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**Haywood Friday Morning Presentation March 2015**

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# SUSTAINING DISCOVERY IN BIOLOGICAL AND BIOMEDICAL SCIENCES:

## A FRAMEWORK FOR DISCUSSION



# FASEB

Federation of American Societies  
for Experimental Biology

JR Haywood  
FASEB President

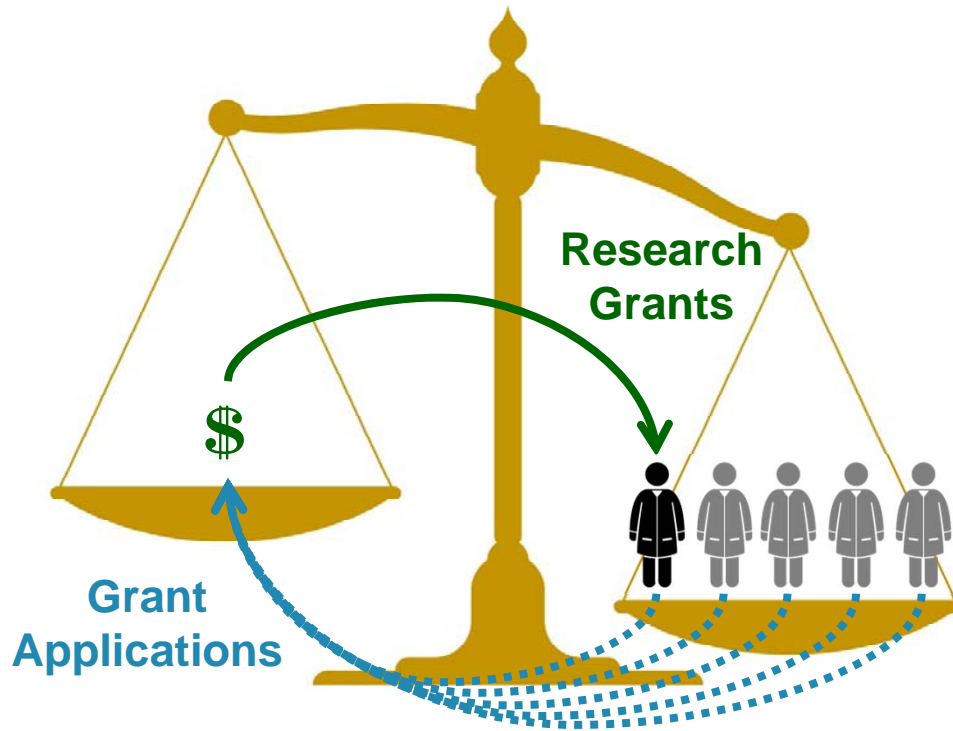
COGR Meeting, March 6, 2015

# What is FASEB?



# The Problem:

*Insufficient funding for growing demand*



# The Study Timeline

Spring 2013:  
Project first  
envisioned

Summer 2014:  
FASEB Board and  
Society feedback

November 2014:  
PAC review of  
recommendations

January 2015:  
FASEB Board  
approval

Summer 2013 -- Fall 2014:  
FASEB Subcommittee  
researches and develops the  
discussion framework

Summer –  
Fall 2014:  
Roundtables

December 2014:  
Board discussion  
of draft report

January 2015:  
Public release  
and comment  
period

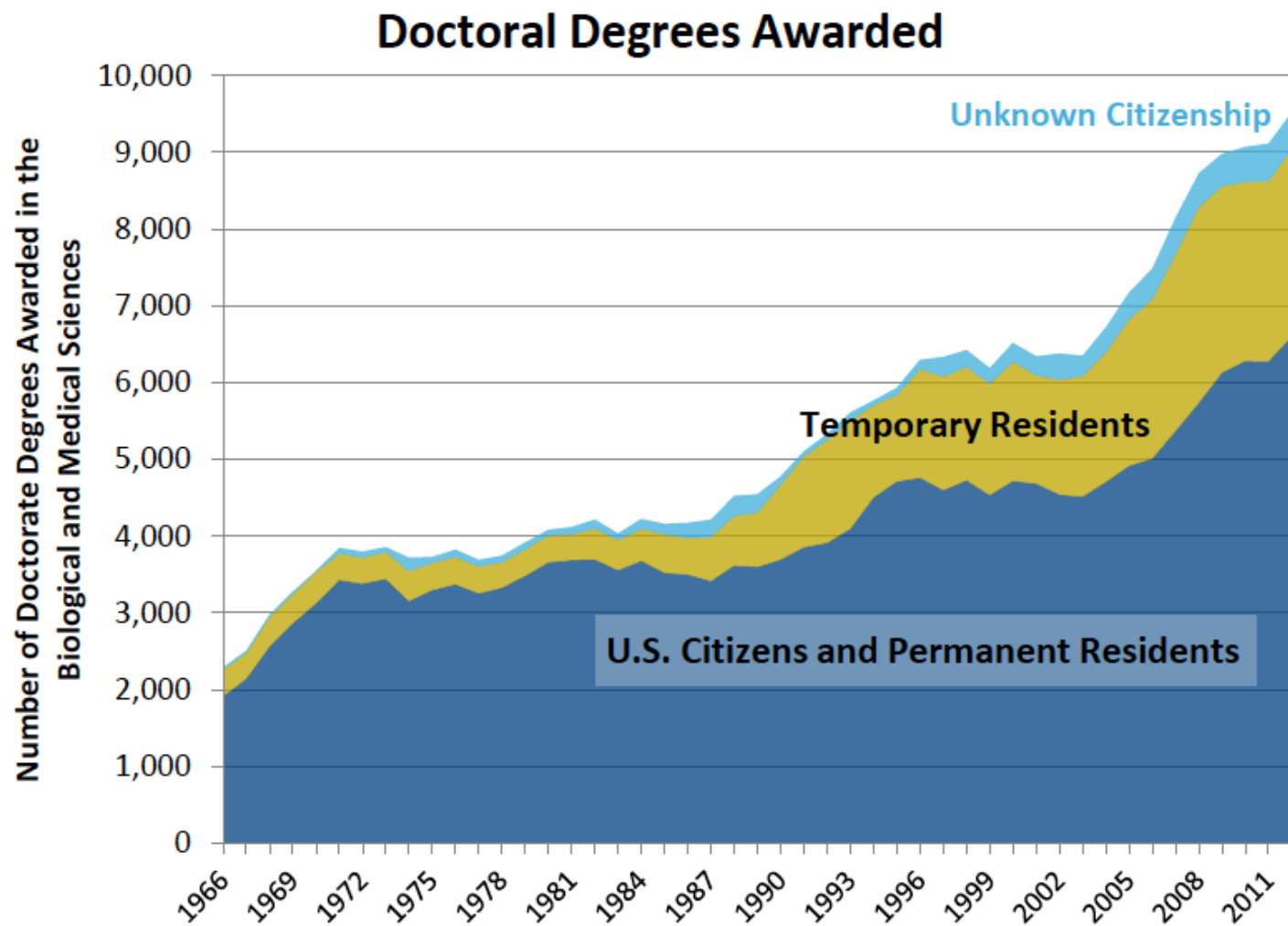
<http://faseb.org>

view report and comment

# FASEB Approach: The Guiding Principles

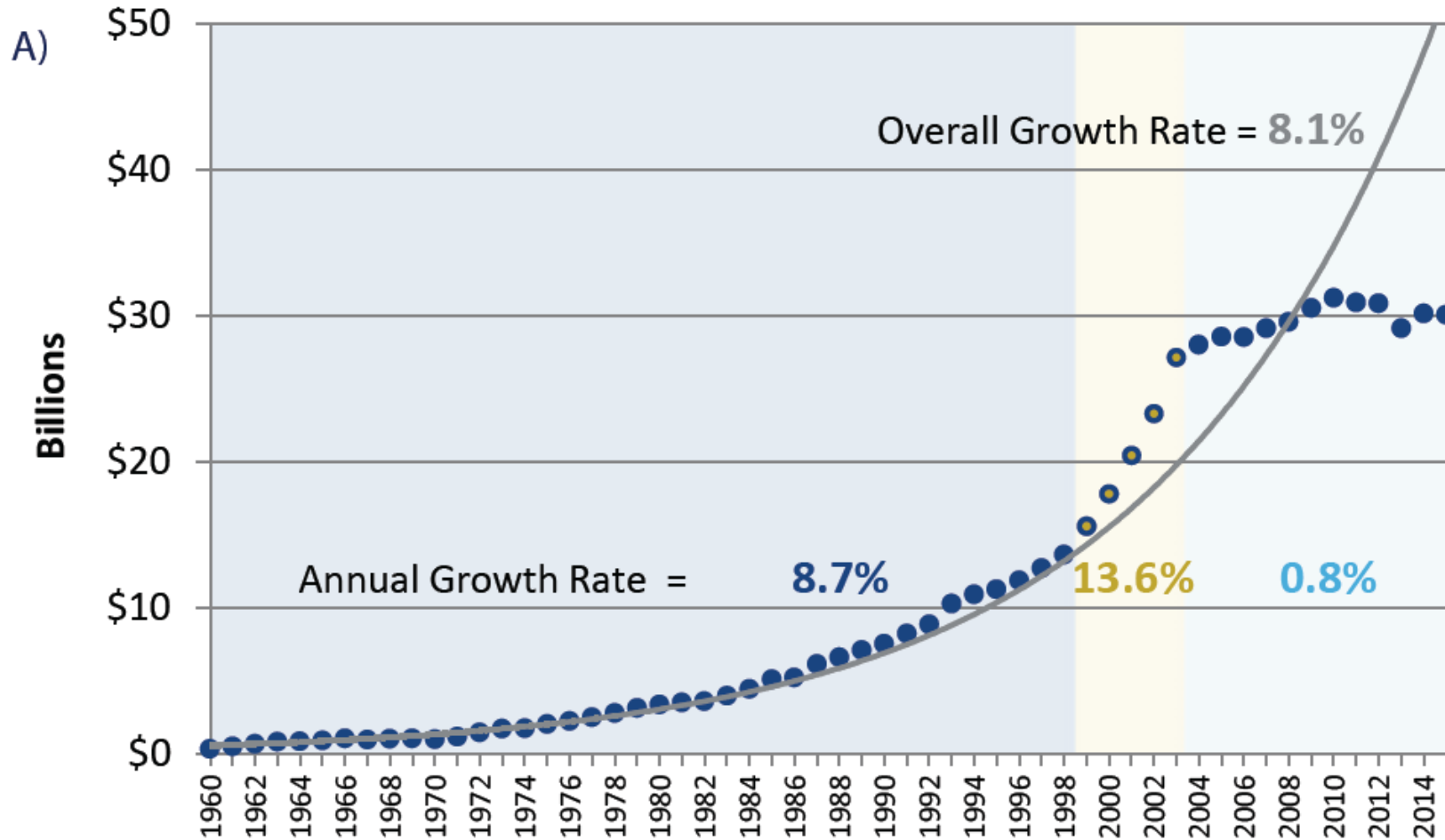
- ❑ Be data driven
- ❑ Explore all possible options for change
- ❑ Focus on how to best use available resources
- ❑ Everything is “on the table”
  
- ❑ **Two Step Process**
  - Data Analysis
  - Develop recommendations
- ❑ **Result** – a discussion framework that is being used to:
  - Engage stakeholders to effect change
  - Stimulate discussion and action by scientists
  - Engage the community and the public

