

CAREERS

GRADUATES Half of British scientists fear for their job security **p.669**

NANOSCIENCE Career-support network aims to help women **p.669**

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BELLE MELLOR



BY ALISON MCCOOK

Three years into her postdoc at the Mayo Clinic in Rochester, Minnesota, Crystal Icenhour was frustrated. Throughout her academic career, she had set her sights on a tenure-track position at a university — but when an opportunity arose, and she got as far as specifying her start-up package, the politics of academia interfered. A senior professor negotiated for more funding, leaving none for the junior post, so the job disappeared. It would turn out to be a blessing in disguise.

Icenhour continued her postdoctoral research into infectious diseases, but found herself railing against the slow pace of change in academia, and getting more enjoyment from work outside the lab, such as her involvement with the US National Postdoctoral Association. One day, her principal investigator, Andrew Limper — a researcher in thoracic disease — made a powerful suggestion. “He said: ‘Maybe academia isn’t where you want to be,’” she recalls. “And that was the first time someone had ever said that.”

The thought stayed with her. A few years later, when Icenhour was doing a second postdoc, she received an e-mail about a job at a start-up biotechnology company, and decided to apply. She is now president and chief science officer of Phthisis Diagnostics in Charlottesville, Virginia, where she enjoys the fast-paced, ever-changing environment, and makes use of her people skills. Last month, the company launched its first product, a DNA-extraction kit. Icenhour credits her success, in part, to the seed first planted by Limper, who recognized her ideal career path before she did.

Finding a job is hard, especially in the current economic climate. A supportive mentor, who is willing to help a postdoc with job searches and applications, is a great asset. Principal investigators typically help their postdocs to find jobs by writing recommendation letters, rehearsing the ‘job talk’ (the presentation given during the interview) or making phone calls on a postdoc’s behalf. But many mentors take shortcuts or don’t put enough effort into these tasks. And sometimes, as with Icenhour, postdocs might not know how to find the job that is right for them. Simple steps such as helping postdocs to acquire non-research skills or nudging them towards alternative careers take only minutes of a mentor’s time (see ‘How to help’), and helping a postdoc to find a job is ultimately win-win. The protégés find their calling, and the supervisors boost the reputations of their labs. ▶

MENTORING

On the right path

Principal investigators can show their postdocs how to make the most of their job search — and that can help both parties.

► Many postdocs focus their job searches on academic research posts, so they find it tempting to skim over announcements about industry-centred opportunities such as technology-transfer meetings or lectures by biotech executives — unless their principal investigators encourage participation, says Joan Lakoski, a pharmacologist at the University of Pittsburgh in Pennsylvania and director of the university's Ri.MED postdoctoral fellows programme. “I know as a postdoc, I would ignore such things unless my mentor said, ‘Gee Joan, do you think you would be interested in this?’” says Lakoski. “The power of suggestion as a faculty member should never be ignored.” These nudges can expose postdocs to careers that they might not otherwise have considered.

THE RIGHT FIT

A mentor can assess how a postdoc's skills match his or her chosen career. Nancy Schwartz, a biochemist at the University of Chicago in Illinois, says that if her postdocs love helping students but are less excited about discoveries and writing papers, she encourages them to apply for jobs at small colleges, where they will spend most of their time teaching, and do research only in the summer. And if postdocs linger over the applications of every experiment, rather than simply writing up the results and moving on, Schwartz suggests that they enter industry. Carlos Castillo-Chavez, a mathematical biologist at Arizona State University in Tempe, discourages his less-driven postdocs from applying for high-pressure posts such as those in finance, or faculty positions that require constant grant-writing and supervision of others.

Even postdocs well suited to academia will need more experience than just writing research papers. Here, too, principal investigators can help. To encourage crucial tutoring practice, principal investigators can suggest that their



RIGHT: A. M. BETTENCOURT

Milica Radisic (left) and Monica Bettencourt-Dias say their advisers helped them to get their jobs.

protégés, in turn, mentor undergraduates, or can help postdocs to find teaching internships or positions as teaching assistants.

When Monica Bettencourt-Dias was a postdoc at the University of Cambridge, UK, her principal investigator often asked her for advice on grant applications, or for help with writing them. Now a cell biologist at the Gulbenkian Institute for Science in Oeiras, Portugal, and a principal investigator herself, Bettencourt-Dias passes on that experience by including her lab members in both planning and editing of grant applications. She also encourages postdocs to apply for their own funding, such as career-development awards — both to supplement their work and to show employers that they can obtain money. “It looks very good on your CV,” she says.

