Agents of change

Three advocates explain how their groups are trying to improve junior researchers’ experiences.

The career progression of many junior researchers is hamstrung by a global postdoc glut, ultra-tight funding and microscopic chances for tenure-track posts. We asked Gary McDowell, Chris Pickett and Jessica Polka how they intend to transform the scientific enterprise to repair some of the dysfunction that chokes researchers’ careers and forces young people to choose between quality of life and a chance of advancement.

McDowell’s interest began when he was a postdoc at Tufts University in Boston, Massachusetts. With Polka and others, he formed Future of Research (FoR) in San Francisco, which seeks to give junior researchers a voice for their concerns and to help them develop solutions. As executive director of the organization, he aims to empower postdocs and other junior scientists with information on career options, postdoc classification and compensation.

Pickett was in the middle of a postdoc at Washington University in St. Louis, Missouri, when he realized that he wanted to pursue politics and policy as a way to change the culture of science. A policy fellowship at the American Society for Biochemistry and Molecular Biology (ASBMB) in Rockville, Maryland, turned into an analyst post there, and that led to his current position as director of Rescuing Biomedical Research, which he has most recently seized on using biology preprints to accelerate the pace of knowledge transfer and to promote career development in a venture dubbed ASAPbio, based at the UCSF.

As a PhD student at University of California, San Francisco (UCSF), and postdoc at Harvard Medical School in Boston, Polka saw the biomedical enterprise as a vast system of moving parts that does not always function optimally. Active in the development of both FoR and Rescuing Biomedical Research, she has most recently seized on using biology preprints to accelerate the pace of knowledge transfer and to promote career development in a venture dubbed ASAPbio, based at the UCSF.

Executive director of Future of Research

I got into science to work on really big problems. After witnessing colleagues’ frustrations with unequal pay, stymied career development, lack of diversity and other issues, I realized that the biggest problem could be systemic to academia.

FoR aims to involve junior scientists in making the scientific enterprise more sustainable, and a crucial part of that is getting them to come together and share experiences and data. Transparency is key. Junior scientists need to know what they are getting into. Postdocs, for example, are dealt with haphazardly at the department level, with differing salaries and benefits at the same institution.

Early-career scientists often hear platitudes, such as ‘More PhDs make America smarter’. That sounds great, but we haven’t been using good science to see whether that argument stands up. We don’t track anything to see whether the United States is in fact smarter. It’s hard to push back on a romantic ideal. I go to conferences and ask questions. Recently, for example, I asked for data on the number of
available jobs in non-academic careers, how competitive those jobs are and whether any-one has modelled the future labour market for new PhD students. Of course, there are no such data or models. People say nobody asks those questions. I find that strange. As a scientist, I want to see the data that test those underlying assumptions.

A generational divide was clear during a discussion about scientific staff positions held at the ASMBE Sustainability Summit in February. A senior scientist asked, incredulously, who would want a second-tier career position. I argued that these are desirable positions, especially after seeing the many difficulties faced by new principal investigators.

People seem to agree that early-career scientists have legitimate concerns, but it’s also popular to call them young and entitled. There’s a sense that ‘everyone has to go through what I did’. I don’t think junior researchers should have to martyr themselves for science.

This year, however, the conversation has increasingly involved graduate students. It is also a big year for US postdocs because they will attain employee rights. On 1 December, the Fair Labor Standards Act (FLSA) will update the threshold at which salaried workers are exempted from overtime payments for working more than 40 hours per week — from US $23,660 to US $47,476. In some instances, salaries will need to double to keep the postdocs on. Institutions are panicking because if they can’t double those wages, employees may lose jobs. People think it’s just about asking for more funding, but it’s not. It’s about sustainable funding. Funding booms and busts caused the problems we’re facing now.

By 2020, I hope that people pursuing scientific research careers are as informed as those who are currently in the medical-school system. Graduate students need to know how they will be supported and trained in particular programmes, and by particular principal investigators. All who are trying to maximize their passion for science need to know what they are getting into.

Some graduate students and postdocs are not as free as others to leave the lab to pursue career-development opportunities or training, let alone for advocacy. This can make progress difficult for our group and others, because there is only a very small number of people who can advocate for change. Still, I’ve been pleasantly surprised by the level of engagement. There were about 20 people involved in our first meeting in 2014, and today, we have roughly 100 active volunteers in the United States and abroad who are engaged and in regular contact.

I have left the bench — and I don’t know if I’ll go back. I feel no sadness whatsoever. My research was interesting, but I hadn’t yet figured out that I enjoy doing things that effect some kind of change. It’s very liberating not having to worry about all the issues that I now spend my time trying to alleviate for others.

"People think it’s just about asking for more funding, but it’s not. It’s about sustainable funding."

**CHRIS PICKETT**

**Change the culture**

Director of Rescuing Biomedical Research

The biggest challenge that academia faces is the need for a culture change. My motivation was seeing junior scientists buy into the idea that scientific success means attaining a faculty position.

Helping early-career scientists to get information about the skills needed for a variety of careers, and encouraging universities to recognize postdocs and improve their pay and benefits — both these goals require people to change their minds about how things have been done since the inception of the biomedical research enterprise.

There will always be pockets of resistance. But more people are addressing these issues now, by offering career training for junior researchers and improving the funding outlook, for example. While I was a science-policy analyst, I compared 9 reports and consolidated 250 suggestions into 8 recommendations. Two of those suggestions are to broaden training for graduate students and postdocs to prepare them for a variety of careers, and to add more staff-scientist positions at universities (C. L. Pickett et al. Proc. Natl Acad. Sci. USA 112, 10832–10836; 2015).

Some of the recommendations in US reports from the National Academies of Science in the mid-1990s were the same as those in my report. I fear that if I hadn’t written this paper, a lot of these reports would continue to sit on shelves collecting dust. People have been talking about solving these problems for a long time, but there hasn’t been enough popular support in the scientific community. And that’s not helped by resistance to change in government and at universities.

We now have long-time advocates who are active at the same time as broad grass-roots efforts. It’s a potent mix for achieving real change. We can’t let that momentum go.

The only way around that is to experiment with small-scale pilot programmes. The only way around that is to experiment with small-scale pilot programmes. The only way around that is to experiment with small-scale pilot programmes.
These interviews have been edited for length and clarity.