## -- Workforce: Graduate Education



# -- Insufficient Funding

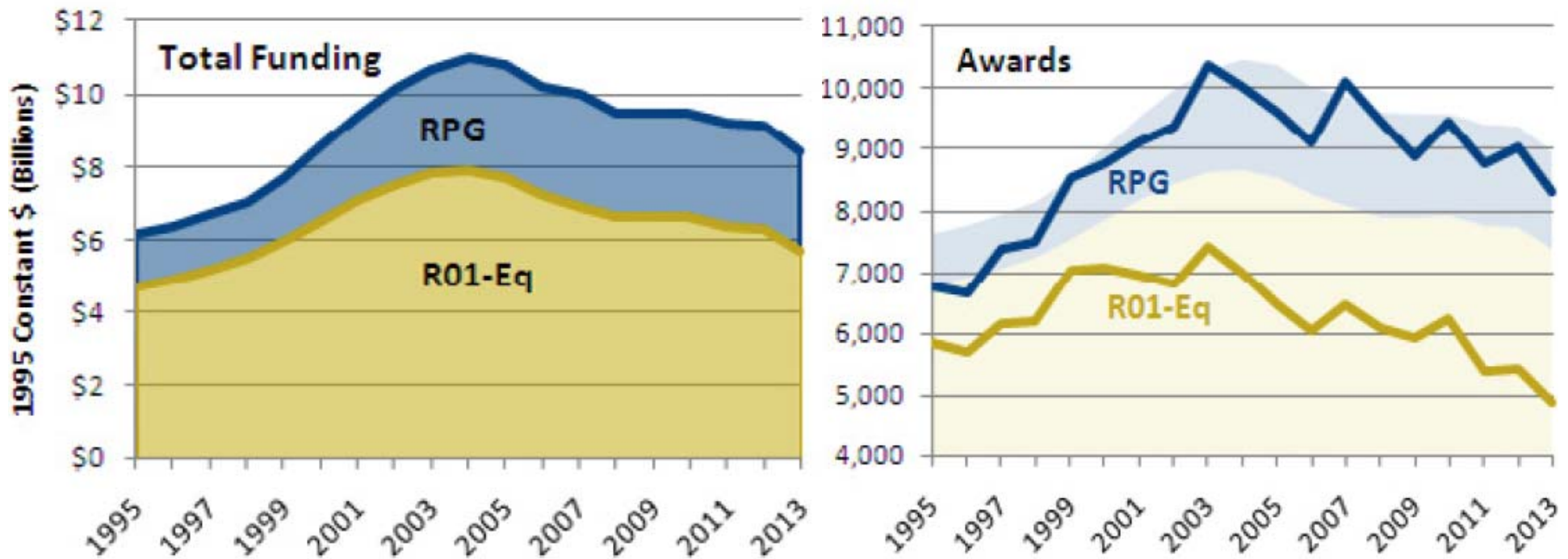
## NIH Funding 1960-2014—Actual Dollars





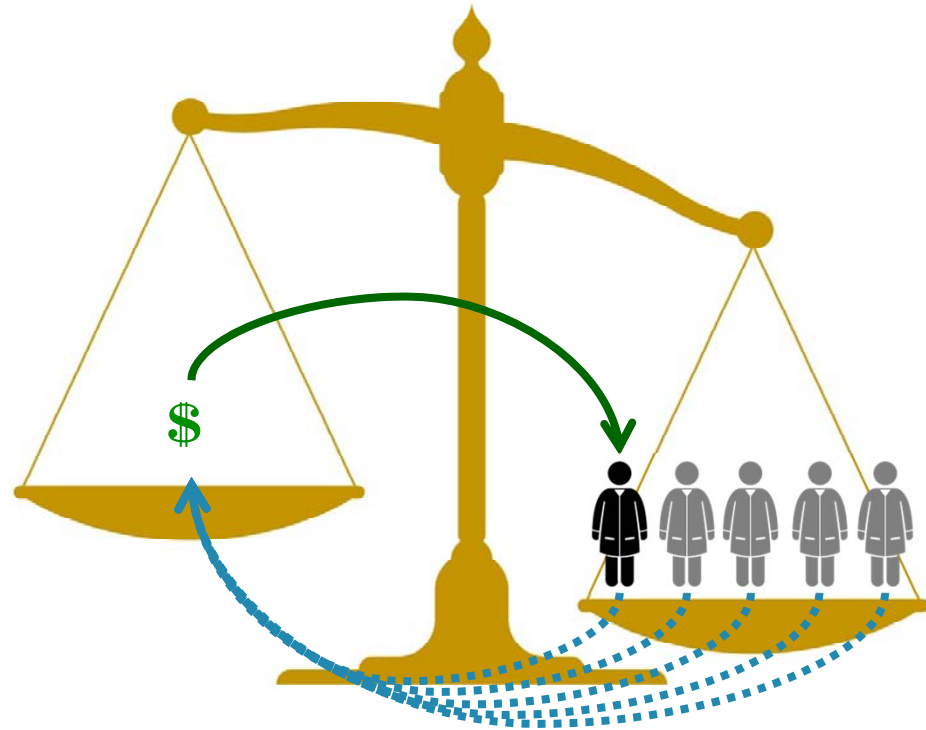
# -- Insufficient Funding

Decline in NIH Funding has Resulted in Fewer Awards



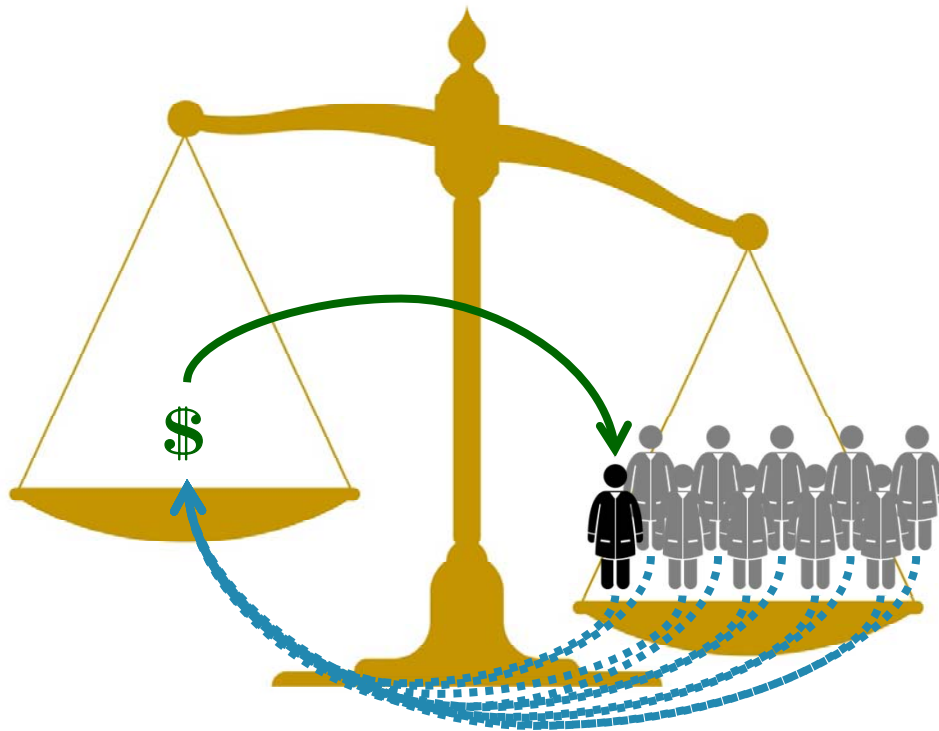
# Section 1: Insufficient Funding

- Unpredictable and unstable federal funding
  - ▣ Since 2003, ~23% lost capacity at NIH
  - ▣ Other research sponsors cannot replace losses
- Higher cost of research
  - ▣ Regulatory burden
  - ▣ Physical resource inefficiencies (incentives for growth, limited shared resource support)



Declining federal funding and rising cost of research

# Section 2: A Rising Demand for Research Grants



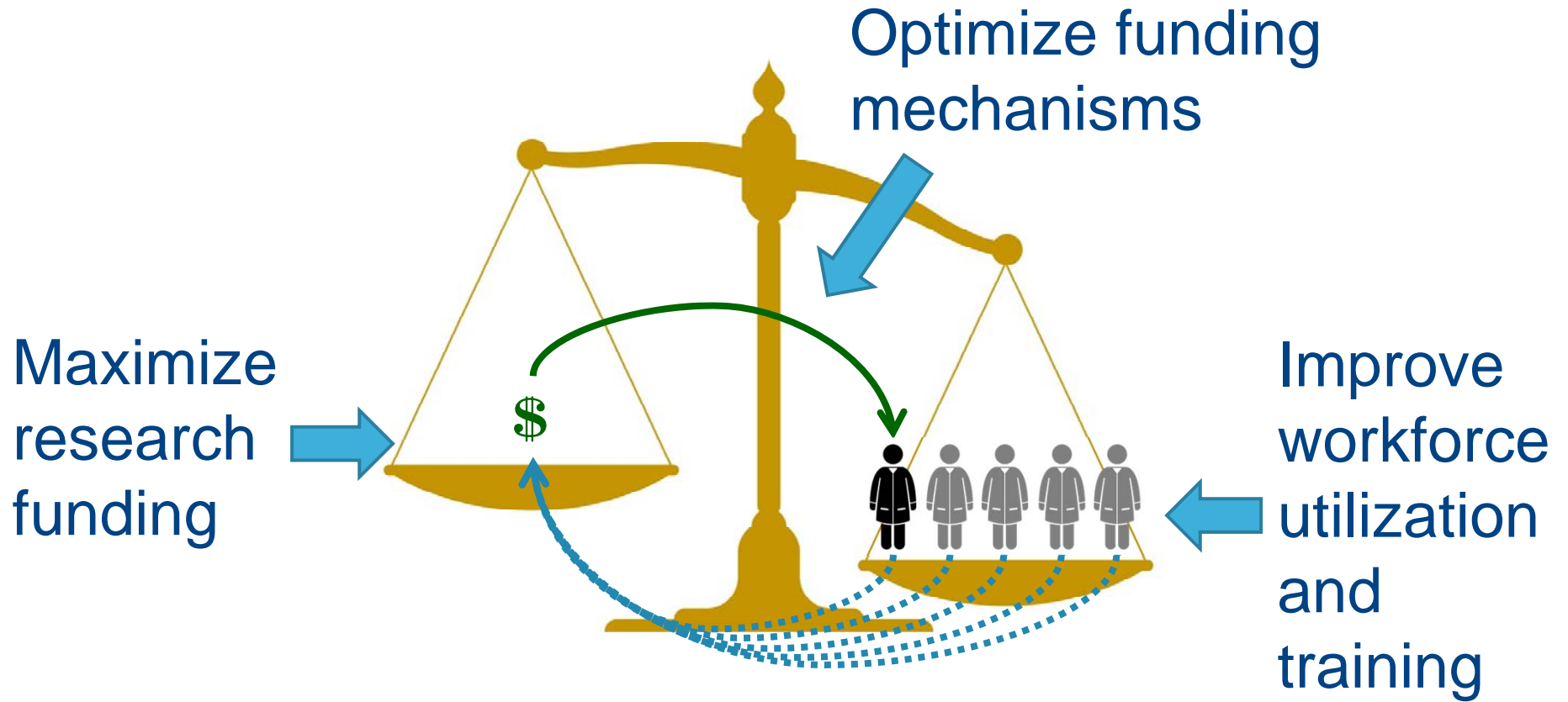
Expanding research opportunities  
and growing number of researchers

