

SPOTLIGHT ON FACULTY

Trekking the tenure-track

Postdocs hoping to become fully tenured researchers have a long way to climb, but the opportunities are there for those with the right skills.

“What I want to see from the application is not the past, but the future.”

Lassi Linnanen, Lappeenranta University of Technology

MARTIN WÜHR thinks he worried too much about how people would see him as he applied for jobs as a faculty member in molecular biology. He was a postdoc working on proteomics at Harvard, and had developed a novel method that used mass spectrometry to tell whether proteins were located in cytoplasm or had moved into the nucleus of a cell, but he thought that being too nervous in an interview or making an error on his cover letter would trip him up.

“I was always worried I was doing something wrong,” says Wühr, who will begin his job in July as an assistant professor of molecular biology at Princeton University, New Jersey. “I ended up with my absolute dream job, but the process itself was extremely stressful and rather unpleasant for me.”

Now that he’s interviewing PhD students to join his lab, he sees the process differently. “Even if you screw up some minor things I don’t think it matters,” Wühr says. “In the end what really matters is substance.”

Searching for a job as a faculty member in a research institution

can be a daunting proposition, not least because there are so many more graduate students and postdocs than professorships.

A 2014 report by the Nuffield Council on Bioethics, for example, noted that only about 4 percent of PhD graduates in the UK wind up in permanent academic posts with a significant research component. But positions do get filled, and those who hire for them say their goal is straightforward — they look for scientists who demonstrate solid scientific credentials and a clear vision for their research.

“We look for top scientists, for leaders that are interested in building a new research group,” says João Malva, a senior researcher at the University of Coimbra in Portugal.

One of the obvious ways of assessing scientific credentials, of course, is through publications. “It’s clearly impressive if somebody has *Nature* and *Science* papers,” says Bernhard Schmid, dean of the faculty of science at the University of Zurich, Switzerland. But the papers don’t need to have appeared in those journals, and there’s no magic number of journal articles that will get someone a job.

Thomas Henzinger, a computer scientist at the Institute of Science and Technology Austria, in Klosterneuburg, thinks authorship is key. “What seems to be extremely important is being the first author on papers.”

But publication record is not the only factor that counts. Often, applicants spend a lot of time spelling out their accomplishments, and not enough on the direction they plan to take the research. “What I want to see from the application is not the past, but the future,” says Lassi Linnanen, a professor of environmental

economics and management at Lappeenranta University of Technology in Finland.

A good research plan shouldn’t focus on what an applicant has done as a postdoc, but on how that research points the way forward for the next five years. “The more tangible the better,” Linnanen says.

The plan should spell out what research questions applicants would like to tackle, and be different enough from their mentors’ research to show originality and creativity. At the same time, it should fit within the field as a whole, as well as within the existing research in the department. “The whole plan should be consistent and not too specialised, without being vague,” says Schmid.

It’s good to have some flexibility in the research plan, so it can be adjusted to fit a particular school’s needs. Kathy Barker, a former professor of cell physiology and immunology at Rockefeller University and a regular author on lab management, recommends having as many as six or seven versions of the research plan, which can be adapted to the needs of a particular job.

Another credential that can impress a hiring committee is a successful grant application for research funds. The European Research Council, for instance, offers starting grants, which provide young scientists with up to €1.5 million over a period up to five years. The grants are designed to allow postdocs to make the transition from working under a supervisor to running a lab of their own, and researchers can take them from one institution to another. They’re competitive — the success rate in 2014 was roughly 11.5 percent — so winning one is seen as an accomplishment. “If a



The Institute of Science and Technology Austria



Martin Wühr

postdoc receives a starting grant, they're almost guaranteed to achieve a faculty position somewhere," says Sebastiaan van Dijken, a professor of applied physics at Aalto University in Espoo, Finland.

While some universities would be pleased to consider applicants who are already funded, for the most part it's not the money but the accomplishment that makes grant recipients attractive. It shows that the scientist is doing original and promising research that's attracting support, and that they can present it well enough to convince reviewers of that fact. "It really tells me something about how inventive they are in research" van Dijken says.