All postdocs, whatever their career paths, need to develop their presentation, communication, writing and management skills (see ‘Going it alone’). It is key for principal investigators to “recognize the importance of these as part of postdocs’ professional development”, says Jodi Lubetsky, a manager of science policy

at the Association of American Medical Colleges in Washington DC. Principal investigators can suggest that postdocs take courses in finance, communication or management, for instance, and give them time to do so. Communities often have centres that offer courses for small-business development, and nearby business schools or local industry groups might host free or low-cost events. Postdocs can also seek out workshops with relevant training, such as those given by Toastmasters International, a non-profit organization based in Rancho Santa Margarita, Illinois, which schedules meetings around the world to help people with their public speaking. The ability to present well is a handy skill for any type of job interview, says Icenhour.

WORKING TOGETHER

Regardless of the chosen career path, one of the most important things that principal investigators can do for their postdocs is to provide opportunities for networking. Bettencourt-Dias asks postdocs in her lab to host visitors to the campus and introduce them when they give talks, so that the speaker views the postdoc as a colleague, not as a student. Anne-Claude Gingras, a molecular geneticist at the Samuel Lunenfeld Research Institute in Toronto, Canada, credits her two advisers with helping her to secure her current position by giving her opportunities to present her work at international meetings — at one of which she met someone who ultimately helped to hire her.

Gingras's advisers also emphasized the value of collaborative projects, which help the postdoc to make contacts and are attractive to employers. “All the job offers I got without applying officially to a position were in some way connected to these collaborations,” says Gingras.

When it is time to apply for a faculty appointment, the principal investigator might need to take an even more active role. Milica Radisic, a biomedical engineer at the University of Toronto, started looking for jobs while at the Massachusetts Institute of Technology in Cambridge, but she didn't just peruse endless ads. Her advisers helped her to select the jobs

ADVICE FOR MENTORS

How to help

Principal investigators hoping to help their postdocs to find suitable positions should consider these tips.

- Set aside five minutes a few times a year to check in on your postdocs' career plans and progress.
- Know your limits. If your postdocs are interested in careers that you know nothing about, such as patent law, introduce them to someone who can help: someone in the institution's faculty-affairs or postdoctoral office, for example.
- Give them experience with peer review: tell journals that you want your postdocs to review papers with you.
- Don't rely on job ads alone. If a postdoc is exceptional, try calling colleagues and

collaborators to ask about positions soon to open up that haven't yet been advertised.

- Sell their strengths when employers call. If your postdoc does well in presentations, don't just say that. Better to say he or she is a good communicator — a talent that may help to get grants.
- Don't help too much; let postdocs manage some of the process alone. Lucy Shapiro, a developmental biologist at Stanford University in California, says that she won't help a postdoc to write the talk that maps out his or her research plan. “To me, that's a very important do-it-on-your-own measure, so people know what they're dealing with when they decide to offer someone a job,” she says. **A.M.**

ADVICE FOR POSTDOCS

Going it alone

If your principal investigator is unwilling or unable to help with your job search, try these steps to make progress on your own.

- Craft a plan of your goals and timelines. Even if you don't show it to anyone, it is a good way to analyse your strengths and weaknesses, and to give yourself direction.
- Plan ahead. Try to pick an adviser whose postdocs are typically successful, says Jodi Lubetsky, a manager of science policy at the Association of American Medical Colleges in Washington DC.
- If you've already joined a lab and your adviser is "missing in action", schedule a time to talk, she says. If that isn't working and you still want to get your principal investigator involved, find a neutral person to whom you feel safe talking.
- Publish, but don't obsess. Some

employers want several papers per year; some are fine with fewer in top-tier journals. Don't worry too much about quantity, says Ron Vale, a cell biologist at the University of California, San Francisco. One strong paper is often good enough, he says.

- Get outside funding or fellowships to show employers that you can compete successfully for money. Awards can come from sources such as local governments, foundations or professional societies.
- Multiply your mentors. Even if your principal investigator is helpful, it is a good idea to establish relationships with 2–4 experienced scientists, who will then be able to answer personalized questions during a phone call from employers, and contribute more than just generic recommendation letters. **A.M.**

that would best nurture her research in tissue engineering. They reviewed her research statement, and suggested that she emphasize how her research programme would address the field's next frontier. What you have already accomplished gets you an interview, they told her — showing how your work can change the field gets you the job. "When I was a PhD and postdoc, I didn't realize that's how it would work," says Radisic.

