



An open letter to AAAS journal "Science": Postdocs need to address the "The Future of Research"

GARY MCDOWELL¹, KRISTIN KRUKENBERG², JESSICA POLKA²

1. Center for Regenerative and Developmental Biology and Department of Biology, Tufts University, 200 Boston Avenue, Medford, MA, 02155, USA

2. Department of Systems Biology, Harvard Medical School, Warren Alpert Building, Longwood Avenue, Boston, MA, 02115, USA

READ REVIEWS

WRITE A REVIEW

CORRESPONDENCE:

gary.mcdowell@tufts.edu

DATE RECEIVED:

June 11, 2015

DOI:

10.15200/winn.141141.10013

ARCHIVED:

September 22, 2014

KEYWORDS:

metrics, postdoctoral research, funding, training, structure of research

CITATION:

Gary McDowell, Kristin Krukenberg, Jessica Polka, An open letter to AAAS journal "Science": Postdocs need to address the "The Future of Research", *The Winnower* 2:e141141.10013, 2014, DOI: 10.15200/winn.141141.10013

© McDowell et al. This article is distributed under the terms of the [Creative Commons Attribution 4.0 International License](#), which permits unrestricted use, distribution, and redistribution in any medium, provided that the original author and source are credited.



In their letter, "Ailing academia needs culture change" (1), V. Callier and N. L. Vanderford highlight the inherent institutional instability that has been generated by flooding academic science with graduate students and postdoctoral fellows. As postdoctoral fellows, we agree with both this letter and the recent call-to-arms by several prominent U.S. researchers (2) that a hyper-competitive atmosphere has developed, resulting in both the mental anguish described in C. Arnold's Working Life column, "The stressed-out postdoc" (3) and the development of an unsustainable workforce that endangers the future of biomedical research in the U.S. (2, 4).

We are of the opinion that there are many practices that need to change if the future of science is to be ensured. There is a clear need for good mentorship and a reduction in the reliance upon cheap labor in the form of highly-qualified trainees on short-term contracts with little-to-no employment benefits. Principal investigators often refuse to consider alternative careers to academia for trainees and push for "academia-or-nothing", as highlighted in L. Nilsson's Working Life column, "PhDs, come out of the closet!" (5). Ensuring an efficient training process that encourages young scientists to pursue science in a variety of careers will keep bright minds within the scientific endeavor with direct positive consequences for research, communication and teaching of science.

Established academics are actively advocating for dramatic changes to the academic system and a fairer deal for trainee scientists (2, 6). However we also feel that it is up to the postdoctoral community to come forward and advocate for ourselves. We have been involved in the formation of postdoctoral associations (PDAs) working with postdoctoral offices within our own institutions. Many PDAs from Boston institutions have formed a Pan-PDA Council and are actively joining with the work of the National Postdoctoral Association. We have also come together from various Boston institutions to organize a symposium, to be held at Boston University October 2-3 2014, focusing on the challenges facing graduate students and postdoctoral fellows: the "Future of Research" symposium (futureofresearch.org, @FORsymp). This symposium will bring young scientists together to participate in panel discussions with concerned academics, such as Marc Kirschner from Harvard Medical School, as well as hear our keynote speaker Henry Bourne of University of California San Francisco and a message from Senator Elizabeth Warren.

Participants will also actively contribute to discuss issues that we as a postdoctoral community are facing presently and in the future, through a variety of workshops. These workshops will focus on four important themes: 1) the metrics of success used in funding, publishing, and securing tenure; 2) the structure of the current funding system, its likely future in the current political climate, and how this

shapes scientific incentives and productivity; 3) the structure of training at graduate and postdoctoral levels, including incentives for centers of research in training a future academic workforce responsibly; and 4) the structure and sustainability of the current academic workforce, including recent proposals to train and maintain research associates and staff scientists.

Bridging all of these areas will be the themes of efficiency and competitiveness, in data sharing and funding, addressing the waste generated by researchers either deliberately or unknowingly competing, especially within large research institutions.

We are all postdoctoral researchers who are passionate about science. By bringing together young scientists in Boston and soliciting ideas from those further afield, we hope to provide a stronger voice to share what we in the trainee academic community feel is important for the future both of our own positions in the academic ladder, and of academic science.

REFERENCES

1. V. Callier, N. L. Vanderford. "Ailing academia needs culture change." *Science*, 2014: **345**; 6199: 885. DOI: [10.1126/science.345.6199.885-b](https://doi.org/10.1126/science.345.6199.885-b)
2. B. Alberts, M. W. Kirschner, S. Tilghman, H. Varmus. "Rescuing US biomedical research from its systemic flaws." *Proc. Natl., Acad. Sci. U.S.A.*, 2014: **111**; 5773. DOI: [10.1073/pnas.1404402111](https://doi.org/10.1073/pnas.1404402111)
3. C. Arnold. "The stressed-out postdoc." *Science*, 2014: **345**; 6196: 594. DOI: [10.1126/science.345.6196.594](https://doi.org/10.1126/science.345.6196.594)
4. H. R. Bourne. "The writing on the wall." *eLife*, 2013: **2**; e00642. DOI: [10.7554/eLife.00642](https://doi.org/10.7554/eLife.00642)
5. L. Nilsson. "PhDs, come out of the closet!" *Science*, 2014: **345**, 6197; 706. DOI: [10.1126/science.345.6197.706](https://doi.org/10.1126/science.345.6197.706)
6. H. R. Bourne. "A fair deal for PhD students and postdocs." *eLife*, 2013: **2**; e01139. DOI: [10.7554/eLife.01139](https://doi.org/10.7554/eLife.01139)