Podcast interview: Gregory Petsko

**PNAS:** I’m your host Prashant Nair and welcome again to Science Sessions. Scientific research today scarcely resembles the single-minded efforts of the solitary geniuses of yesteryears who toiled away in windowless labs. Collaboration has instead come to play a crucial role in turning ideas and inspiration into inventions and discoveries. Yet for decades, since postdoctoral apprenticeships became a mainstay in science, the plight of postdoctoral fellows – in the United States and elsewhere – continues to be paid short shrift. Through long hours, disproportionate salaries, and uncertain career prospects in an increasingly shaky job market, postdoctoral fellows in the United States labor to produce the lion’s share of the ever-expanding scientific literature. More than a decade ago, the National Academies’ Committee on Science, Engineering, and Policy convened a group of experts to find ways to enhance the US postdoctoral experience, and summarized its recommendations in a report. Now, the committee has reconvened to assess the report’s impact and determine whether its recommendations reflect current practices in US research institutions. Weill-Cornell Medical College biochemist Gregory Petsko, who chairs the committee, spoke to PNAS about the postdoctoral problem.

**Petsko:** All of us were struck by the fact that when we first set out to acquire data about the postdoctoral experience, an alarming number of institutions were unable – even within some limits – to provide us with any information on how many postdocs they actually had. They simply didn’t know. And this, plus some of the testimony given to the committee by postdocs themselves – and we heard quite a bit of that – convinced us that despite the COSEPUP report of 12 years ago, to an extent that is still far from optimal, postdocs in the United States are often the invisible people at their institutions. So much so that many institutions really can’t even enumerate them with any kind of precision.

**PNAS:** Nor did most institutions surveyed by the committee, says Petsko, have a sense of the current occupations of former postdoctoral fellows.

**Petsko:** Many institutions were unable to track, or had not chosen to track, the outcomes of the postdocs who had worked there. So when we asked questions about how many of your postdocs end up working in industry, how many of your postdocs end up working in academia, in many cases the institutions had no idea. In most cases, even the institutions that knew how many postdocs they had, did not track the outcomes particularly well.

**PNAS:** I asked Petsko precisely what the committee hoped to achieve by updating its report, and in what ways the new report would differ from the previous one.

**Petsko:** I think I can speak for the committee when I say that we’re worried, as we should be, about just producing yet another report that people will read and that won’t change anything. And so the question is how do we fix that problem, or avoid it before it happens. I think one way is by making our recommendations relatively strong, straightforward, clear, and not too many in number. I think it’s also incumbent on us to get out there once the report is released. Those members of the committee and the stakeholders who urged us to do this report need to get out
into the community and engage the scientists and the decision-makers, political leaders, scientific administrators and so forth in actively discussing these issues.

PNAS: Part of the plight of US postdoctoral fellows, Petsko says, can be attributed to unrealistic expectations and perverse incentives in the scientific job market.

Petsko: When I look around at my own university and the universities I visit, I see lots of postdocs; I see older postdocs than I used to see when I was younger. I see people doing postdocs for what seem to me to be considerably longer periods than they used to when I was younger, and I see them in many cases doing multiple postdocs, what I would call serial postdocs, if you will. And, I asked myself what drives these trends, and I think they’re driven by a number of things. One is that the bar has been raised, maybe unrealistically, for people to get from a postdoctoral position to an academic position in terms of the amount of work they are expected to accomplish, the number of papers that people seem to expect them to have published, and the degree of training they seem to have to have. I think the bar has been further raised for young principal investigators, young faculty in universities in terms of the amount of work they have to do to get a grant, to get a grant renewed, to publish papers in leading journals, and so forth. The net result of those perverse incentives is that people stay in postdocs longer because it takes more time to try to climb over this very high bar, and they tend to have multiple postdocs because they think they need lots of time and lots of experience to accumulate a vast CV before going out and applying for the limited number of jobs that are out there.

PNAS: With the changing economic climate that has increasingly affected scientific institutions, the notion of an “alternative career” in science might itself need revisiting, says Petsko.

Petsko: They go into a postdoctoral position almost by default because they think it’s what you are supposed to do, and in many cases they’re unaware that fewer than a third of them will ever do academic science. That, in fact, people like me are now the alternative career, and that not being an academic is by far the majority outcome for postdocs. And if they knew that, they might make different decisions about whether to do a postdoc, or what kind to do, or how long to do it for, and if they understood also what their realistic career options are, they might also choose to try to acquire more information about some of those options, which in many cases we don’t provide for them. If I think about what would benefit my own postdocs, boy, I think it would be great if they had some internships that they could try out some of these careers, if we could provide those for them. Certainly exposure to people with different careers, bringing them into a university, have them sit down and talk to postdocs about what it’s like to be a patent lawyer, a science writer, a policy wonk in Washington, all kinds of things like that.

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