGMS Retreat

February 21, 2014

Elucidation of biological function

Databases

Biomedical informatics and computational biology

Technology development

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Elucidation of biological function

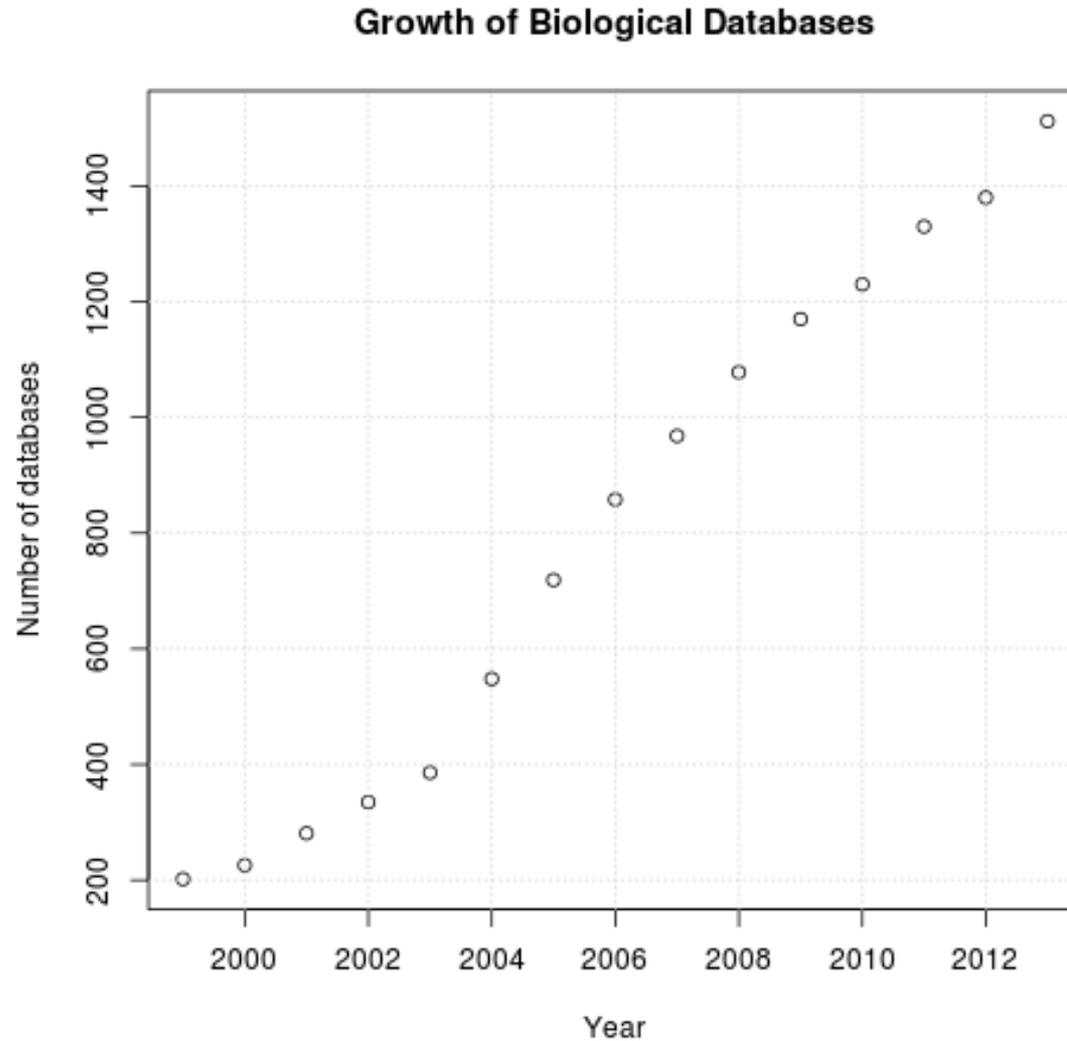
Databases

Biomedical informatics and computational biology

Technology development

Key action item: Developing more efficient and sustainable models to support databases

The number of biological databases is increasing dramatically



Developing more efficient and sustainable models to support databases



Phil Bourne

Associate Director for Data Science



Eric Green

Director, NHGRI

NIH plans to enhance reproducibility

Francis S. Collins and **Lawrence A. Tabak** discuss initiatives that the US National Institutes of Health is exploring to restore the self-correcting nature of preclinical research.

A growing chorus of concern, from scientists and laypeople, contends that the complex system for ensuring the reproducibility of biomedical research is failing and is in need of restructuring^{1,2}. As leaders of the US National Institutes of Health (NIH), we share this concern and here explore some of the significant interventions that we are planning.

Science has long been regarded as 'self-correcting', given that it is founded on the replication of prior work. Over the long term, that principle remains true. In the

shorter term, however, the imbalances that once have been hobbled by the inability of today's researchers to replicate others' findings.

Let's be clear: we have no evidence that the current system is self-correcting. In 2011, the Office of Science and Technology Policy at the US Department of Health and Human Services pursued a strategy to address the problem. Even if this represents the actual problem

“Efforts by the NIH alone will not be sufficient to effect real change in this unhealthy environment.”

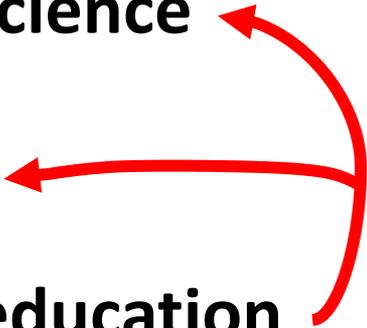
The “Reproducibility Problem:” Reproducibility of Data and Strength of Conclusions

Issues related to:

- **Sociology of science**
- **Methodology**
- **Training and education**

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- 
- A red curved arrow originates from the right side of the 'Training and education' bullet point and points to the right side of the 'Methodology' bullet point. A second red curved arrow originates from the right side of the 'Training and education' bullet point and points to the right side of the 'Sociology of science' bullet point.

Mike Rogers et al.: Concept clearance for exportable training modules FOA

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Reproducibility in Cell Culture Studies

- **>400 misidentified cell lines have been cataloged, dating back to the 1960s.**
- ~70% of researchers surveyed in 2004 had never checked the identity of their cell lines.
- Major repositories report that 14-30% of cell lines submitted are contaminated.
- In a 2013 survey <50% of cell lines had an unambiguous identifier and source in publications.
- Standards for cell line authentication and affordable methods for cell authentication now available.

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Variables:

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- **Genomic instability**
- **Infections**
- **Growth conditions**

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Possible action areas:

- **Facilitate the development and dissemination of consensus standards for authentication, handling, controls, and reporting**
- **Promote development of more efficient and cost-effective tools for characterizing cell lines and reagents**

Questions?