The European Commission also offers Marie Curie fellowships for researchers at different stages of experience, which van Dijken says are also impressive. Individual countries have funding schemes as well; The Swiss National Science Foundation offers Ambizione grants to young researchers, either from Switzerland or abroad, to set up independent research projects at Swiss universities. In the US, the National Institutes of Health offer K99 grants, which pay for up to two years of postdoc work. Successful applicants can then transition to an R00 research grant to support another three years on the tenure-track.

Malva says he looks for scientists with an entrepreneurial bent, who can bring in government funding and form partnerships with the business sector. "We need the people with the right skills and perspectives to be competitive enough to attract these opportunities," he says.

Another consideration for those looking to employ new faculty members are the so-called soft skills — communication skills, teamwork, leadership ability. Barker points out that those skills aren't normally taught as part of postdoc programs, so postdocs need to find instruction elsewhere. "You want mentors you can look to about all aspects of science, not just research," she says. That includes management skills like handling a budget and coping with safety regulations, as well as making sure you know what everyone in your lab is doing and keeping up morale.

"If you see somebody with a really happy lab, study it," Barker advises. "See which labs

are most effective at doing good science with camaraderie."

Attending scientific conferences helps postdocs keep up on what's going on in the field, and allows them to meet others doing research related to theirs. That can help when hiring committees are evaluating research. "The most important thing is to be known by the scientists who work closely on your topic," Henzinger says.

"If a postdoc receives a starting grant, they're almost guaranteed to achieve a faculty position somewhere."

*Sebastiaan van Dijken,
Aalto University*

Presenting at conferences also lets postdocs hone their speaking skills. It's important to be able to explain research, not just to experts in a particular area, but to knowledgeable people in other fields. This is becoming increasingly important as the number of cross-discipline collaborations continues

to rise (see go.nature.com/yd9v9q). James Gould, director of the Harvard Medical School Office for Postdoctoral Fellows, suggests practicing a talk with scientists who work in your field, but are not directly involved with your research. Your own PI and others on your research team may not be able to assess whether people who know less about your work would understand it. "They're close to your research and understand instinctively what you might say, so they may not question it," he says.

Gould runs a series of workshops for postdocs at Harvard seeking to land faculty jobs. Increasingly in the US, postdoc offices are good sources for meeting mentors, hearing from recent alumni, and learning how to construct a winning CV and a cover letter.

Wühr sat on one of Gould's "Postdoc to PI" panels last autumn, and told others what his own job search experience was like. His advice for how to navigate a process he himself found stressful? Relax. "I definitely would say to try and enjoy it as much as possible." ■

For help and advice on transitioning to a faculty position, you can read the faculty series on the Naturejobs blog at go.nature.com/mpuzhx.

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Bernhard Schmid

Teaching counts, too

The emphasis in hiring junior faculty is on their promise as researchers, but being a professor also means being a teacher, so being able to demonstrate experience and skill in that area could help in the job hunt.

"Teaching is always a consideration, but unfortunately not a very important one because it's hard to evaluate," says Schmid. It's not impossible to judge, though — if an applicant has taught undergraduates, that can work in their favour. The ability to clearly explain their science during lectures and interviews with students may demonstrate the candidates' teaching potential as well.

Even if it's not the first consideration, hiring committees do try to factor teaching ability into their decisions. Linnanen says the most attractive candidates have an underlying skill set, such as an ability to organise arguments and to describe concepts clearly to non-experts, that makes them good at all aspects of professorship. "There tends to be a correlation. If you are a good researcher, you're also a good teacher," he says. Van Dijken agrees: "In many cases to be successful scientifically involves being good in the other skills, like communication."

There's one faculty job where teaching ability is paramount — that of lecturer. These are non-tenure-track positions that usually include membership on a research team, though not as a principal investigator. "For these positions, teaching skills are evaluated much more carefully than for tenure track positions," says van Dijken. For those postdocs who have an affinity for teaching and are intent on getting a job in academia, a lecturer position may be an attractive choice.



Lassi Linnanen



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