

common in industry but less so in most academic labs. Regular feedback is important so that the postdoc does not get overlooked or taken for granted in the life and work of the lab. "Be willing to ask questions; don't automatically go to the biggest name, but go instead to the best person. Similar philosophies are important. I ask the principal investigator why they became a scientist," he says.

Avoiding pitfalls

Some new PhDs might think twice about doing a postdoc at all. For the candidate set on an academic job, it is probably indispensable, but for those who want a job in industry or in a government lab, it may be superfluous. One good reason to do a postdoc is to tie up the loose ends from a PhD. Another reason might be to do a two-year post-PhD stint in a government or industrial setting to get a close look at government labs and companies. "One can get a lot of visibility in a postdoc fellowship," Sloop continues. "But don't stay too long."

Nancy McNamara prefers her current research assistant position at the University of California at San Francisco (UCSF) to an earlier postdoc post she held there. It seems "more like a real job", she says, because it includes benefits such as sick leave and vacation pay. McNamara, a member of the postdoctoral association, cites past abuses of postdocs at the UCSF, including instances of foreign doctors working as postdoc volunteers for no pay, as reasons to be wary. But she believes conditions for postdocs are improving slowly but perceptibly.

To avoid exploitation, potential postdocs should exercise due diligence before taking a job. "There are some awful principal investigators out there," McNamara says. "Talk to people in the lab, and people who have left the lab. How did they do afterwards? How do they feel about the experience? Are they going on to another postdoc somewhere or are they getting real jobs in industry or universities? Use the web, and network as much as possible."



Sloop: postdocs provide visibility.

Organization pays



After a disagreement with her principal investigator escalated into a summary dismissal from her post, and physical removal by university police from her lab, Joni Seeling (left) tried to get redress from the University of Utah Health Sciences Center. Seeling, who works at the university's oncology department, held on to her job after she retained an attorney. During her fight, she became increasingly disillusioned with the university's lack of mediation or appeals machinery, and what she saw as its inadequate levels of response to postdoc concerns.

Discovering that she was not alone among the university's 400 postdocs in having problems with her principal investigator, she set up a postdoctoral association in 1997. One of the group's main goals is to try to get written contracts for postdocs, which would spell out salary rates and a schedule for rises, length of employment, and benefits and retirement contributions. "Many postdocs are in their mid-thirties, even in their

forties, and have never received retirement benefits," she says.

She would also like to see a statement of what work postdocs can take with them when they leave to start their own lab or go to their next job, and how authorship priority is assigned in papers that emerge from the lab.

Seeling anticipated that her situation would improve after one of her papers appeared in *Science*, and when she received a National Institutes of Health investigator-initiated R01 grant with a high reviewer-approval rating. But little has changed. An agreed-upon salary rise has not yet appeared, and relations with university administration and faculty have remained a little strained.

Once cautious about organizing postdocs and pressing the university to change because of possible ill effects on her career prospects, she says: "I'm now at the point of saying 'if it hurts me, so be it'." **P.W.**

John Kerr, Sloop's principal investigator at Lawrence Berkeley, observes that even today many new PhDs, apparently unaware of the demographic numbers, come in with an expectation of a tenure-track post. He partly blames faculty, who fail to inform students about today's academic track realities. It is an error that is perhaps understandable because many of today's senior faculty were employed during a time of plenty. They may not be as aware of the current reality and are probably poor sources of job-market information.

Kerr also views with disfavour the exploitation suffered by some graduate students and postdocs, particularly in life sciences. The onus is partly on the student to understand that he or she is being exploited and to do something about it. But at the same time, "you have young people in vulnerable situations and university faculty, administration, and particularly the funding agencies, must take their responsibility to them seriously".

Biotechs beckon

Biotech companies are an emerging source of higher-paying, more stable sources of postdocs than universities. With a good publication record and deep financial resources, Genentech in San Francisco is just one of many biotech companies targeted by postdocs.

Abraham de Vos, who runs a protein crystallography lab there and also directs the company's postdoc programme, says that in the early 1990s Genentech established a postdoc programme based on the academic model. It now has 62 postdocs augmenting a staff of 100 research scientists. For the most

part, the research done is indistinguishable from work that would be carried out in an academic lab, although postdocs are kept away from some of the highly proprietary projects, and publication can sometimes be delayed until after a patent application.

First-year postdocs at Genentech are paid US\$44,000, almost twice as much as some postdocs get at universities or the National Institutes of Health. With the exception of stock options, benefits are the same as for other employees: health insurance, a retirement plan, employee stock purchase and maternity leave.

In evaluating a prospective postdoc, de Vos says, "I look for successful research in the academic lab that they came from and a feeling that they have done a lot of the work themselves, that they can take intellectual ownership. You want to see the seeds of independence in their previous graduate school experience." ■

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Web links

US National Research Council Report: "Trends in the Early Careers of Life Scientists" ♦ <http://www.nap.edu/readingroom/books/trends/>

Joni Seeling's Utah Postdoc Association

♦ <http://www.cc.utah.edu/~jmj2/who.html>

Am. Assn. of University Professors Report: "The Status of Non-Tenure-Track Faculty" ♦ <http://www.aaup.org/rbnonten.htm>

UC Berkeley Graduate Teaching Assistants' Strike Committee ♦ <http://www.uaw.org/publications/releases/1998/calif.html>

UC Berkeley Postdoc Association

♦ <http://postdoc.berkeley.edu/bpa/infores/index.htm>

US National Academy of Sciences report

♦ <http://www.nap.edu/catalog/9831.html>