- Expanding number of opportunities
- Growth in the number of applicants
  - ▣ Facilitated by salary support and expansion of non-tenure track positions
- Growth in the number of trainees
  - ▣ Career instability

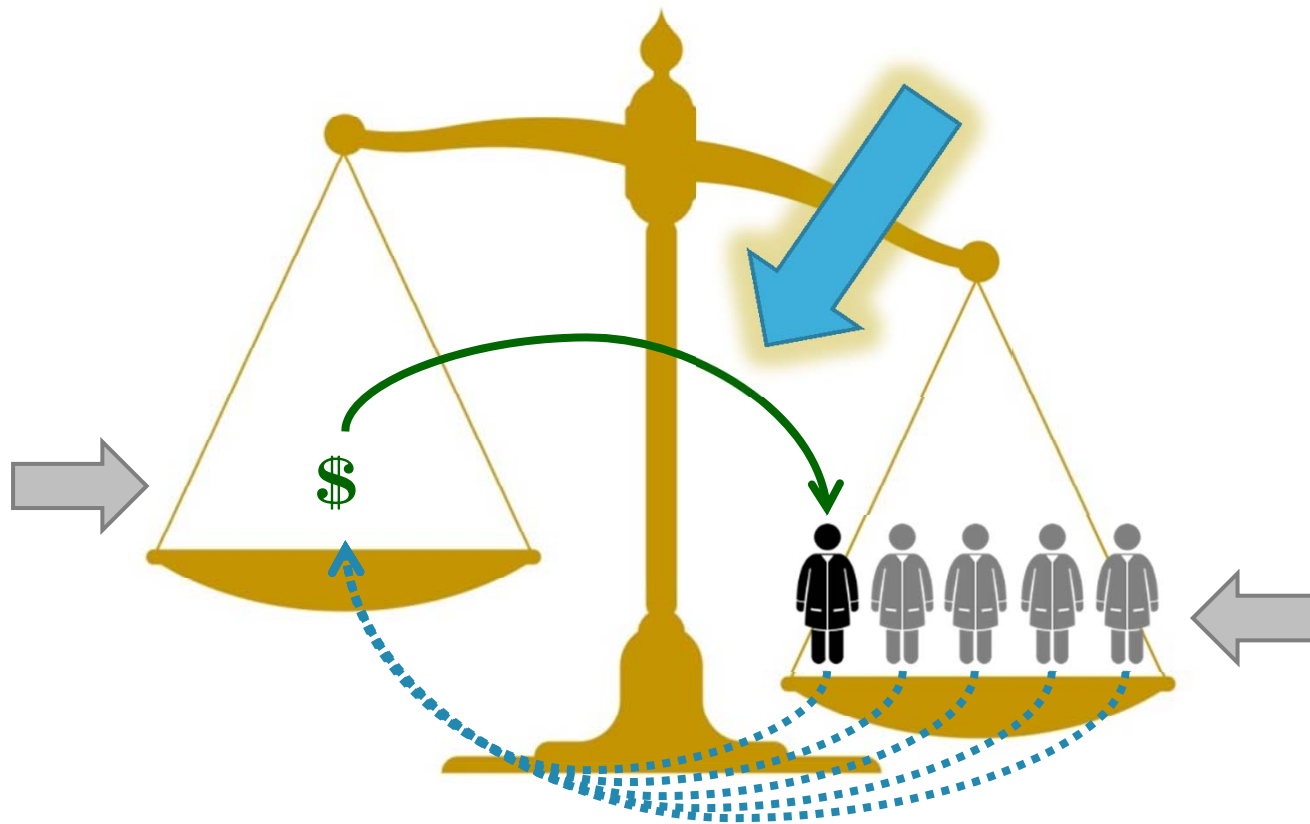


How do we fix the problem?

# Three areas to effect change



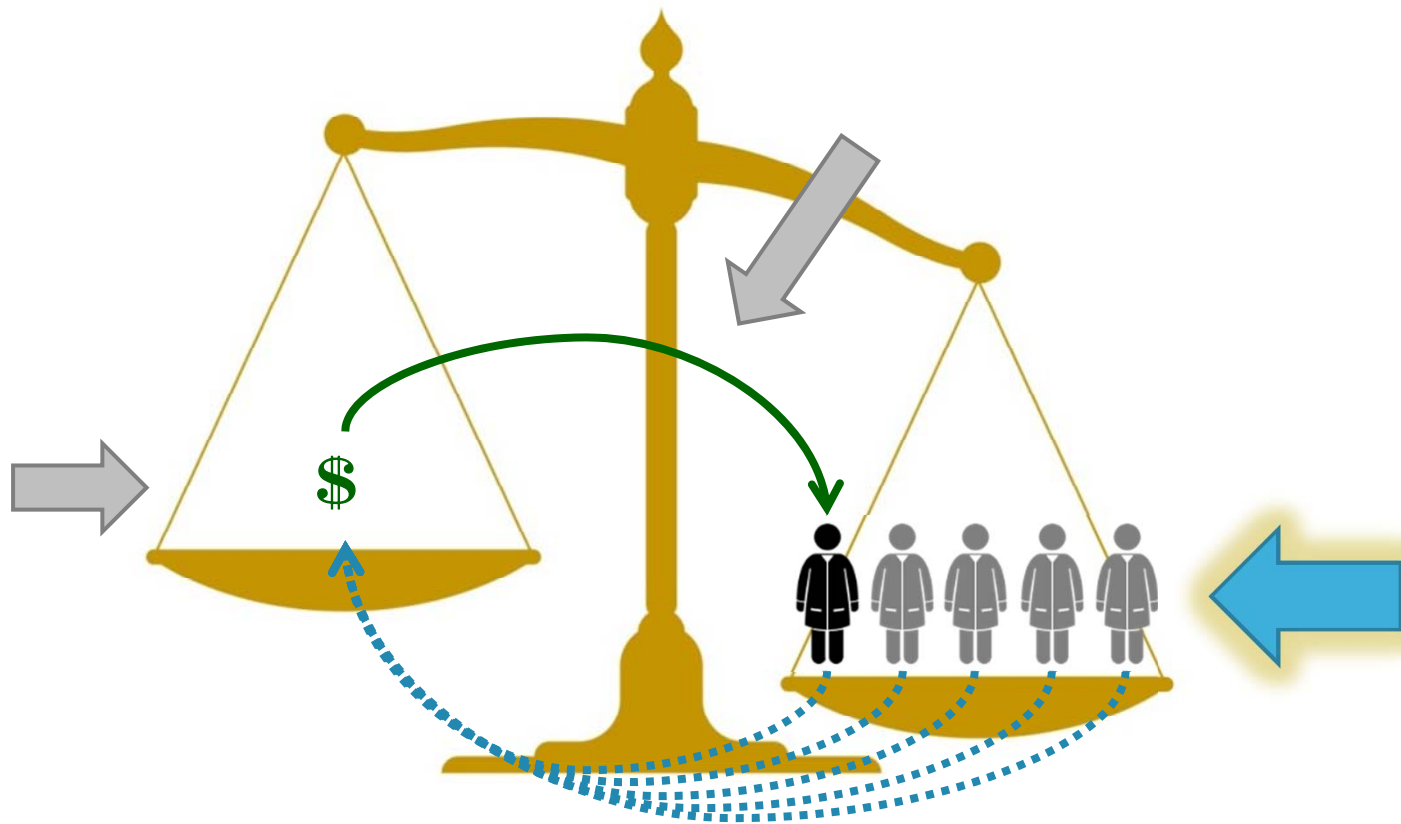
# Optimize funding mechanisms



# Optimize Funding Mechanisms

- Reduce the time spent preparing and reviewing applications
- Increase portfolio evaluation
- Continue to explore new mechanisms for research funding

# Improve workforce utilization & training

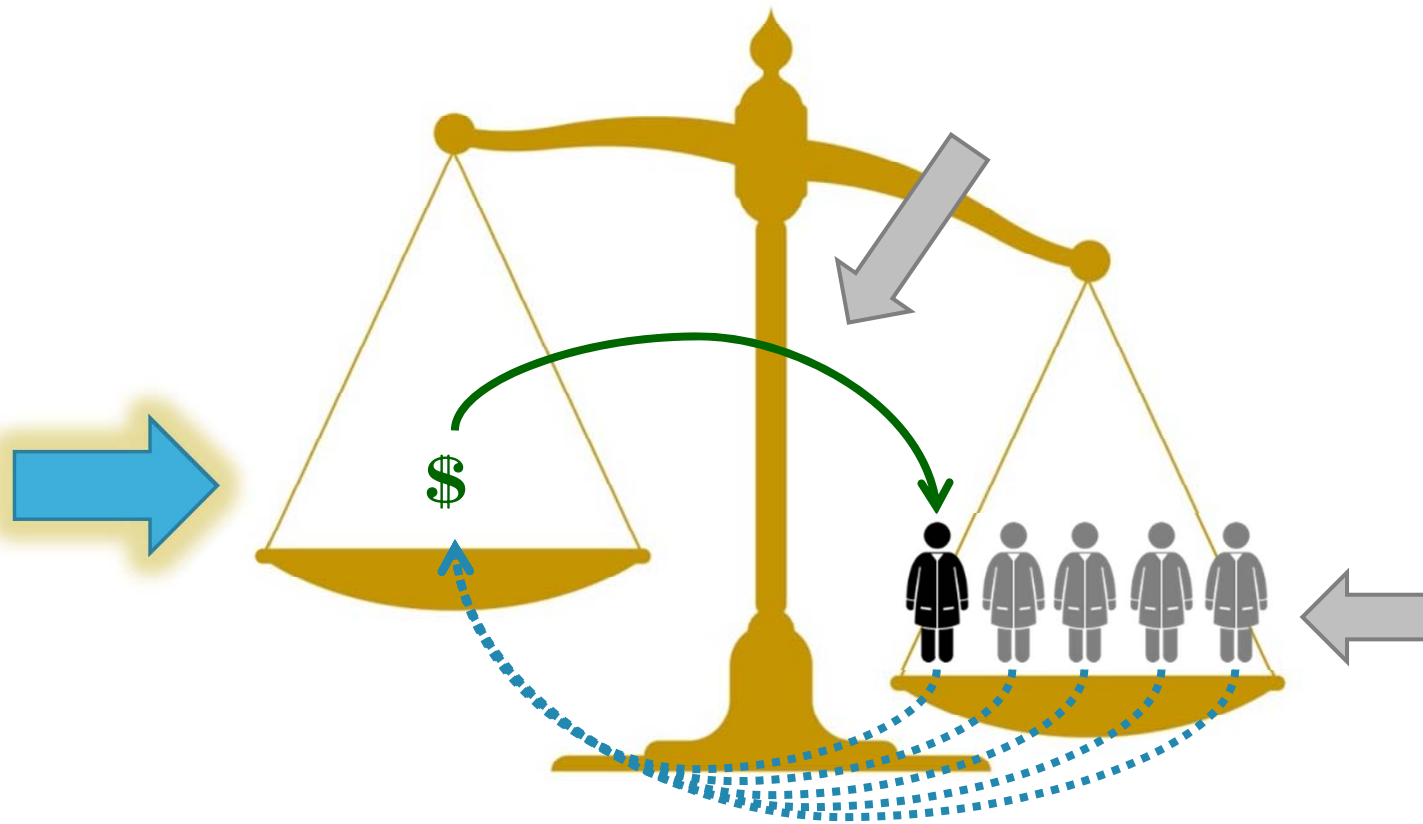




# Improve Workforce Utilization & Training

- Maximize creative potential of investigators
- Enhance the training experience
- Ensure adequate supply of physician scientists
- Make more extensive use of non-trainee research positions

# Maximize Research Funding

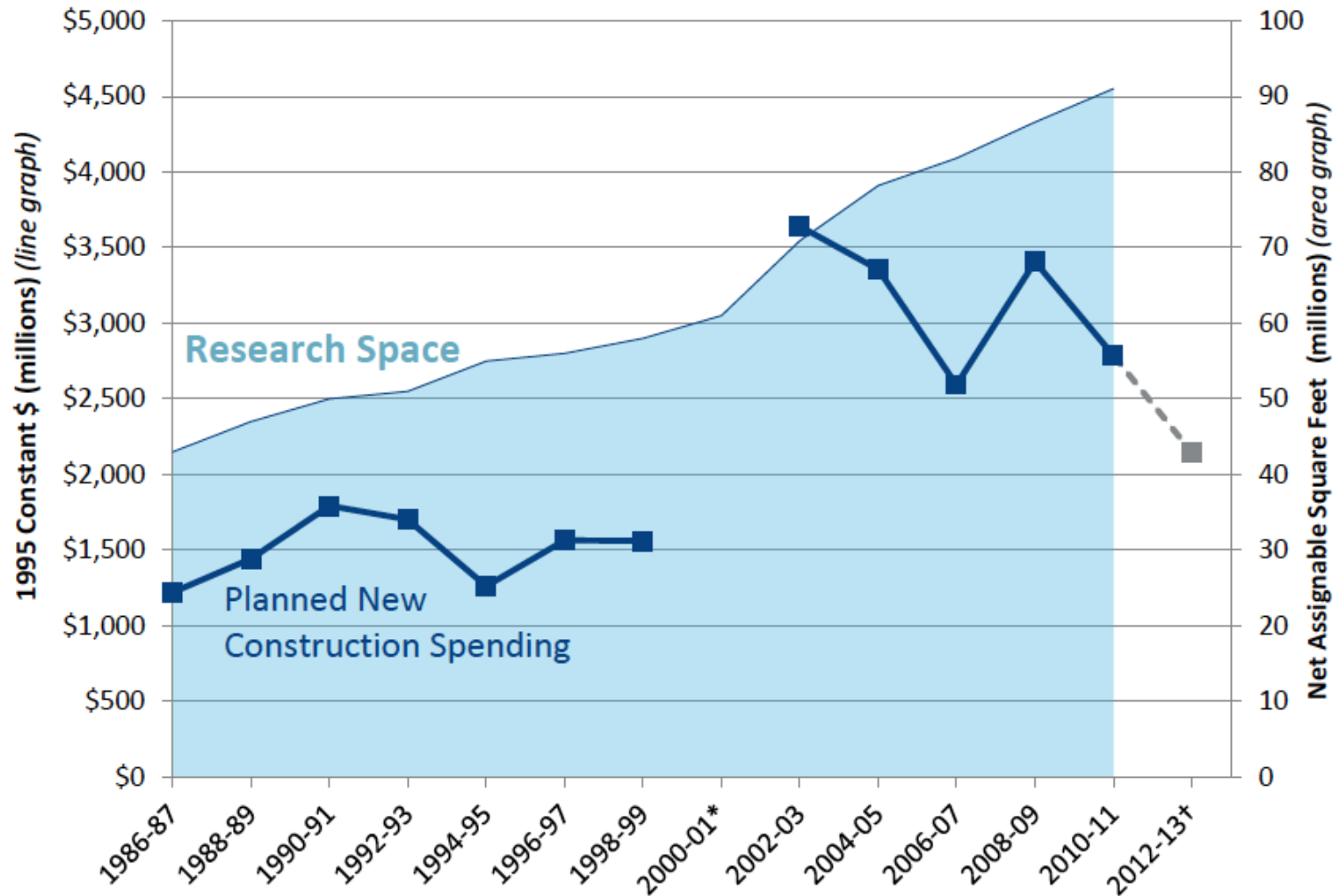


# Maximize Research Funding

- Sustained, Predictable Funding
- Optimize the Use of Resources
- Enhance Deployment and Use of Resources

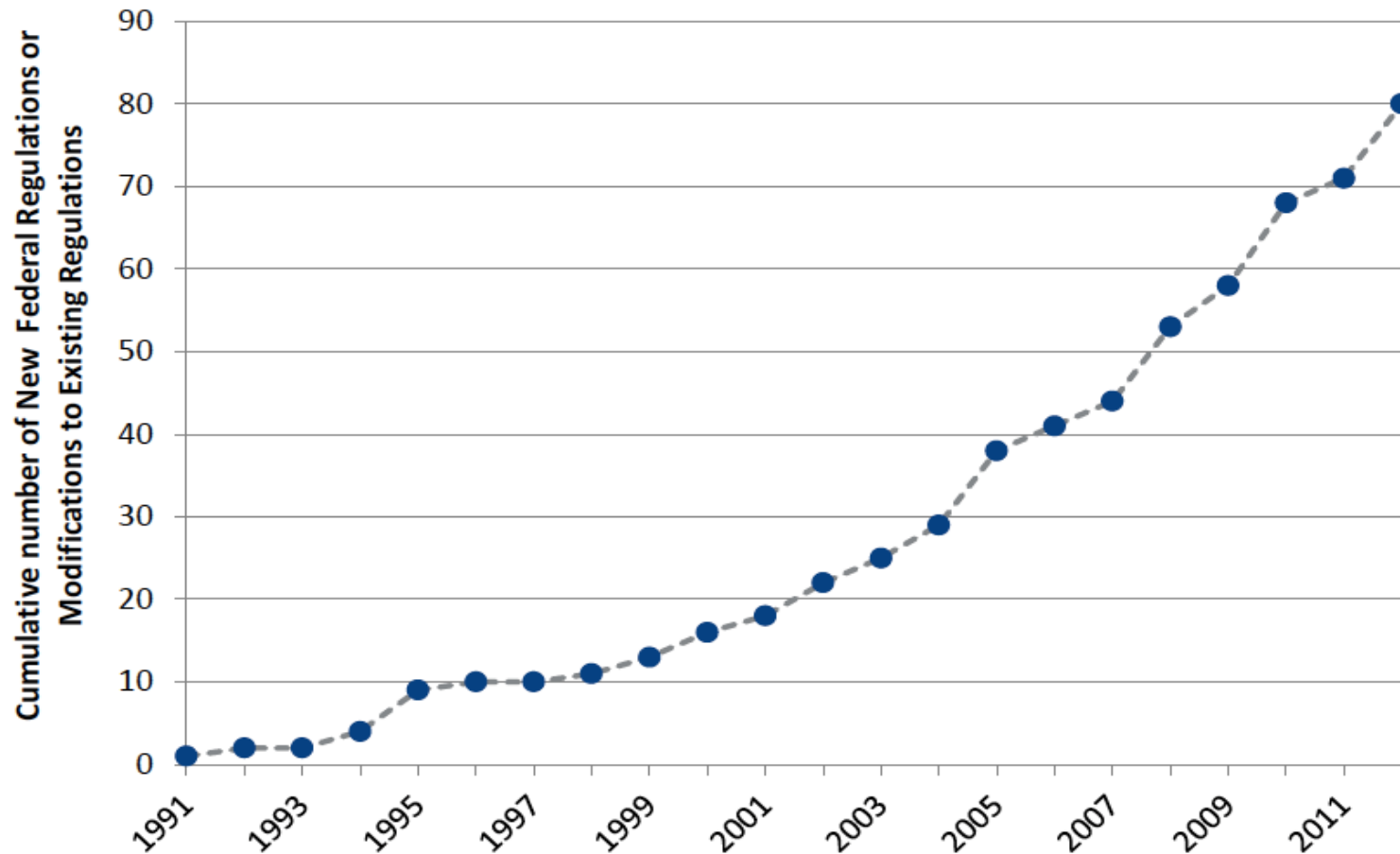
# -- Incentives for Growth

## Biomedical Research Space and Investment—1986-2010



# -- Regulatory Burden

## Cumulative Number of New Federal Regulations or Modifications



# Conclusions

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The perfect storm: In a system that has been built for sustained growth

- Reductions in funding and spending power

- Continued training of scientists

- Expansion of regulatory requirements

- Continued incentives to institutions for growth

# The Time to Address Regulatory Burden

Creation of Federal Demonstration Partnership - 1986

NIH Regulatory Burden Study – 1998

FDP Faculty Workload Surveys

National Science Board Recommendations

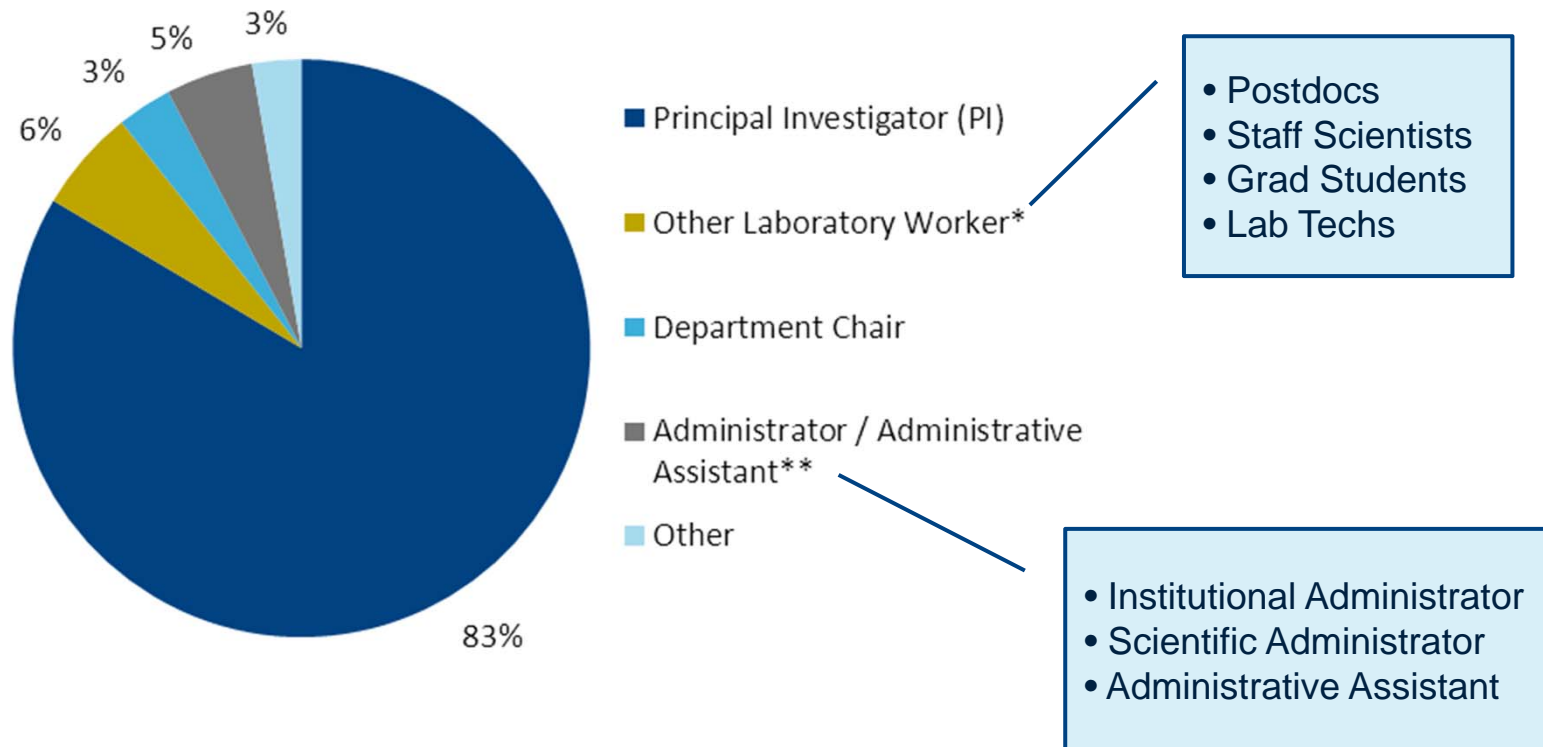
Congressional engagement

American Council on Education

NAS Regulatory Burden Study

Ongoing COGR/AAU/APLU Study

# Responses by Job Title



**1,324 total responses**



# Ranking of Burdens

Area of Burden	Highest Burden	Second Highest	Third Highest	Total Selected
Grant Proposal Preparation and Submission	675	186	88	949
Laboratory Animal Use and Care / IACUC	211	259	129	599
Training Requirements	42	124	181	347
Human Subject Research Protection / IRB	102	142	98	342
Personnel Management	55	120	131	306
Grant Effort Reporting	50	92	125	267
Laboratory Safety Oversight and Requirements	44	87	128	259
Grant Financial Reporting	33	82	95	210
Conflict of Interest Reporting	17	40	78	135
Administrative Support Funding	30	42	55	127
Management of Sub-contracts	15	39	41	95
Biosecurity/safety and Select Agents Program	11	34	42	87
Agency Specific and Multi-Agency Funded Projects	17	17	32	66
FDA Requirements for Studying Drugs and Devices	11	16	25	52
Data Sharing	5	13	26	44
<b>TOTAL</b>	<b>1318</b>	<b>1293</b>	<b>1274</b>	<b>3885</b>
OTHER*				70*

# Common Themes

- Lack of coordination among federal agencies
- Uneven implementation of rules/regulations
- Institutional risk aversion
- Redundant reporting requirements
- Frequent changes to reporting requirements
- Lack of administrative support

## Special Thanks:

Howard Garrison  
Director, Office of Public Affairs

Parker Antin  
FASEB President-Elect



# FASEB

Federation of American Societies  
for Experimental Biology

Bethany Drehman  
Science Policy Analyst  
Office of Public Affairs

Yvette Seger  
Director of Science Policy  
Office of Public Affairs



# Maximize Research Funding (1 of 3)

## ***Sustain Funding***

- 1.1. Congress and the Administration should restore the lost purchasing power of agency research budgets
- 1.2. Congress and the Administration should provide sustainable and predictable funding for biological and medical research
- 1.3. Funding agencies should expand mechanisms to facilitate financial support from stakeholders, such as industry, patient groups, and foundations.
- 1.4. The research community should expand its efforts to communicate the value of biological research and the importance of federal funding

# Maximize Research Funding (2 of 3)

## ***Optimize the Use of Resources***

1.5. The research community should vigorously and collectively oppose the addition of unnecessary or duplicative regulations

1.6. The federal government should eliminate unnecessary regulations and streamline or harmonize those that serve important functions

1.7. The federal government and research institutions should eliminate duplicative or unnecessary training and certification requirements

1.8. Investigators and administrators must take steps to promote efficient administration of grant funds

1.9. The research community should encourage regulatory changes that permit efficient practices, such as multistate review boards (IRBs) and Institutional Animal Care and Use Committees (IACUCS), whenever possible.

