The Sputnik Moment for U.S. Biomedical Research and NIH's Formula for Success
Sept. 22, 2015 – Senate Briefing
Dr. Richard Nakamura, CSR Director
Center for Scientific Review
National Institutes of Health
U.S. Department of Health and Human Services

Please check for updates

- You may uses these slides without seeking permission from NIH/CSR
- Please do not imply that your presentation is an official CSR or NIH presentation -- unless you're an official at an NIH Institute or Center.
- Check the Notes Sections for additional information you may want to use in you presentations.
- Contact CSR if you have questions about these slides: CSRCOMMUNICATIONSOFFICE@csr.nih.gov

National Institutes of Health

NIH seeks fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to enhance health, lengthen life, and reduce the burdens of illness and disability.

NIH Supports 300,000 scientists and research staff at 2,500 Institutions

Foreign Officials Have Beaten a Path to the NIH Center for Scientific Review

NIH Peer Review

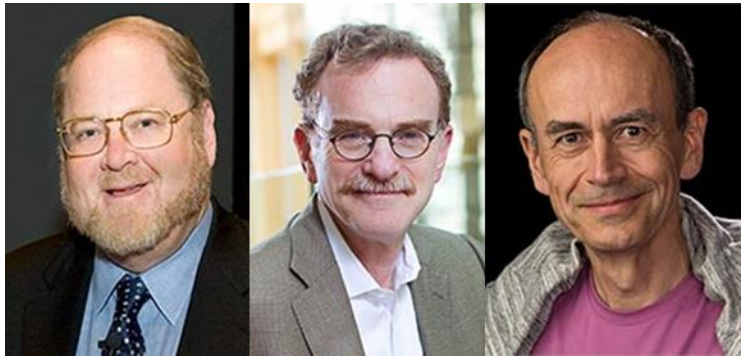

Nejat Egilmez
Barbara


DR. MICHAELA KIERNAN

73% of the Nobel Prizes 2000-2014 Won or Shared by NIH Reviewers

2013-2014

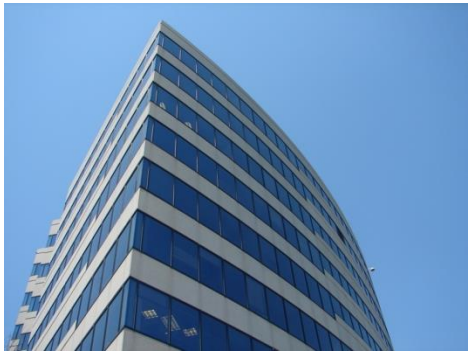
Physiology or Medicine



James Rothman | Randy Schekman | Thomas Südhof

Chemistry

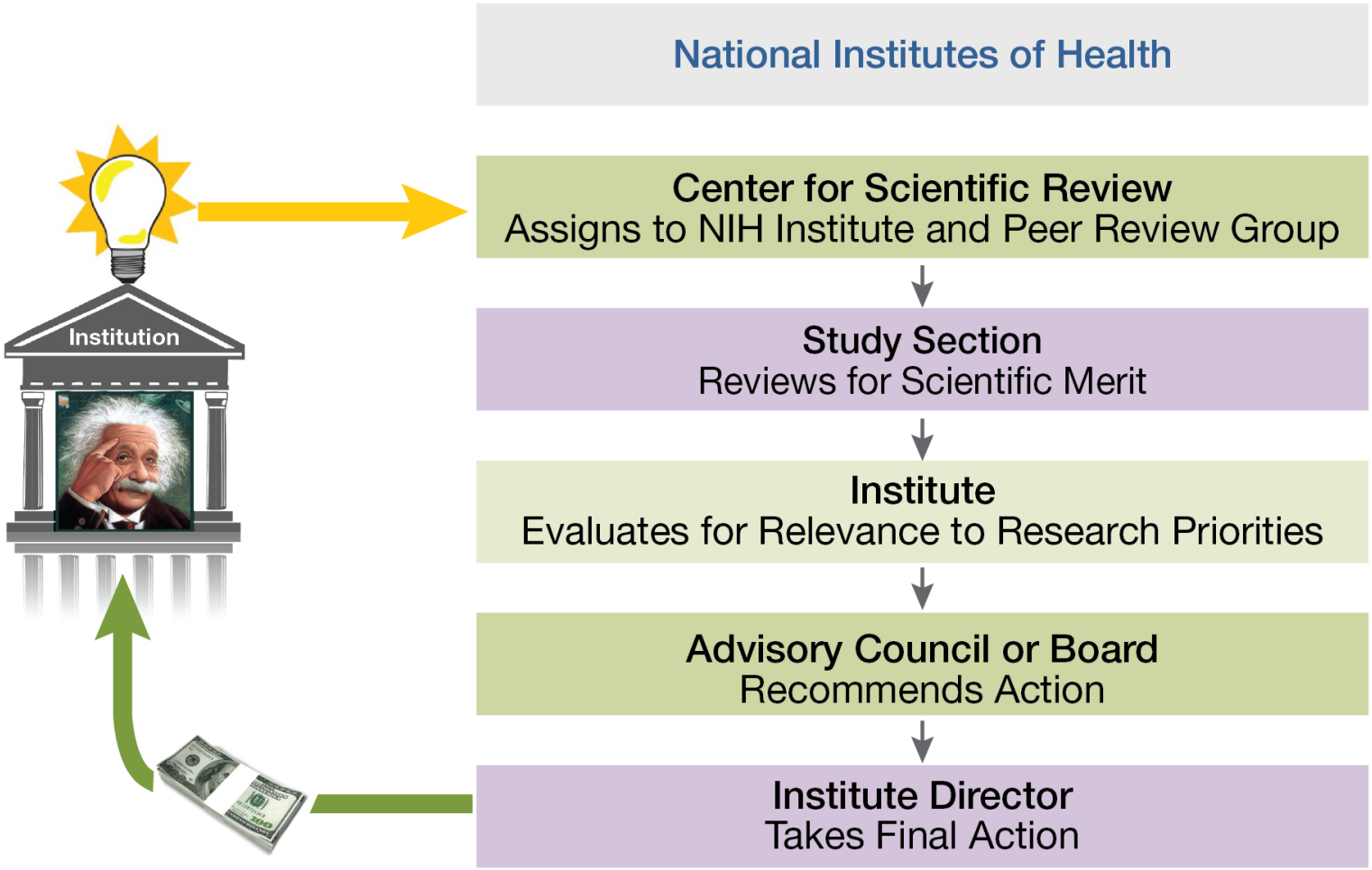
Michael Levitt | Arieh Warshel | John Moerner



