# Positive changes for **postdocs**

**Roshan McArthur** finds that while postdoctoral researchers are facing a lack of career opportunities, their prospects are still improving

Much has been said in recent years about the mounting pressure on postdoctoral researchers. According to the National Science Foundation (NSF), there were 45,000 postdocs in the US in 2004, more than ever before – but fewer academic positions for them to move into. As a result, the average time spent in a postdoctoral research position has also increased. The average researcher in the biological or life sciences, for example, spends five to seven years as a postdoc.

The future, however, is far from gloomy. Although the number of tenure-track academic positions is unlikely to increase for now, there have been some significant events that have helped professionalize the experience of the postdoctoral scholar.

Alyson Reed, executive director of the National Postdoctoral Association (NPA), points to some key factors. Firstly, at the institutional level, there has been an expansion in the number of postdoc offices and associations, giving postdocs unprecedented structure and support in their positions. There has also been an increase in the policies, programs, services and activities these offices have carried out.

There have also been significant changes at a national level. For one, the NSF and the National Institutes of Health have just adopted a formal definition of what it is to be a postdoctoral scholar. It reads: "An individual who has received a doctoral degree (or equivalent) and is engaged in a temporary and defined period of mentored advanced training to enhance the professional skills and research independence needed to pursue his or her chosen career path."

Reed says: "[The definition] will now be used on all of those organisations' paperwork and policy documents, and will help clarify the vast amount of confusion and variability out there about what is or isn't a 'postdoc'.

"The NSF has also issued guidelines requiring mentoring plans on research grants," she adds. "Postdocs used to be on their own – maybe they got mentoring, maybe they didn't, but it certainly wasn't an expectation of the funder that research grants were to be used to support mentoring activities for either postdocs or graduate students."

## The survey says...

In 2005, Sigma Xi, the Scientific Research Society, completed its Postdoc Survey, which gathered information from 7,600 postdocs at 46 US research institutions on subjects such as pay, working hours and benefits, with the aim of improving training and research environments.

In January last year, Sigma Xi and the NPA held a national forum called 'Professionalizing the Postdoctoral Experience', to promote action on the survey's findings, facilitate the sharing of policy strategies and foster networking between postdocs, office personnel, funders of postdocs and policymakers.

"Postdocs do much of the scientific research in this country," says Geoff Davis, who led the survey and helped organize the forum. "Not enough has been done to make sure that they are as productive as possible."

*"Postdocs do much of the scientific research in this country. We need to make sure they are as productive as possible"*

One of the surprising findings was that few universities and companies had policies for how postdocs should be treated, says Davis: "At first we thought the reason behind the low reported rates of various postdoc policies was that people needed help crafting such policies for their campuses. The envisioned solution, then, was to help them do so.

"After talking to a lot of people, however, we discovered we were wrong," he continues. "The obstacle is in figuring out how to get buy-in from cost-conscious administrators, reluctant faculty and overcommitted postdocs. Accordingly, we refocused the conference from just formulating policies and programs to the next step: getting them implemented."

The answer, it was decided, was to encourage employers to invest in their workers, rather than trying to minimize their costs. The survey indicated that the more professional development postdocs received, the more productivity and quality of work increased. Additionally, productivity increased with the implementation of more effective management: authorship and intellectual property policies to prevent time-consuming disputes; orientation sessions and detailed letters of appointment to smooth the entry of postdocs into their new jobs; and health insurance to ensure postdocs spend more time in the lab than off sick.

As a result of the forum, Sigma Xi reports that at least 24 research institutions are now planning to establish or modify policies for postdoctoral training. Says Reed, "I think Sigma Xi was helpful in two regards. The first was the survey itself and the major finding: that structural oversight leads to greater productivity, fewer conflicts and greater satisfaction levels among postdocs.

"The meeting was also important because it enabled people to share information about how different campuses were doing different things already," she adds. "A lot of positive momentum came out of it, which has helped us secure significant grants to focus on fostering even more organizational development." ■

# Five steps to success

Research doesn't only start once you get in the lab – it's crucial for finding the perfect position for you

## 1 Choose the right mentor

Michael Spezio, a postdoc at the Caltech Emotion and Social Cognition Laboratory in California, says, "A postdoc's quality of life in science, and sometimes his or her career, depends more strongly on the human qualities of their mentor than is often acknowledged. There is very little in the way of a system for holding mentors accountable for what one might call mentoring malpractice. Connecting with a scientifically cutting-edge, creative mentor who is also trustworthy and a terrific colleague is very important."

## 2 Create an individual development plan

Alyson Reed of the National Postdoctoral Association says that this is essential for all postdocs. "You need to know what your long- and short-term career goals are, and discuss them with the people who are in a position to help you," she explains. "Then you should meet periodically with those mentors and other people whose feedback is critical and assess your progress."

## 3 Get a detailed letter of appointment

To avoid misunderstandings, Sigma Xi suggests this letter includes "the source of funding; basic expectations for research productivity, teaching and service; and a concise restatement of the previously agreed upon start-up package (lab space, student assistants, access to support staff, etc.)."

## 4 Draw up a contract

At the end of 2006, the American Association of Medical Colleges approved a new Compact between Postdoctoral Appointees and their Mentors. Says Reed, "It spells out at the outset what each side of the relationship is going to do – it's sort of a 'buyer beware'. If the PI you're working with is not willing to sign off on something like that and embrace it, that's a good indicator of what kind of mentor they're going to be."

## 5 Choose a path that suits you

According to the NSF, more postdocs than ever are working in non-academic sectors. John Whittle, of scientific software company Tessella in Boston, says PhD and postdoc research training help you stand out when applying for jobs in industry. "To us," he says, "the real value lies not in the actual subject studied but in the skills developed in problem analysis and problem solving." Whittle advises postdocs to be flexible about the kind of work they want to do. "Success requires flexibility – an ability to use skills and experience to solve different, possibly unrelated, problems."

» For further tips on finding the right postdoc position for you, visit www.nationalpostdoc.org

» In late spring the NSF will be publishing a brief about why people chose certain postdocs and how satisfied they were with them. See www.nsf.gov/statistics

# Case study: Exploring the deep

*It's unusual for a postdoc to secure a tenure-track position before starting postdoctoral research, but Karyn Rogers (above) is one of those rare cases.*

*As she was finishing her PhD in Earth and Planetary Sciences at Washington University in St. Louis last year, Rogers, 33, decided to apply for both academic positions and postdocs. Offered the position of postdoctoral scholar at Woods Hole Oceanographic Institution, Massachusetts, and a position at the University of Missouri, Columbia, she accepted both. She will be starting the latter in January 2008.*

*"I decided to postpone my UM appointment so I could take advantage of the opportunities presented to me by the postdoc at WHOI," says Rogers. "During my graduate work I studied the relationship between microbial diversity and geochemistry in the shallow marine hydrothermal system of Vulcano Island, Italy. Now, I'm extending that research, investigating the diversity and activity of heterotrophs in a variety of thermal subsurface environments.*

*"Before I started, someone told me that a postdoc is the best time during your academic career because it is the time when you have the most scientific independence coupled with the fewest responsibilities. The only thing I would change is to have more time to capitalize on the exciting opportunities that land on my desk every day."*