



# A Call for the Voices of Early Career Researchers

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## ABSTRACT

One of the ways that early career researchers can effect change in the academic research system is to make their voices heard, particularly when their input is solicited. Two agencies are soliciting such input until early March 2015: a survey responding to the Federation of American Societies for Experimental Biology (FASEB) Report “Sustaining Discovery in Biological and Medical Sciences: A Discussion Framework”; and a Request for Information on the “Emeritus Award for Senior Researchers” from the National Institutes of Health (NIH). Here we present a call to the scientific community to contribute to the discussions; provide resources that can allow researchers to read further and make informed comments on the proposals; and discuss the proposals in the hope of provoking further debate.

READ REVIEWS

WRITE A REVIEW

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## THE VOICES OF EARLY CAREER RESEARCHERS

Taking as a statement of fact that academic research requires rescue (Alberts et al. 2014), the question is now how change can be effected. [Alberts et al.](#) made the call for early career researchers (ECRs), such as graduate students and postdoctoral researchers, to make their voices heard. We have previously advocated for ECRs contributing to the conversation (McDowell 2014, McDowell, Krukenberg, and Polka 2014a, b) and want to take the opportunity to encourage our colleagues to do so again.

ECRs have a reputation for discussing the problems of academia amongst themselves (and indeed to anyone who'll listen), but it could be argued that they do not do such a good job at making our points abundantly and repeatedly clear to the scientific community at large. If criticisms are to be leveled at the scientific establishment for not listening to the concerns of young researchers, it is first necessary to be sure that at every available opportunity, ECRs contribute to discussions about the system. ECRs make up the vast majority of the academic research community and it should be expected that if they contribute at all opportunities, their voices would be overwhelming represented. As an example, we wish to highlight two examples of such opportunities in early March 2015: the Federation of American Societies for Experimental Biology (FASEB) Report “[Sustaining Discovery in Biological and Medical Sciences: A Discussion Framework](#)” (FASEB 2015) by March 10th; and a Request for Information on “[Sustaining the Biomedical Workforce and a Potential Emeritus Award for Senior Researchers](#)” from the National Institutes of Health (NIH, (NIH 2015)) due by March 6th. We will present resources available to ECRs to read further and comment on the proposals, as well as some personal commentary on some of the issues under discussion.

## FASEB REPORT: BACKGROUND, RESOURCES AND CONTRIBUTING TO FEEDBACK

The Federation of American Societies for Experimental Biology ([FASEB](#)) is an organization comprising

credited.



27 scientific societies within the USA with the express mission to “*advance health and welfare by promoting progress and education in biological and biomedical sciences through service to our member societies and collaborative advocacy.*” Citing concern for decreasing research funding in the research system, they have produced a report, “**Sustaining Discovery in Biological and Medical Sciences**” (FASEB 2015), to provide a basis for further discussion. As a means of facilitating that discussion, they have also provided a survey available [here under “Submit your comments”](#). Comments are due by March 10th 2015. Coverage of the report is sparse and mostly draws on a piece in [ScienceInsider](#) (Kaiser 2015).

The report is broken down into several components. The first examines the need to maximize research funding through legal and political means: sustainable funding by Congress and smarter use of funds through reduced regulatory burden and revised deployment of available resources. The report then discusses revision of the grant system and the mechanisms that fund researchers. Finally the report addresses the need to improve the sustainability and structure of the workforce, and discusses the need for adequate training of that workforce.

The report discusses background information, drawing heavily on previous reports such as the [NIH Biomedical Working Group Report](#) (NIH 2012), before providing its own set of recommendations.