The NIH Center for Scientific Review

- Receives all NIH grant applications
- Reviews 75% or ~60,000 of them
- Recruits 17,000 reviewers a year
- Holds 1,500 review meetings a year
- Manages the process with 247 Scientific Review Officers

Peer Review and Funding of NIH Grant Applications



Who Sets NIH Priorities?

Institutes Set their Priorities Based on Input from:

- The scientific community
- Congress
- Industry, patient and public representatives who serve on advisory councils, boards and panels.

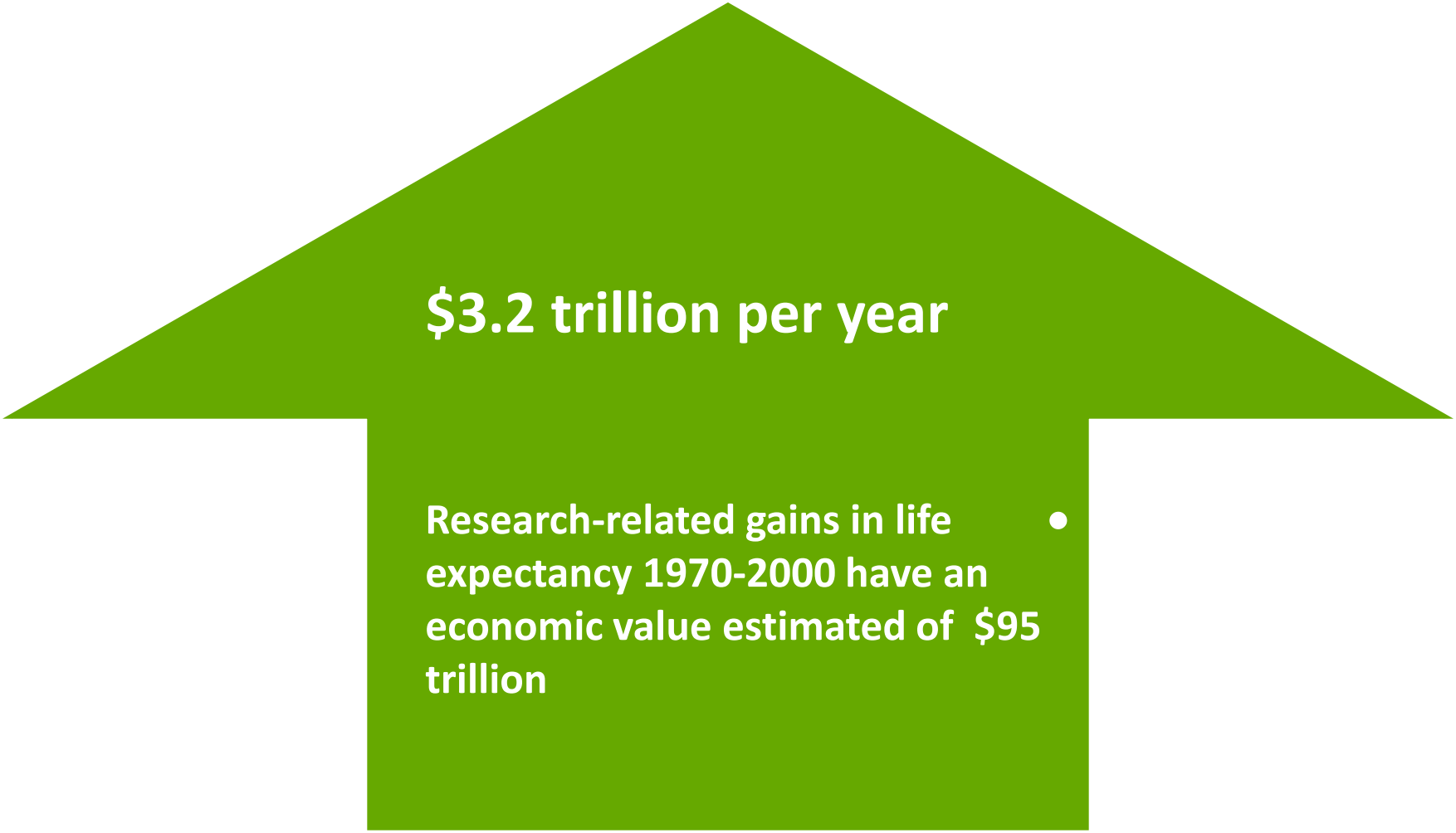
How NIH Peer-Reviewed Research Has Paid Off

Economic Benefits

NIH extramural funding generated $57.8 billion in economic output nationwide in 2012

