

The road to your first full-time position can be long and tortuous. But some researchers have found a shortcut to success. Eugene Russo reports.

David Liu had his future planned. It was May 1999, and the bioorganic chemist had just received his doctorate from the University of California, Berkeley. Liu was all set to return to his undergraduate home at Harvard University to pursue a generously funded, independent postdoc when his career took an unexpected leap.

Out of the blue, Liu began to get interview invitations for tenure-track positions at top chemistry departments including those at Berkeley, the California Institute of Technology and even Harvard. "It still remains a little bit of a mystery," he says. Liu quickly abandoned the idea of a postdoc and instead became a principal investigator at Harvard. Today,

Liu says he is pleased that he declined a postdoc to give his career an early boost. He has enjoyed the responsibility — and is even content with the sometimes onerous duties of managing a lab, and writing grants and papers.

But Liu's experience is unusual. Long training stints and relatively few permanent academic positions can mean lengthy delays for scientists looking to secure their first permanent job. Supply readily exceeds demand for many disciplines, leaving a lot of researchers languishing in postdocs as they scour the circuit for their first position as principal investigator (M. Teitelbaum *The Public Interest* No. 153, 40–53; 2003).

A recent survey by the American Chemical Society (ACS), illustrates the present trends within the marketplace. Around half of the respondents said that they planned to do a postdoc — in good economic times, that figure can be as low as 30%, says Jura Viesulas, manager of employment information at the ACS. Annual surveys by the American Institute of Physics paint a similar picture: 68% of the respondents from the class of 2003 were planning to do a postdoc, up from 43% during the boom years of the early 1990s. And in the life sciences things are not much better. Data collected by the National Research Council and the US National Institutes of Health suggest that life scientists tend not to get their first grants until their mid-to-late 30s, rather than in their late 20s as they did in the 1970s — a hold-up primarily caused by extended training periods as graduate students and postdocs (see *Nature*

422, 354–355; 2003).

Delays in getting a first full-time job cost scientists money. In 2001, the American Society for Cell Biology released a report suggesting that, compared with engineering, medicine or business, over the course of their career a bioscientist can lose more than a million dollars in opportunity costs, the loss of salary and retirement investments because of long stints as graduate students and postdocs. Clearly young scientists — especially young biomedical scientists — need to plan ahead and keep multiple career options open or they will run the risk of losing time, money and job security.

BREAKING FREE

So how can they break free of the trap? There are several ways to minimize — or even skip completely — the time spent as a postdoc. These include leaving the academic world, emphasizing teaching at liberal arts institutions rather than working for large research institutions, and being geographically flexible.

Astronomer Andrea Schweitzer took the route away from academia. As an undergraduate, she had an idealized vision of the astronomy professor teaching attentive students while sitting under a tree on campus. When that image was shattered with the 'publish or perish' reality, she chose to forgo postdoc and teaching opportunities in favour of permanent employment as an engineer and assistant project manager at high-tech firm Honeywell in Fort Collins, Colorado.

Schweitzer, who is now an independent consultant and who also chairs the American Astronomical Society's employment committee, offers some simple tips to those seeking to expedite their science training and career. Think at least two jobs

"An assistant professorship is such a cherished part of being a scientist, that when faced with one, it's really hard to turn it down." — David Liu



Head start: David Liu became a principal investigator without doing a postdoc.

FAST TRACK:
Principal investigators



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ahead, she says. Share an office with a colleague who is one to two years ahead of you, and choose a research topic that is unlikely to be delayed by external events, such as the launch of a spacecraft. And when it comes to putting yourself in a position to apply for a job, “done is better than perfect”, Schweitzer adds.

LEARNING CURVE

In contrast, Karl Haushalter opted to stay in academia — but was a postdoc for just two years before he found his ideal job. The path that led Haushalter to his present position as an assistant professor of chemistry and biology at Harvey Mudd College in Claremont, California, began when family considerations encouraged him to move from Cambridge, Massachusetts, to southern California. After spending a year as a guest lecturer at the University of California, Irvine, Haushalter began a postdoc at the University of California, San Diego. By that time, he knew that he wanted to teach — preferably at a liberal arts college. Halfway through his postdoc project, he saw an opening at Harvey Mudd and jumped at the opportunity. “I felt like this was too good to pass up,” he says.

For those who are interested in moving their career more towards teaching, Haushalter recommends gaining teaching experience as a graduate student (see *Naturejobs* 5; 28 February 2002). He also advises young scientists to ensure they have the skills they need before coming to a small liberal arts college. Unlike working at a large research university, advice from colleagues doing similar research may not be available ‘just down the hall’.

Flexibility is important for those who hope to move quickly from training to a full-time position, says Sally McArthur, a lecturer in biomedical engineering at the University of Sheffield, UK. After receiving her doctorate in Australia, McArthur travelled halfway around the world to the University of Washington, Seattle, for a postdoc. Two years later, she began looking for jobs. After some initial disappointment, she found her current position with the help of a supportive mentor and some informative networking at international meetings. She runs a new biomedical engineering programme for undergraduates, a position with an unusual amount of responsibility and authority for a faculty rookie. She is still adjusting — McArthur’s administrative duties have supplanted any sustained focus on her own research, something she hopes will soon change.

IN SEARCH OF FUNDS

Nic Tapon, a lab head at the charity Cancer Research UK in London, also crossed the globe to follow opportunities that matched his personal and professional priorities. He began his biomedical education in Britain with a four-year graduate degree at University College London. After heading to Boston for a four-year postdoc, he found a job as a research scientist at the University of Nice in his native France. But although his position was secure, funding was scarce and bureaucracy commonplace. “Like a lot of French scientists, I found the lack of funding for science quite frustrating,” says Tapon. “That was definitely a reason to move on.” (see *Nature* 428, 108 and 430, 283; 2004). He returned to Britain for a well-funded position at Cancer Research UK.

For those looking for a programme that could accelerate their education and lead to permanent employment, Michael Teitelbaum, a demographer with the Alfred P. Sloan Foundation in New York, recommends trying one of 100 ‘professional’ master’s degree programmes that the Sloan Foundation has helped start since 1997. Located at universities across the United States, the degrees include training not only in science, but also in law, management and communication. Early indications, Teitelbaum says, are promising. Successful graduates’ salaries are reasonable, and job placement good. But students usually have to pay their own way through the course, a major drawback. It will be several more years before the programme can be judged an unqualified success, Teitelbaum notes.

Pushing to accelerate your career does have a downside, says Liu. When one of his graduating students came for advice on whether he should accept an offer to go directly to a full-time faculty position at Brigham Young University in Provo, Utah, Liu hesitated. Getting additional skill sets and having time to establish an interesting and original research programme during a postdoc could be the key to success, he said. And there is no rush to learn how to manage a lab or to write grants and papers. But despite Liu’s advice, the student took the job. “Maybe that’s a reflection that it’s a very hard thing to turn away,” says Liu. “An assistant professorship is such a fundamentally exciting and cherished part of being a scientist, that when faced with one, it’s really hard to turn that down.” ■

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