## POINTS FOR DISCUSSION

### THE REQUIREMENT FOR FEDERAL FUNDING

The FASEB report identifies key benefits of stable, long-term federal funding as opposed to philanthropic and industrial funding. First, it demonstrates that recent increases in non-federal funding sources fail to replace losses in federal funding. Furthermore, the report argues that there is a philosophical problem with relying on philanthropic and industrial funding: translational research may always be more attractive than basic research because short-term gains are obvious. Of course, basic science is important for drug discovery (Silber 2010) and education in clinical diagnosis (Woods et al. 2006). Without federal support, this foundational research may be neglected. For this reason, there was even some discussion at the [Future of Research Symposium](#) ([futureofresearch.org](#), (McDowell et al. 2014)) that the NIH should focus on basic science, relying on partnership with industry for short-term translational research. To justify the benefit of basic research, the FASEB report recommends a greater role for scientists in explaining the reasons for and roles of federal funding of science. This includes greater communication between scientists and their elected representatives. The academic community does very well at publishing academic papers, but not so well in sharing these results with the public bodies and elected officials that should hear about them.

### CAREER OUTCOMES, AND REDUCING THE NUMBER OF TRAINEES

The report recommends increased transparency in career outcomes and prospects, which is data that has so far been severely lacking (see [The Postdoctoral Experience Revisited](#), (NAP 2014) and which has also been called for elsewhere (McDowell et al. 2014, Polka, Krukenberg, and McDowell 2015). The report also calls for changes to the academic culture of expecting all ECRs to aim for tenure-track faculty positions; therefore, it suggests that training in non-academic career paths be offered. This in turn raises questions about who will be responsible for carrying out this training, and how time out of the lab for training can be secured for ECRs. The report also explains (on p48, (FASEB 2015)), “The most recent [Survey of Doctorate Recipients](#) documents a rise in the unemployment rate of recent biomedical PhD graduates (4.7 percent unemployment in 2012)...While this was below the national average in that year (8.1 percent), it was higher than the rate for all adults 25 years or older with at least a bachelor’s degree (4.0 percent).” Having a PhD in biomedical science has now become less employable than remaining at a Bachelors’ degree level.

This report fails to address, like so many others, the number of ECRs in the system. Despite the fact

that the excess supply of PhDs is the root cause of many of the symptoms of the workforce issue, this point is consistently avoided, to the detriment of the discussion. The system cannot continue as it is with the same number of postgraduate students and postdoctoral researchers being directed towards tenure-track faculty positions. In our opinion, either we must change what the postdoc is for and allow postdocs to train for non-academic careers, or we keep the definition of a postdoc as a research post on the way to a faculty position, and drastically reduce the number of postdoctoral researchers, instead replacing them with staff scientists. The reason this is not proposed in the FASEB report, or indeed in many other proposals by societies and institutions, is because of the great cost to the system in paying staff rather than making use of an ill-defined workforce of “trainees.” The senior scientific community’s silence on this issue speaks volumes to the community of ECRs.

### **THE REQUIREMENT FOR PHYSICIANS**

The report highlights the declining number of physician scientists; in particular, the fact that fewer medical students consider research careers in bench science and undertake postdoctoral training, and that fewer physicians are reporting research as their primary activity. This leads to the recommendation that salary caps should be raised (and new funding mechanisms introduced) to incentivize the movement of physicians into research.

Therefore, not only does the report resolutely fail to address the numbers of ECRs in the already overloaded pool, it actually proposes the addition of more competition. It does not address the possibility of mechanisms to increase collaboration between clinical practitioners and academic researchers, but rather suggests that medical students and physicians should be directed into the research pool themselves. For one thing, they rightly allude to the fact that “physician scientists...frequently receive higher remuneration from clinical services than research” and with the ever-increasing cost of already expensive medical education, there is of course less incentive for medical students to enter the competitive research environment when they are already in effect guaranteed jobs in clinical environments (certainly at a level higher than the 10% that PhDs can expect in attaining tenured faculty positions (Sauermaun and Roach 2012)) and despite concerns about the shortage of physicians in clinical settings, particularly in primary care (AAMC 2012). That physician scientists are singled out in this report for particular mention and a call for increasing numbers, without also addressing the numbers of ECRs already competing in the pool, is incongruous at best.

Furthermore, it is interesting to consider that the word “diversity” appears twice in the entire document, with a two-sentence recommendation considering diversification of the workforce (Recommendation 3.4, (FASEB 2015)), despite the detrimental effect the current system has on career aspirations in under-represented minorities (Gibbs et al. 2014). The issue of physician scientists, in contrast, occupies 3 pages and 2 recommendations (Recommendations 3.5 and 3.6, (FASEB 2015)).