United for Medical Research, 2013

Economic Benefits

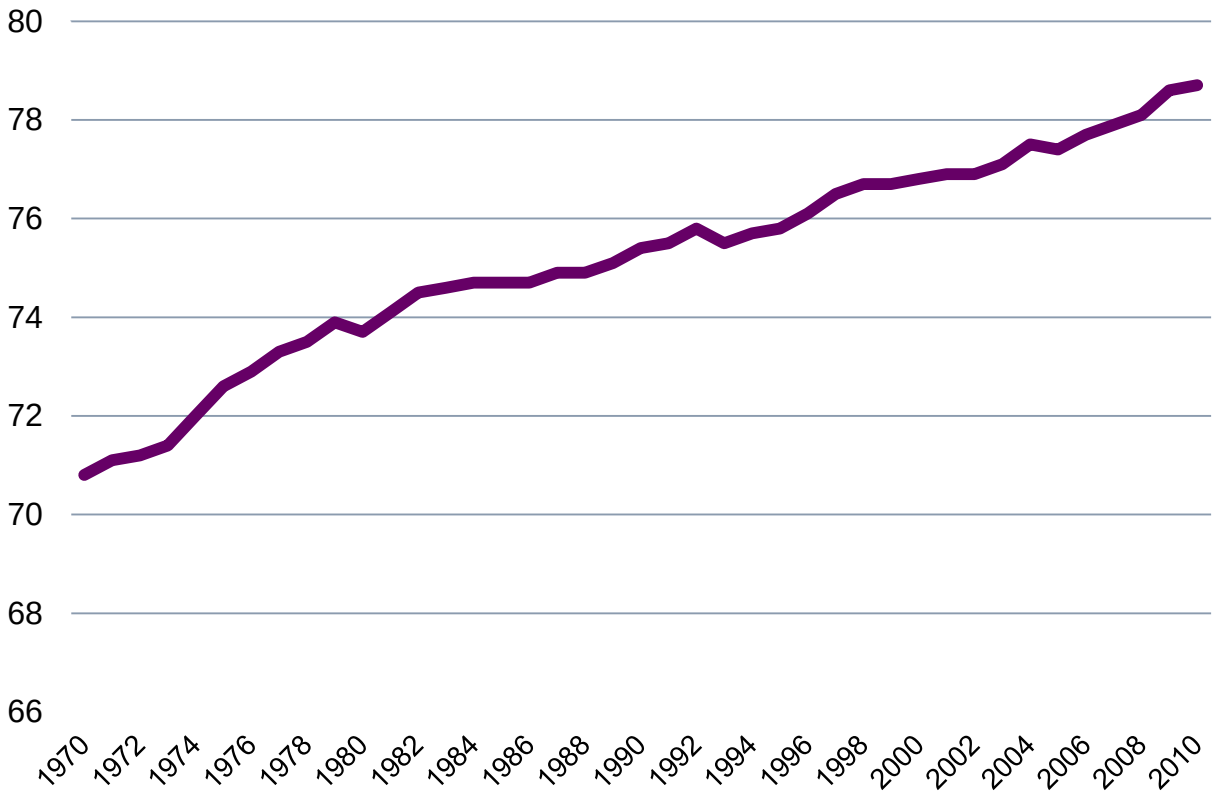


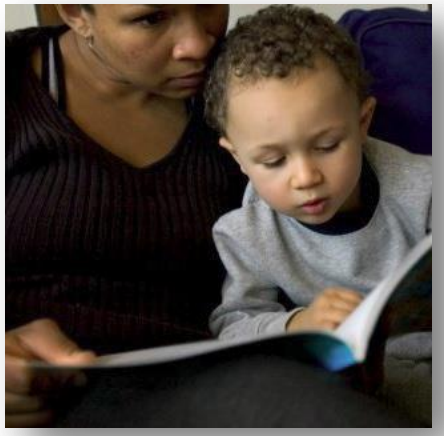
The Value of Health and Longevity, Kevin M Murphy and Robert H Topel, U. Chicago and NBER, 2006:

Scientific and Health Advances

The Benefits of Biomedical and Public Health Advances

U.S. Life Expectancy





Source: CDC National Vital Statistics Reports, Vol 60, No 4, January 11, 2012

NIH Research Matters

- 1.35 million deaths are prevented each year due to NIH research advances in treating or preventing cardiovascular disease, stroke, cancer and diabetes

- 70% of major drugs were developed or made possible by NIH-funded research according to a 2000 congressional report: The Benefits of Medical Research and the Role of the NIH