# Maximize Research Funding (3 of 3)

## ***Enhance Deployment and Use of Resources***

**1.10.** Because of the breakdown in the appropriations process, research agencies should be allowed to carry funding over into the following fiscal year

**1.11.** Research sponsors should provide greater flexibility in shared instrumentation and core facility programs to ensure that equipment is available to a wide range of users

**1.12.** Research sponsors should encourage resource sharing when funding infrastructure

**1.13.** The research community should examine the effect of reduced incentives for debt-financing of new construction

**1.14.** Stakeholders should create a broader range of institutional ranking metrics (including indicators of a healthy and sustainable research system) to reduce the likelihood that excessive competition will result in wasteful overcapacity

# Optimize funding mechanisms (1 of 2)

## ***Reduce the time spent preparing & reviewing applications***

- 2.1. Research sponsors should make greater use of just-in-time components in grant applications
- 2.2. Research Sponsors should standardize grant application forms and materials to the greatest extent possible.
- 2.3. Research sponsors should explore the use of merit reviewed pre-proposals
- 2.4. Research Sponsors should consider extending the duration of some investigator-initiated grant awards to decrease the amount of effort spent competing for funding



# Optimize funding mechanisms (1 of 2)

## ***Increase portfolio evaluation***

**2.5.** Research sponsors should undertake regular program evaluations and share findings with the broader community

**2.6.** Advisory councils and boards should review portfolio allocation and prioritize investigator-initiated research

# Optimize funding mechanisms (2 of 2)

## ***Continue to explore new mechanisms for research funding***

**2.7.** Explore the impact of funding individual scientists or research programs instead of proposals based on specific projects

**2.8.** Research sponsors should monitor the amount of funding going to a single individual or research group to ensure global distribution of research funding

**2.9.** Research sponsors should examine the feasibility of awarding partial funding to grants based on their priority score

**2.10.** Funding agencies should consider creating a transition award for senior investigators

# Improve workforce utilization & training (1 of 2)

**3.1.** Research sponsors should take steps to reduce principal investigator dependence on external salary support

**3.2.** Institutions should communicate information about career prospects to incoming students and provide information about career paths to current students

**3.3.** The research community should ensure quality training of graduate students and postdocs

**3.4.** The research community as a whole should continue to monitor graduate and postdoctoral education to ensure that changes do not undermine efforts to diversify the workforce

# Improve workforce utilization & training (2 of 2)

## ***Ensure an adequate supply of physician scientists***

- 3.5. NIH should create new funding mechanisms and modify current vehicles to increase the number of physicians entering research careers
- 3.6. Congress should adjust the NIH salary cap contingent upon a reduced F&A cost recovery at higher salary levels

## ***Make more extensive use of non-trainee research positions***

- 3.7. The research community should employ more staff scientists and consider more extensive use of career technicians

# Rollout

- Public Release and Comment (January 9)
  - ▣ Discussion Framework is available online for reading and comment <http://faseb.org>
- Publicity
  - ▣ Articles in domain specific and general publications
  - ▣ Multimedia and social media
- Stakeholder/Agency Engagement
- Congress

# Document Overview

## Background and Data

Section 1: Insufficient Funding

Section 2: A Rising Demand for Research Funding

## Recommendations—31 Total

1. Maximize Research Funding
  - Sustain Funding
  - Optimize Use of Resources
2. Optimize Funding Mechanisms
3. Improve Workforce Utilization and Training

# Broad Burdens/Common Themes

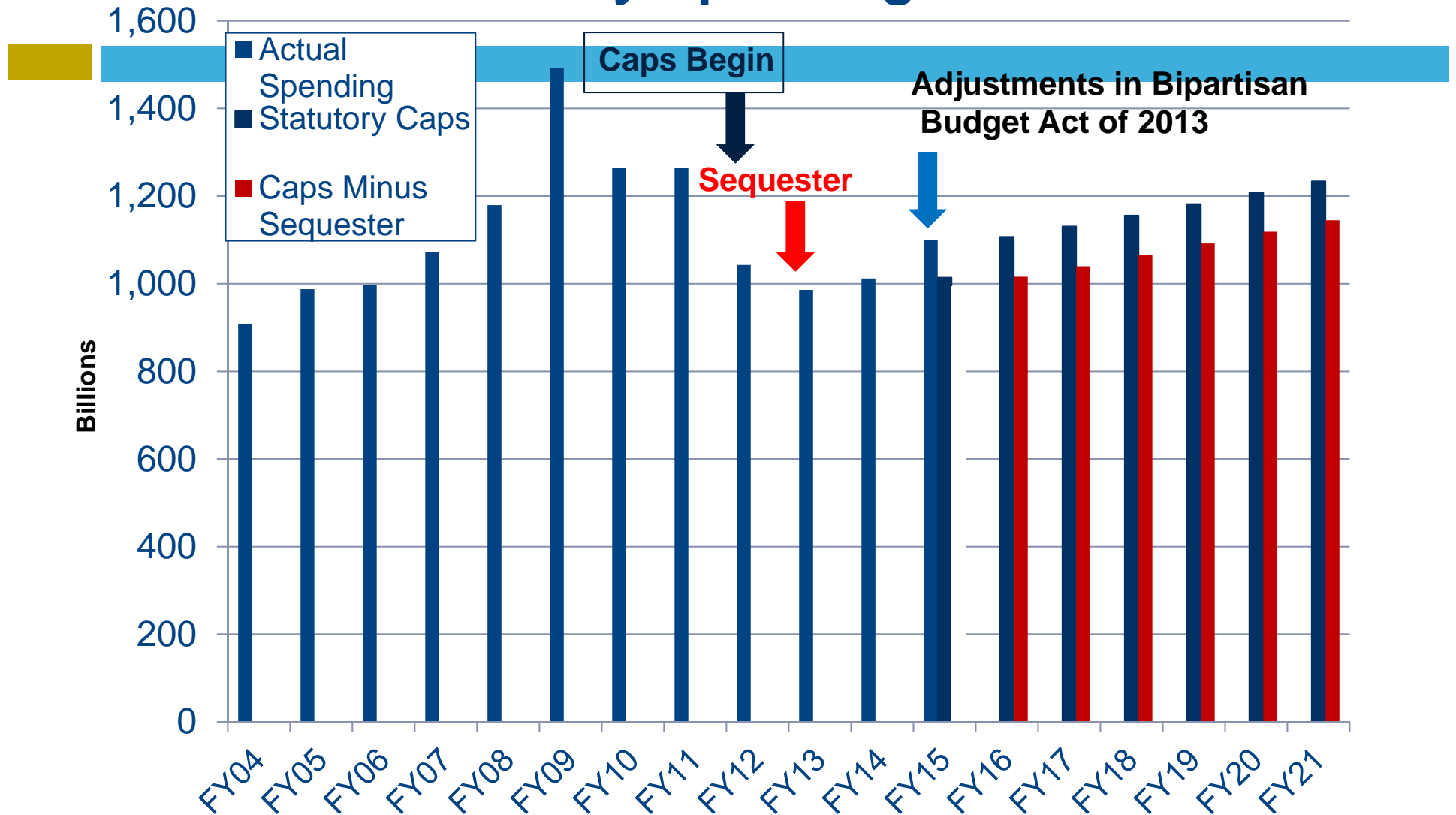
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# FASEB Burden Survey

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# Federal Discretionary Spending: Current Law



**Under Current law automatic reductions resume in FY2016-FY2021**

Source: The Oldaker Group