Applicants also need outstanding letters of recommendation. Ron Vale, a cell biologist at the University of California, San Francisco, says that when one of his postdocs is applying for a position that he knows is a good match, he makes sure that his letter conforms to the "needs and fit of that individual to that institution". A few choice phone calls don't hurt, either. In one instance, Lucy Shapiro, a developmental biologist at Stanford University in California, rang the head of a department that had hired her postdoc's partner, telling them to employ her postdoc too. It worked; her postdoc was offered a job "on the spot, practically", says Shapiro.

Even after a postdoc is invited to an interview, the principal investigator's work is not done. When preparing postdocs to give talks during interviews, Shapiro gets the whole team involved. "They have a rehearsal, and the entire lab gets together and we tear the talk apart," she says. "And we make sure the presentation always ends with an overhead or PowerPoint of 'future work'."

Castillo-Chavez helped one of his postdocs to practise interviewing. He and a team of volunteers asked the candidate hard questions, so that she would not be caught off guard in the real interview. They also talked about current events for weeks, so that she would feel

comfortable in discussions. The approach worked; the postdoc is now a full professor.

Castillo-Chavez tells his protégés to research the people who will be interviewing them, so that they can ask informed questions about the interviewers' work. He suggests that when conversation dries up, applicants bring up ice-breakers such as cultural life in the area, schools and housing. "It is sometimes surprising how unprepared postdocs are for a job interview," he cautions.

SOMETHING FOR EVERYONE

All this can be a lot of work for busy principal investigators. But it is often time well spent — a good outcome will ultimately help the mentor. "It's your credibility that's on the line, too," says Vale, who has helped 17 postdocs to obtain tenure-track faculty positions, government posts or industry jobs within the past ten years. "When it's time for them to get a job, it's your duty as a principal investigator and a mentor to be as helpful as you possibly can," he says.

Principal investigators whose postdocs get great jobs will find that their labs benefit. "You will attract the best people to work for you, because they know there's something that comes out of their effort," says Radisic. "There will be their dream job at the end of this."

Shapiro has actively helped her postdocs to move on, in part out of love for her research on the model organism *Caulobacter crescentus*. "I don't want *Caulobacter* research to disappear when I stop working," she says. "If you want a field to continue, how better than to ensure there's competition?" ■

Alison McCook is a freelance journalist based in Philadelphia, Pennsylvania.

GRADUATES

UK jobs not secure

Just half of UK scientists feel that their jobs are secure, according to a survey out on 20 June. The Higher Education Careers Services Unit (HECSU) in Manchester, UK, published the survey, which polled 22,000 people with undergraduate and advanced degrees across all sectors and disciplines. The poll also found that almost 75% of all science respondents, most of whom are 29 or younger, earn £29,999 (US\$48,715) or less. Fewer than 20% earn £30,000–34,999, and 8% earn £35,000 or more. Charlie Ball, an HECSU senior researcher, says job insecurity was found across most sectors, not just science, and results from uncertainty about public funding in Britain owing to recent austerity measures. "The state of public finances is forcing changes in the way research funding is allocated," he says.

NANOSCIENCE

Network for women

An online network will give female nanoscientists career-development tools and services to help them gain traction in a male-dominated field. The network is part of gender-equality efforts by Suzanne Brainard, the executive director of the Center for Workforce Development at the University of Washington in Seattle. She hopes eventually to expand the network and hand it over to a university or governing body. In May, Brainard and others held a workshop in Washington DC that highlighted women's poor representation in the field. It found that child-care obligations often bar female nanoscientists from attending and presenting at conferences and travelling for collaborations — a problem in a field that requires much interdisciplinary and collaborative research, says Brainard.

UNIVERSITIES

Value of ratings queried

Early-career researchers should be wary of academic-institution rankings, warns the European University Association (EUA) in Brussels. In *Global University Rankings and Their Impact*, out on 17 June, the EUA highlights problems with ratings, including exclusivity, lack of transparency and the possibility that institutions could falsify statistics to boost their scores. Lesley Wilson, secretary-general of the EUA, says researchers should consult only rankings compiled by public bodies that specify how they reach their conclusions.