Citations: http://public.csr.nih.gov/aboutcsr/

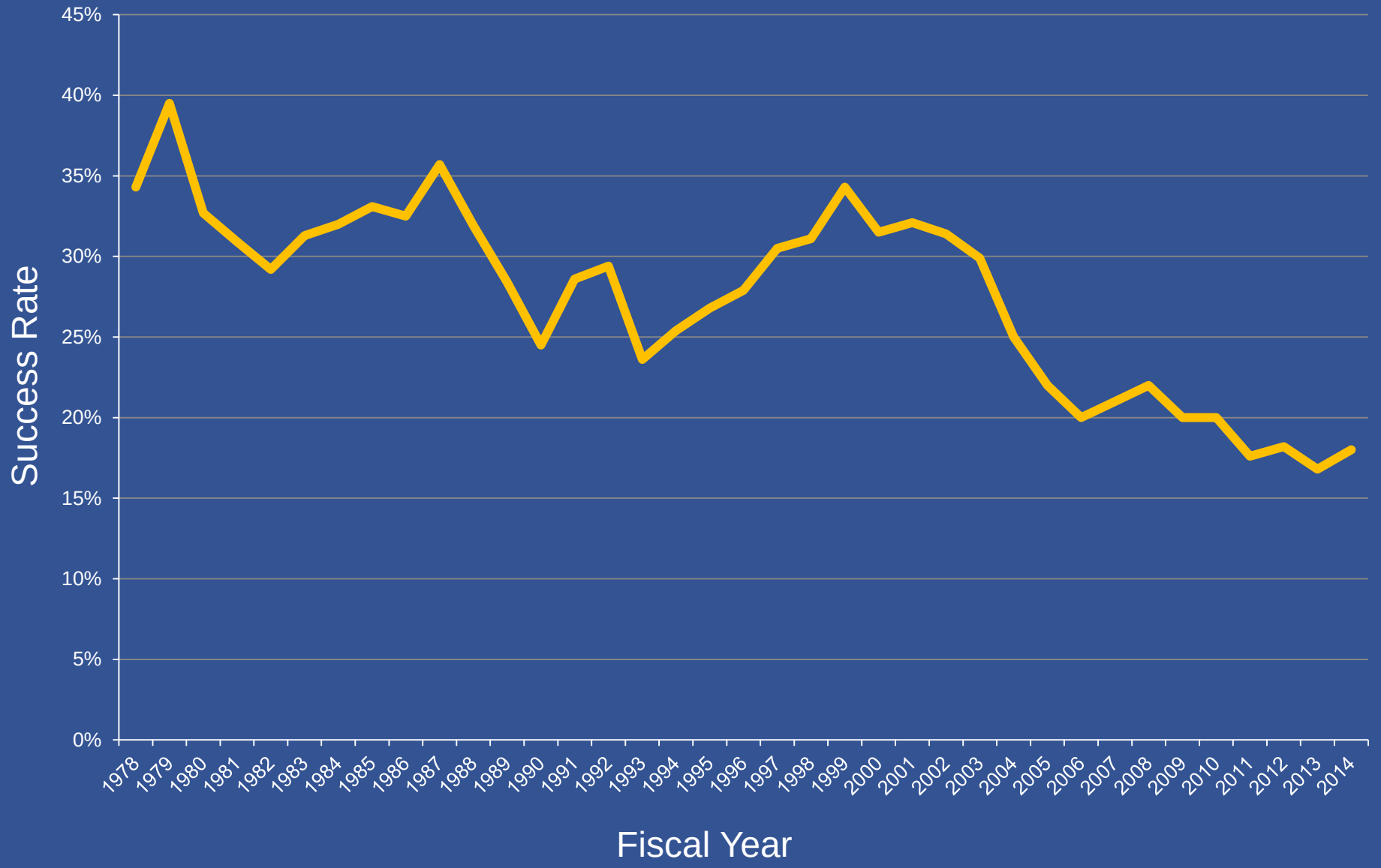
Why Has NIH Peer Review Been so Successful?

- It is transparent to the applicant
- The focus is on funding ideas or people not institutions
- Ideas spring from independent researchers across the country
- Researchers must compete—like entrepreneurs—for funding
- Scientists from the external community are the primary judges
- Scientists and staff put a high value on fairness and work hard to maintain it

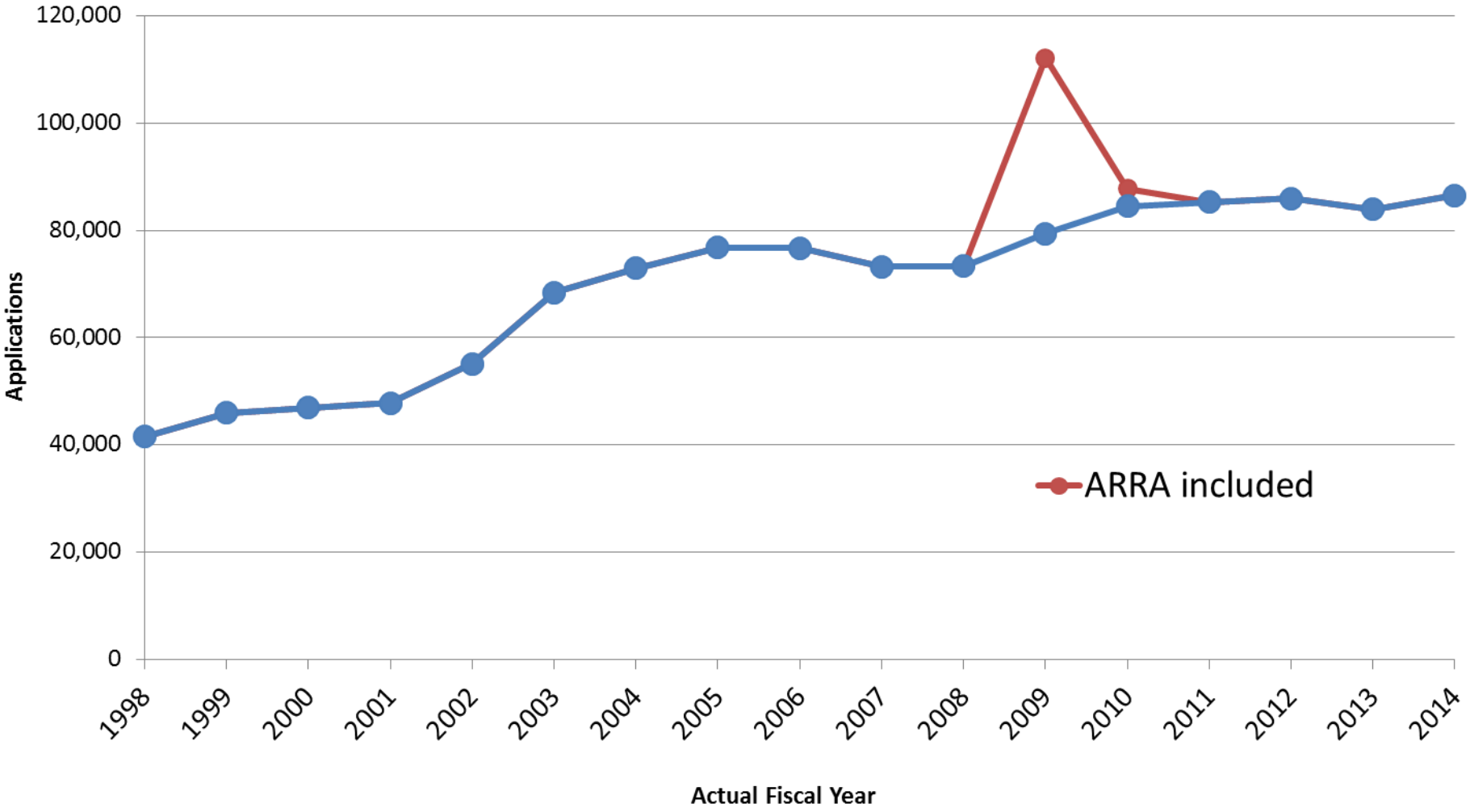
Will the Future Be as Bright as the Past?

Grant Success Rates

FY 1978 – 2014

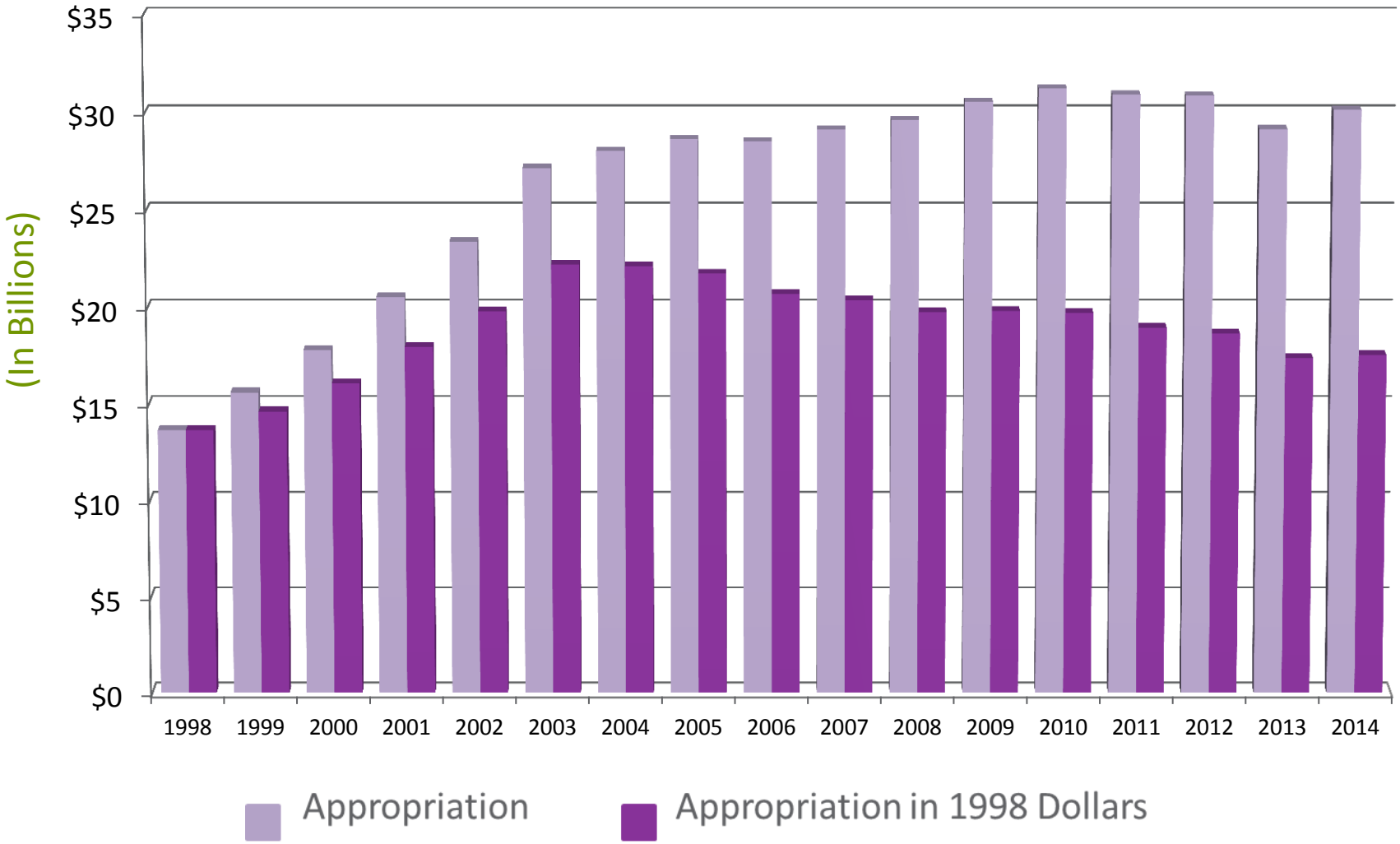


Number of Applications Received by Fiscal Year



NIH Program Level in Normal Dollars and Constant Dollars

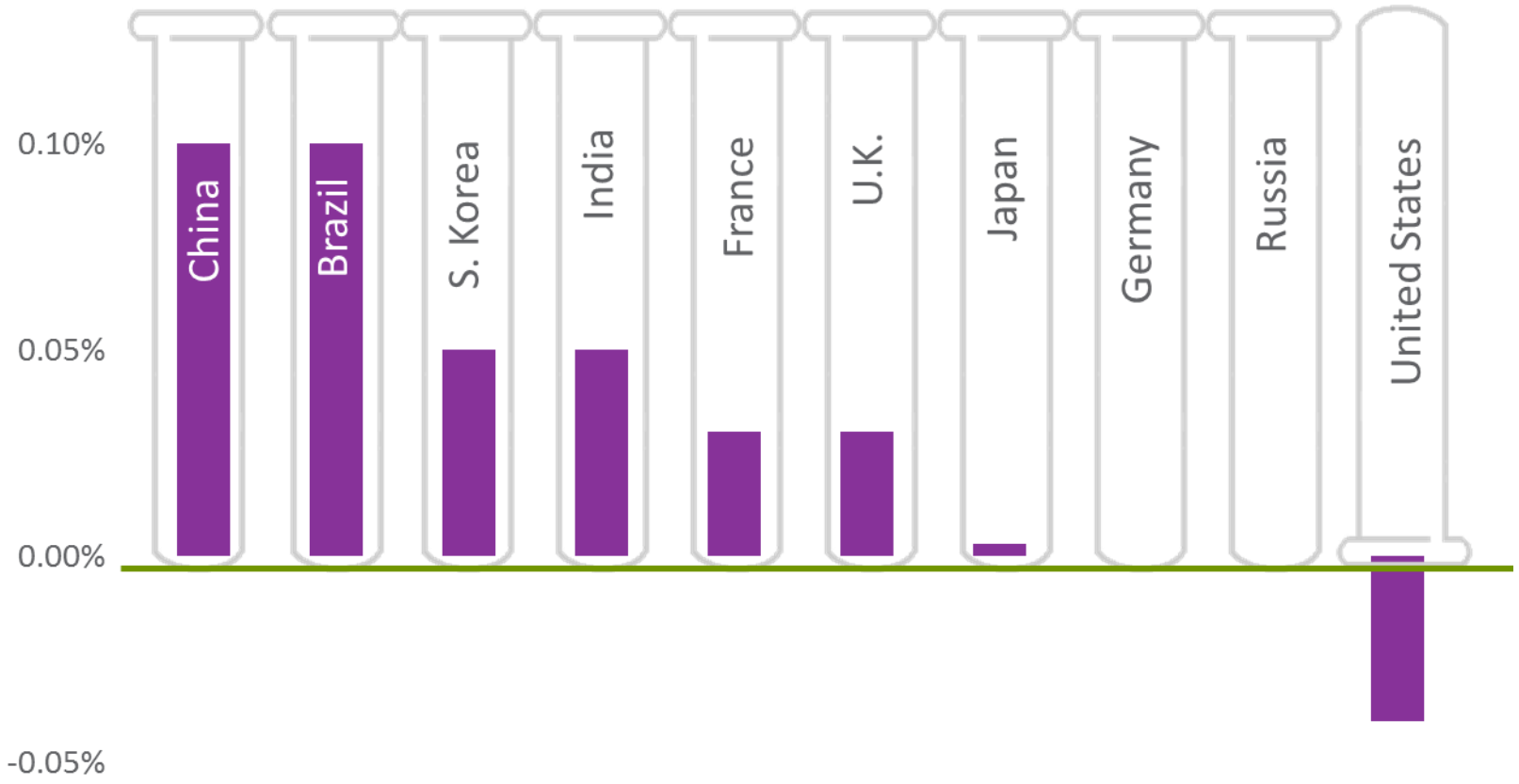
FY 1998-FY 2014



Will Other Countries Surpass the US?

Change in Percentage of GDP Invested in Research

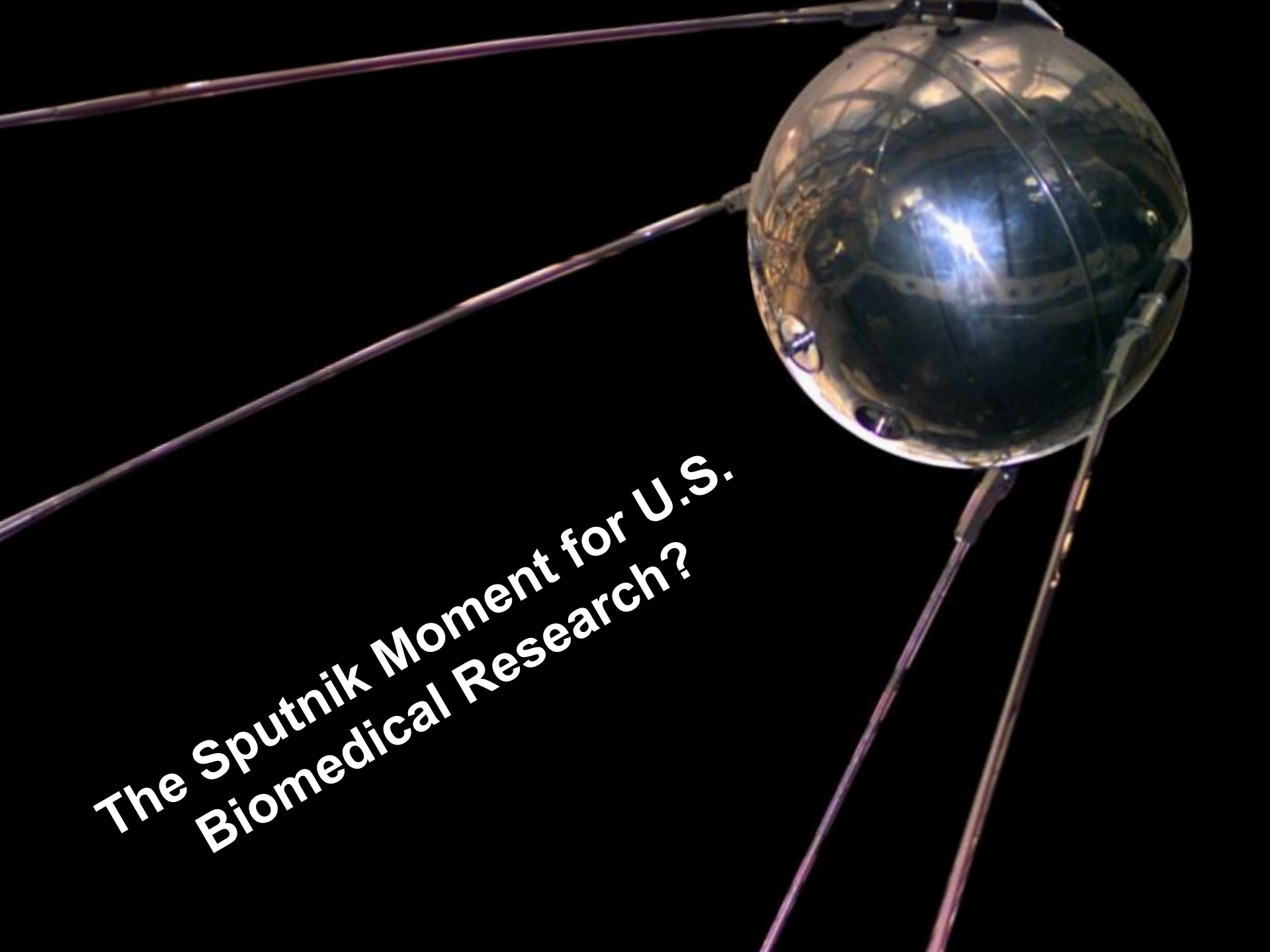
2011 to 2013



Adapted from: *Nondefense Discretionary Science 2013 Survey,* ASBMB
Source: Batelle, *R&D Magazine*

Eight Countries Have Passed the U.S.

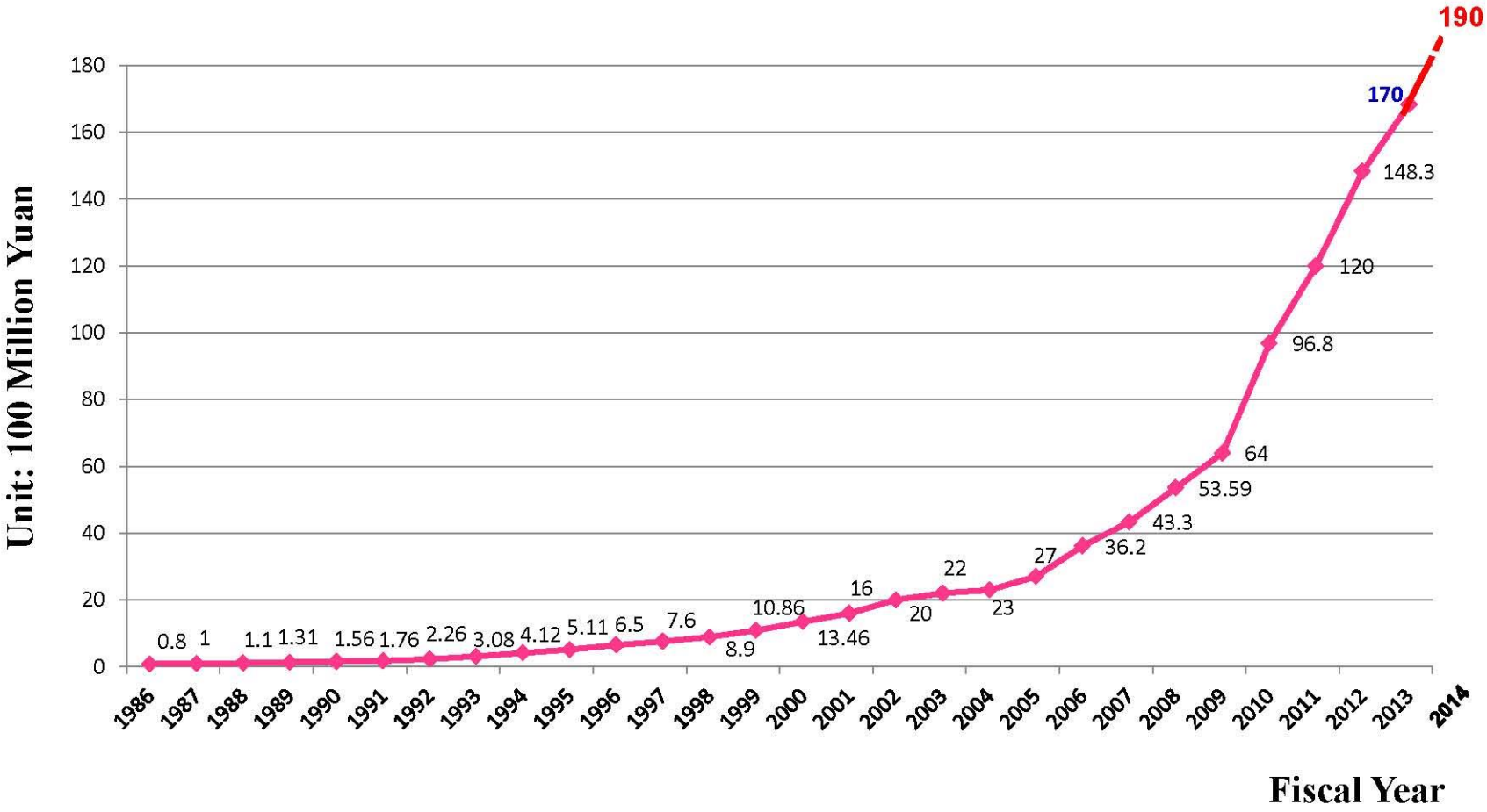
Country	% GDP on Research and Development
Israel	4.2
South Korea	3.6
Japan	3.4
Finland	3.5
Sweden	3.4
Germany	2.9
Switzerland	2.9
Denmark	2.9


The Sputnik Moment for U.S. Biomedical Research?

Budget for 1986-2014

The total budget for 2014 is ￥19Billion (~$ 3.05Billion), an increase by 11.7% over the year 2013.

National Natural Science Foundation of China



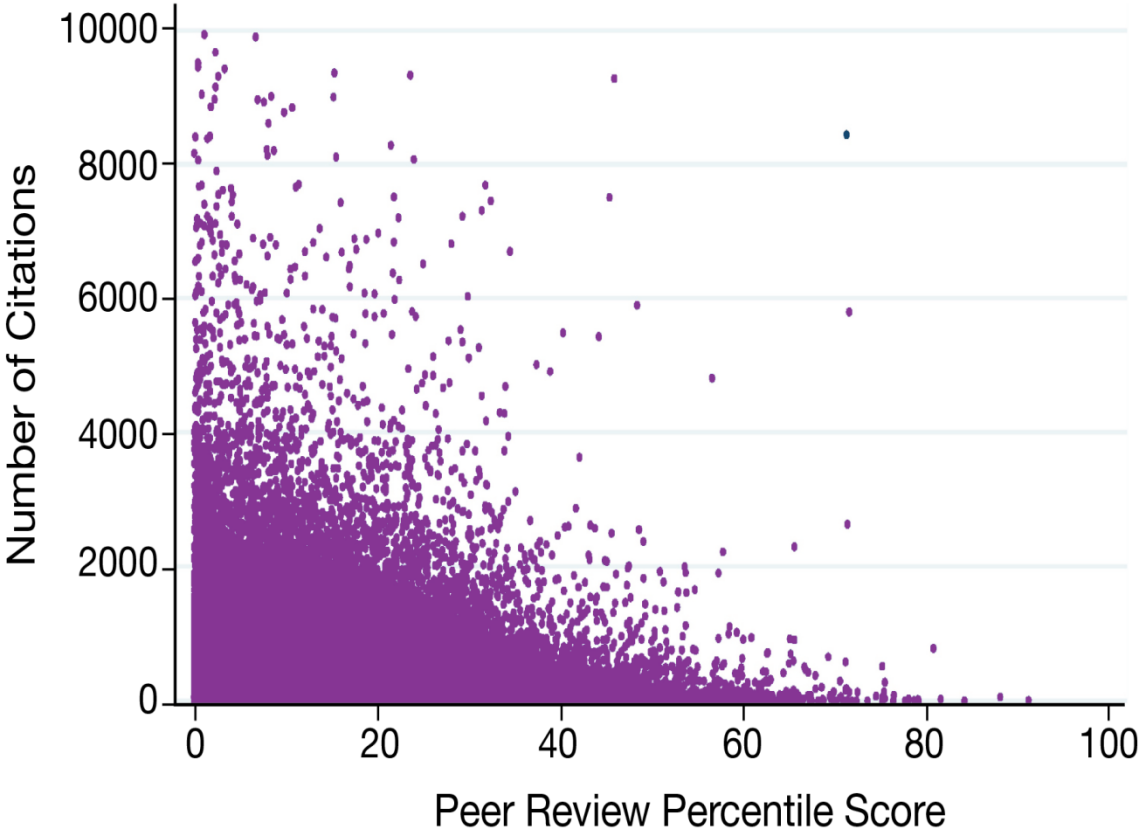
Bottom Line:

NIH Peer Reviewed Research Works for the U.S. and Can Help Propel U.S. Health Science to Greater Heights

www.csr.nih.gov

Extra Slides

New Data on How NIH Peer Review Works



Danielle Li and Leila Agha, Science 24 April 2015: 348 (6233), 434-438

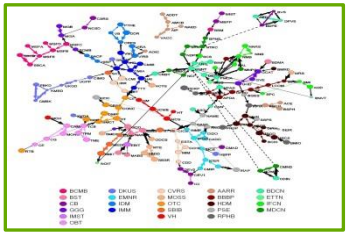
We Actively Manage Reviewer Conflicts

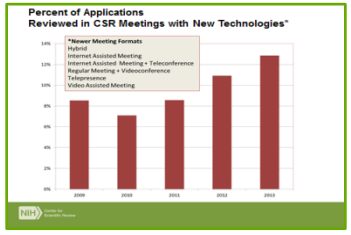
We will not let a reviewer assess an application if he--

- Is employed or seeking employment at the applicant's institution
- Is a family member or close friend
- Is a collaborator
- Has a longstanding scientific disagreement
- Has a personal bias
- Has an appearance of a conflict

Efforts to Assess and Advance NIH Peer Review

- Using the tools of science to evaluate its effectiveness and efficiency
- Modifying review procedures to better ensure reproducibility of research results
- Enlisting the scientific community to help assess review groups and practices.





NIH RESEARCH MATTERS

NIH Research Matters

AUGUST 24, 2015

Story Archive

RSS Feed

Find us on Facebook

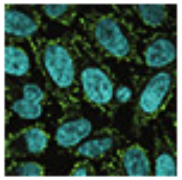
Subscribe

Combination Therapy for Metastatic Prostate Cancer

Results of a clinical trial show that giving chemotherapy along with hormone therapy can prolong the lives of men with a certain type of metastatic prostate cancer.

Untangling the Octopus Genome

The octopus genome sequence provides new clues to this animal's distinctive features and abilities, and may help inform a better understanding of human development.



Study Details Process Involved in Parkinson's Disease

Researchers determined how cells dispose of damaged mitochondria, a process that can lead to neurodegenerative and other diseases when gone awry.

http://www.nih.gov/researchmatters/

View the Video

www.csr.nih.gov/video/video.asp