INDUSTRIAL POSTDOCS: THE ROAD LESS TRAVELED

Many scientists opt for a research career in the pharmaceutical or biotech industry, so why not kick-start the process by also doing a postdoc in industry? Industrial postdocs often provide higher salaries and greater access to resources than their academic counterparts. But how do you find out about available positions and whether they are a good fit for you? Will a position as a postdoctoral fellow provide you a foot in the door at a company? And what if you don’t like it? Will an industrial postdoc cut you off from returning to academia? By Laura Bonetta

It can be difficult to find answers to these questions, in part because there just aren’t that many industrial postdoc positions around. According to data from the 2006 National Science Foundation (NSF) Survey of Doctoral Recipients, 59 percent of individuals who received their doctorates in the life or physical sciences in the past five years had completed or were participating in postdoctoral appointments. Of these individuals only a minority—11 percent in the life sciences and 14 percent in the physical sciences—were doing their postdoc in for-profit or nonprofit companies, compared to 75 percent in educational institutions. “The number of postdocs in the for-profit sector is really small compared to that in academia,” says Nirmala Kannankutty, a senior analyst at NSF.

In addition, industrial postdoc appointments can vary considerably in length, application process, scope, and expectations, depending on the company and, in some cases, depending on each company’s site.

Looking for a Foot in the Door
Postdoc appointments typically lead to permanent positions at some companies, but not others. The chemical company Ciba employs about 60 interns, both diploma graduates and Ph.D.s, each year at its headquarters in Basel, Switzerland (for more on internships, see page 1861). They currently include nine postdoctoral fellows with one- to two-year appointments, according to Kristina Schueller, manager of university marketing. “Our postdocs work in projects both independently and in close cooperation with the teams, depending on the project,” says Schueller. “Most of them do end up becoming permanent employees with the company. We aim at retaining them.”

But this would not be the case at a place like the biotechnology company Genentech. Only about 10 percent of postdocs at the South San Francisco–based biotech company end up being hired by the company as scientists; the majority move on to become scientists at other corporations or assistant professors in academia, or they pursue other careers. “We actively encourage and help postdocs establish an academic career, for example, by funding scientific meetings organized by them,” says Vishva Dixit, vice president for research at Genentech.

Genentech’s postdoctoral program, which started in 1990, currently employs about 120 researchers. Appointments are up to four years with a starting salary of over $49,000 for the first year, compared to the $38,000 or so stipend at most universities.

Genentech postdocs are strictly kept away from any research that has to do with a potential product. This policy ensures that the postdocs are free to talk about their work, make reagents available to others, and continue to work on their projects when they leave the company. “Genentech postdocs are actively encouraged to speak about their results in open forums. If they don’t, this is considered a negative in their yearly evaluation,” says Dixit.

Why Opt for Industry
Many companies, even ones without a formal postdoc training program like the one at Genentech, see value in having postdocs around. “We see a lot of benefit in having postdocs involved in a project. It helps our scientists remain intellectually involved and maintain a basic research focus, and it really adds to the scientific atmosphere across the company,” says Donald Nicholson, vice president and franchise worldwide basic research head at Merck Research Laboratories.

Nicholson, whose lab is located at the Merck facility in Rahway, New Jersey, says that he applies similar criteria as his colleagues in academia when selecting a postdoc to join his continued »
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—Richard Kho

lab. “We look for highly motivated, intellectually hungry individuals with a track record of accomplishment,” he says, adding that it also pays to be a team player. “The students and Ph.D.s that thrive in this environment have the ability to collaborate both within the company and outside.”

From the perspective of the applicant, one of the main advantages for doing a postdoc in industry—many agree—is the access to state-of-the-art equipment and facilities and to colleagues with a wide range of research expertise from biology to chemistry to bioinformatics. That is what attracted Nicholson to industry when he first took a postdoc position at the Merck Frost Center for Therapeutic Research in Montreal, Canada. “What I realized, for example, was the power that chemistry could bring to bear on biological questions,” he recalls.

The other advantage to doing a postdoc in industry is the exposure to the business side of a company. That early experience can be particularly valuable to someone who has his or her eyes set on an industrial career path. After completing a Ph.D. in organic chemistry at Boston College, Vikki Tsefrikas became a postdoctoral research associate in the cancer chemistry department at the AstraZeneca Pharmaceuticals facility in Waltham, Massachusetts. “I knew I wanted to go into industry,” says Tsefrikas. “This position allowed me to be in that environment and experience it firsthand.”

Tsefrikas’s two-year appointment at AstraZeneca allows her to work on multiple projects, some directly related to AstraZeneca’s therapeutic applications. “It is like having a justification for what you do on a daily basis.”

Exploring Other Options
Would an industrial postdoc be a good fit for someone who is not set on a career in industry? Some postdoc projects and programs do provide valuable research training, not unlike that of an academic postdoc, but in an industrial setting.

That is the vision behind the Presidential Postdoctoral Fellowship Program established in late 2003 at the Novartis Institutes for BioMedical Research (NIBR), the research arm of the pharmaceutical giant Novartis. “We wanted to provide postdocs with an opportunity to do the kind of science they were excited about in this kind of an environment that is different from academia,” says Rajesh Ranganathan, head of NIBR’s education office. “We wanted to create a program that opens more doors rather than close some of them.”

NIBR currently employs 85 postdocs at four sites. The majority are evenly split between the Cambridge, Massachusetts, and Basel, Switzerland, NIBR campuses, with a few postdocs at the Emeryville, California, and Horsham, UK, sites. Each postdoc has two mentors, one within NIBR and the other at a local academic institution, both providing research and career advice during the stipulated three-year period.

After completing their training at NIBR, postdocs go on to a variety of positions, including assistant professor posts in academia for about 10 percent of them. “When the program started, many people were skeptical that someone trained at a pharmaceutical company would be able to get a good job in academia,” says Ranganathan. “But we have shown that this is possible.”

As a rule NIBR does not place restrictions on its postdocs’ publications, and the projects are designed to accommodate this. “In rare instances postdocs willfully make the decision to work on projects that cannot be published. