

Impact of Funding on Academic Careers

Kenneth Gibbs, Jr., Ph.D.

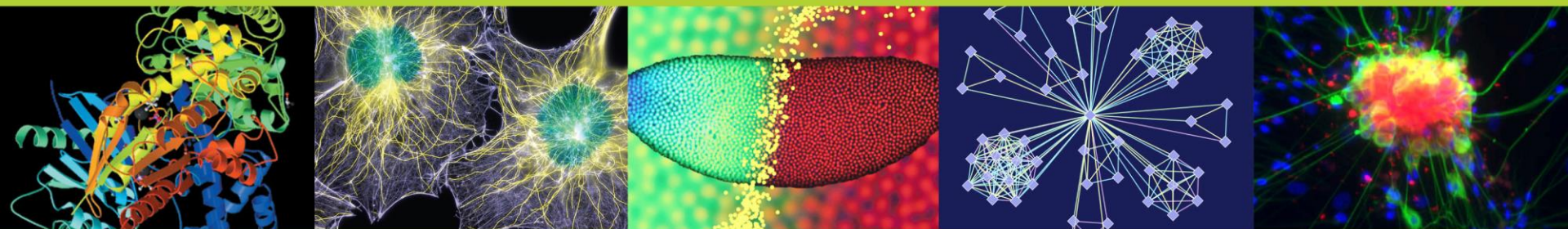
NIH/NIGMS

Director, Postdoctoral Research Associate Training (PRAT) Program

Program Director

Division of Training, Workforce Development and Diversity

Division of Genetics, and Molecular, Cellular and Developmental Biology



Many STEM Faculty Expected to Secure External Funding

Public – Doctoral Very High Research Toxicology

Required Related Experience

Candidates should have at least 3 yrs of post-doctoral experience in cancer biology or related field, with a strong record of quality scholarly activity and clear potential to secure extramural funding for their research program.

Public – Master's Colleges & Universities Physics

Qualifications

Applicants should have a Ph.D. in physics or a D.M.P. in medical physics and be committed to teaching from the full range of undergraduate physics courses. Successful applicants will demonstrate the capacity to develop an active research program that will involve undergraduate students and attract external funding. Postdoctoral research and/or teaching experience are also required.

Private Doctoral Very High Research Chemistry

The Department of Chemistry at [REDACTED] University invites applications for a tenure-track faculty position at the Assistant Professor level in the field of Medicinal Chemistry, starting in the fall of 2020. Candidates that complement fundamental research with translational in vitro and/or in vivo disease models, pharmacology, and/or cheminformatics are especially encouraged to apply. Successful candidates are expected to establish an active, externally funded research program and to demonstrate excellence in graduate and undergraduate teaching. This recruitment is part of an ambitious

Private – Master's Colleges & Universities Biology

The successful candidate will have the following credentials and experience:

- A doctoral degree in Physiology or a related field (Neuroscience, Cell Biology, Genetics).
- Experience or evidence of potential for excellence in teaching undergraduate biology.
- Active engagement in research amenable toward mentoring undergraduates and potential for leading to extramural funding and co-publication with students.

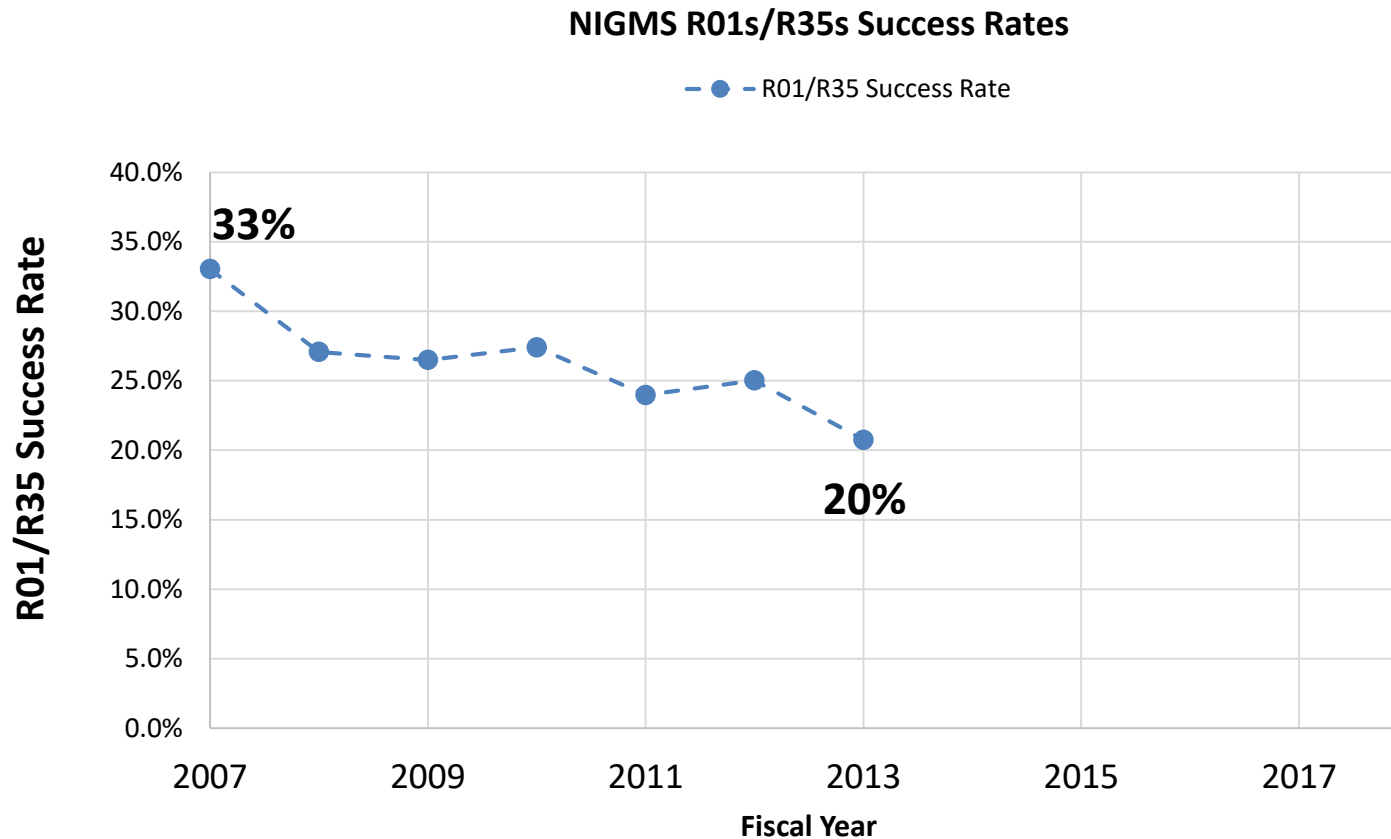
Funding Availability Causing Strain

Rescuing US biomedical research from its systemic flaws

Bruce Alberts^a, Marc W. Kirschner^b, Shirley Tilghman^{c,1}, and Harold Varmus^d

“The long-held but erroneous assumption of never-ending rapid growth in biomedical science has created ***an unsustainable hypercompetitive system*** that is discouraging even the most outstanding prospective students from entering our profession—and making it difficult for seasoned investigators to produce their best work.”

NIGMS R01/R35 Success Rate



Success Rate = number of applications funded/number of unique projects

Nature of Academia Influences Career Trajectories of Ph.D. Scientists

CBE—Life Sciences Education, Vol. 12, No. 4 | Articles

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What Do I Want to Be with My PhD? The Roles of Personal Values and Structural Dynamics in Shaping the Career Interests of Recent Biomedical Science PhD Graduates

Kenneth D. Gibbs  and Kimberly A. Griffin

“Career interests were fluid and formed in environments that generally lacked structured career development. **Vicarious learning shaped similar outcome expectations about academic careers for all scientists**; however, women and URM^s recounted additional, distinct experiences and expectations. Scientists pursuing faculty careers described personal values...as their primary driver. ***For scientists with low interest in faculty careers, a combination of values...and structural dynamics of the biomedical workforce (e.g., job market, grant funding, postdoc pay, etc.) played determinative roles.*** These findings illuminate the complexity of career choice and suggest attracting the best, most diverse academic workforce requires institutional leaders and policy makers go beyond developing individual skill, attending to individuals’ values and promoting institutional and systemic reforms.

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“The seeming **lack of control** you have over your career options as an academic scientist. In terms of, **whether not you get grants, or whether or not you publish**, especially in this climate where the science funding has stalled or gone down in most cases over the last ten years ...**You have no control**...and that really turns me off.”

Will, Black, Male, Postdoc – Low Interest in Faculty Careers

System Stresses in Academia Influence Career Trajectories of Ph.D. Scientists

Your Perspectives: Strategies for Enhancing
Postdoctoral Career Transitions to Promote
Faculty Diversity

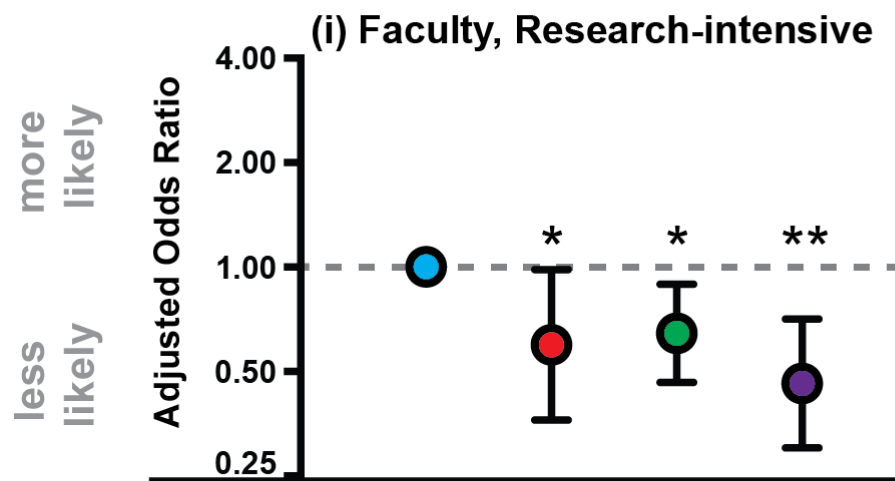
BY DR. ALISON GAMMIE, DR. KENNETH GIBBS, AND DR. MICHAEL
SESMA

Barriers to enhancing faculty diversity

There is a fundamental disconnect between the goals of increasing diversity in science and the overall academic jobs market. No amount of fellowships or mentoring can hide the low availability of faculty positions, the scarcity of funding, and the difficulties that any postdoc, much less one from an underrepresented group, face when choosing a career in academia. **When postdocs see their mentors writing numerous grants and spending a large amount time trying to get manuscripts published, academia does not look like a very attractive or even sensible option....** I'm not suggesting that the NIH or anyone else should stop trying to improve the diversity of the scientific community. I am saying that solving the crisis of the academic job market in biomedical science would be a critical starting point for being able to make a credible case to underrepresented groups that they should be thinking about careers in academia.

Disparate Career Interests at Ph.D. Completion

(A) *Likelihood of high interest in career path at Ph.D. completion*



Controls

- Career interests at Ph.D. entry(+)
- Advisor relationship (+)
- Publication record (+)
- ***Ph.D. at "Top 50" university*** (-)
- Time-to-degree
- H-index
- Research self-efficacy (+)
- Departmental support for career development (+)
- Sense of belonging

Men, White or Asian (n=375)

Men, URM (n=87)

Women, White or Asian (n=808)

Women, URM (n=189)

NIGMS Funding Policies

The goal of NIGMS funding policies is to maximize investments in investigator-initiated biomedical research to drive fundamental scientific discoveries that advance understanding of human health and disease. To address this goal, the Institute strives to support a broad and diverse portfolio of highly meritorious research in its [mission areas](#).

To be funded, a grant must have high scientific and technical merit, as determined by peer review. However, in deciding to fund any grant, NIGMS staff also considers other factors, including the breadth and diversity of the Institute's research portfolio, approaches and investigators; [the total amount of funding available to the laboratory](#); and the priority of the research area for the Institute's mission.

Because these factors are taken into account, NIGMS does not have a “payline” or strict cutoff in scores that it will fund.

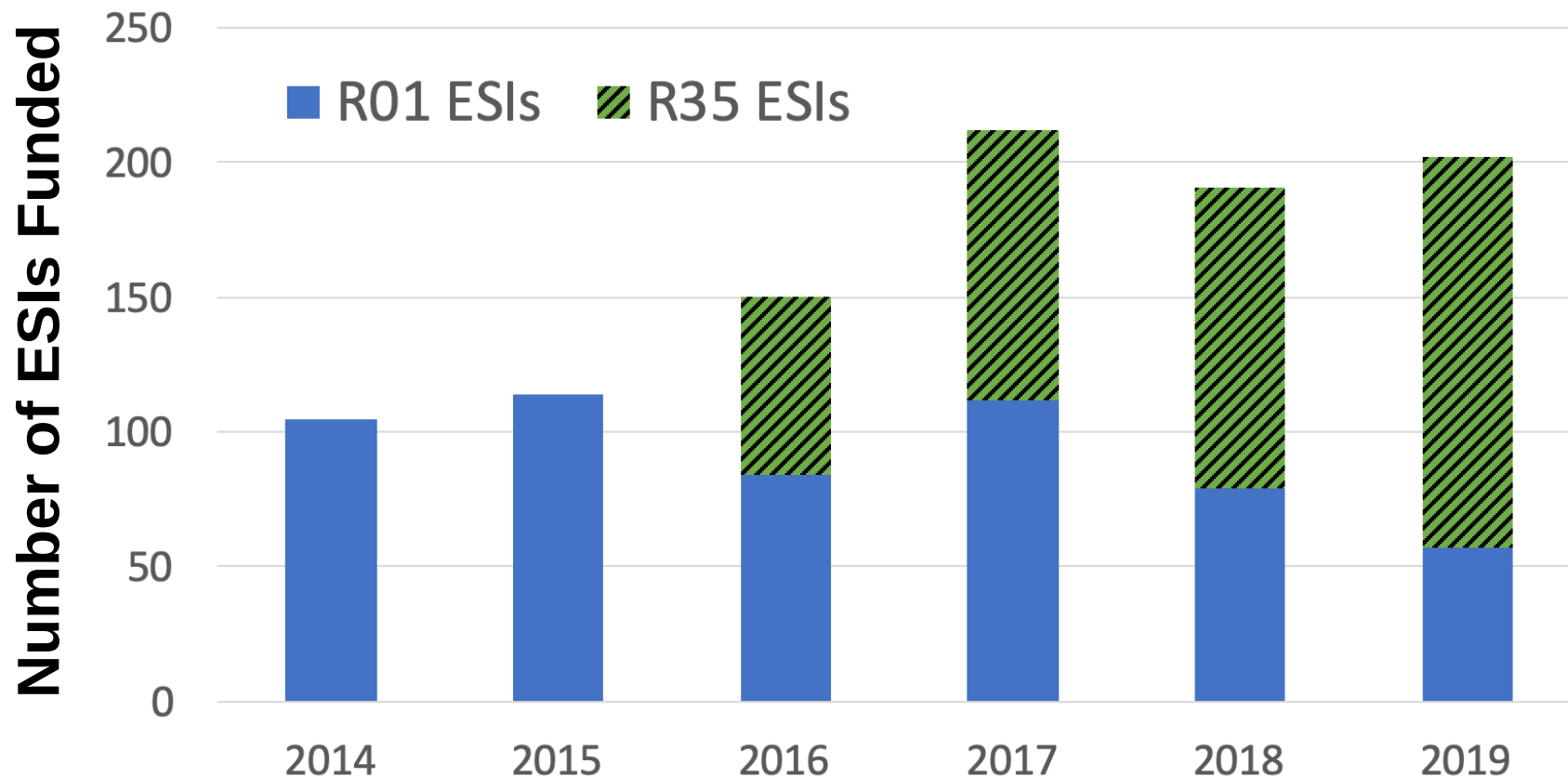
It is important to understand that even applications with outstanding scores might not be funded if the investigator already has substantial other support. [In general, because NIGMS prioritizes funding for meritorious investigators who otherwise would not have support over providing additional grants to already well-funded investigators, the Institute is unlikely to award more than two NIGMS R01s to a PI.](#) Both NIGMS staff and the [National Advisory General Medical Sciences Council](#) look carefully at such situations. In addition, NIGMS has policies that address laboratories with [total direct support in excess of \\$750,000 in any year](#) and [investigators with substantial unrestricted research support](#). Specific policies related to funding are listed below.

NIGMS Maximizing Investigators' Research Award

“MIRA provides support for the research in an investigator's laboratory that falls within the mission of NIGMS. The goal of MIRA is to increase the efficiency of NIGMS funding by providing investigators with greater stability and flexibility, thereby enhancing scientific productivity and the chances for important breakthroughs. The program will also help distribute funding more widely among the nation's highly talented and promising investigators. MIRA grants will generally be for 5 years, for both established investigators and new and early stage investigators.”

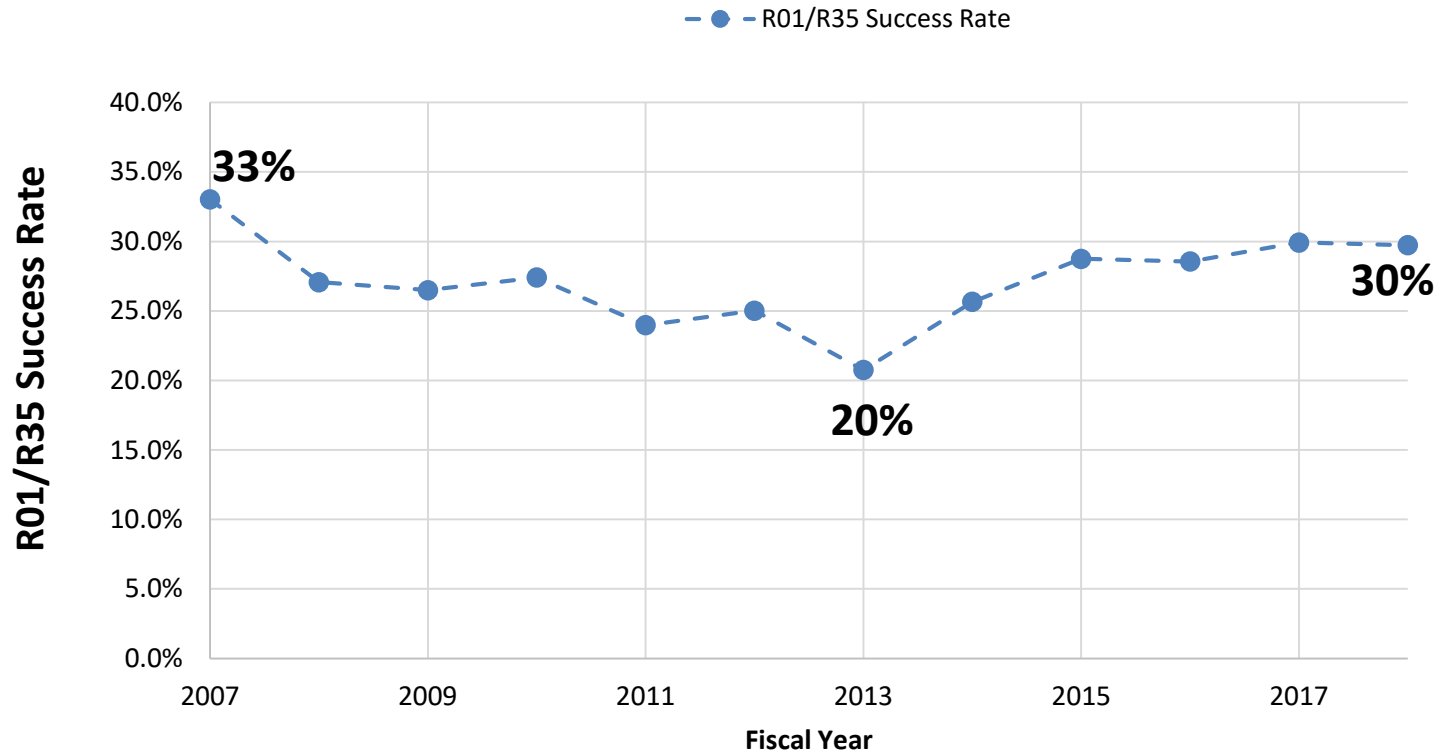
- **A single NIGMS grant per PI to support the NIGMS-related research in an investigator's lab**
- **Increases stability and flexibility of research program**

NIGMS has nearly doubled the number of ESIs funded since 2014



NIGMS R01/R35 Success Rate

NIGMS R01s/R35s Success Rates



Thanks!

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