### **TRANSITION AWARDS FOR SENIOR INVESTIGATORS**

Perhaps not coincidentally (see below) there is a call for the introduction of transition awards to essentially allow senior investigators to wind down their labs and collaborate with younger scientists. Thoughts on this will appear below, but we highlight this as a point on which action is actually being taken.

### **NIH EMERITUS AWARD: BACKGROUND, RESOURCES AND COMMENTING**

The NIH has issued a [Request for Information \(NOT-OD-15-064\)](#) (NIH 2015) looking for responses by March 6th on a proposal for an “emeritus award” that allows senior investigators to transition out of running a lab and perhaps pass the projects to a junior investigator. This proposal has met with some controversy. There is more information on Sally Rockey’s “Rock Talk” blog post, [“Seeking Your Input on Sustaining the Workforce Through an Emeritus Award”](#) (Rockey 2015) and we particularly recommend reading the comments section. For further thoughts on this proposal, you can also read

the ever-thoughtful Jeremy Berg [Datahound post](#) (Berg 2015) and (from a more biased perspective) [this commentary by Drugmonkey](#) (Drugmonkey 2015). The proposal has also received press coverage in [Nature](#) (Deng 2015). These pieces provide interesting reading and point also to other sources.

Responses can be submitted electronically [here](#).

## **POINTS FOR DISCUSSION**

### **NOT GETTING THE MESSAGE?**

Perhaps the most telling part of the Request for Information is that public comment is sought for “Impediments to the participation in such an award program, from the perspectives of both senior investigators and institutions.” The fact that there is no mention of junior investigators, and that this is a proposal that NIH has chosen to focus on most urgently, is concerning.

There is much anger within the community (see above) at the thought that money for R01s (the principal major grant funding mechanism in the NIH) could be lost to increase funding specifically for senior investigators; an argument could be made that these are the last people who need additional funding. In particular, there has been some comment that it is already possible to transfer an R01 grant to another person, so this mechanism may, in effect, already exist.

In our opinion, the NIH needs to make a compelling argument for why this mechanism is needed. How will this benefit the members of the emeritus awardee’s lab, or the junior investigator potentially receiving the lab after the transition? Is the goal to encourage earlier retirement by specifying a hard deadline for retirement after receiving the award? Is the goal to ease the transition out of the lab for the post-docs and grad students that need to find new labs?

We believe there is also an implication that junior investigators require the benevolent passing of project ideas from more senior investigators, rather than having their own independent projects, and indeed a [recent report by Ewan Callaway in Nature](#) has highlighted that, in fact, younger investigators may be considered more innovative than senior researchers, by some metrics (Callaway 2015). Some comments on the Rock Talk blog suggest that making the project focused on the junior faculty by giving them full control over the budget could ameliorate the concern; the senior investigator could be involved with the goal of transferring equipment and of course collaborative expertise.

On the other hand, it is encouraging to see the NIH thinking of creative funding mechanisms rather than a reliance purely on the R01-like mechanisms. Discussions are needed on the various ways of making use of talent in science in particular with a system that has a much higher number of “trainees” than permanent academic positions for them to eventually take. In particular, the discussion of methods to share resources and people across lab boundaries is likely to encourage greater collaboration. But if the NIH truly wants to make the best use of the current pool of scientific talent, then we believe that such awards as this, which will only affect a very small portion of the talent pool, should not be their major focus and instead they should look at mechanisms to prevent talented scientists from being forced out of academia at the ECR and junior faculty levels.

The NIH certainly can’t be faulted for provoking debate. The only ones at fault will be those who don’t take the opportunity to comment. This is not the only means of taking action to change the biomedical research system; we cannot allow anyone to think “no news is good news.” If ECRs aren’t contributing to the ongoing conversations and making their concerns heard, it is much harder to make progress. In the hope that this has provoked some debate and dialogue, we encourage you to take the opportunity to comment on these proposals.

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## DISCLAIMER

This article reflects the authors' personal opinions and not that of Tufts University or Harvard Medical School.

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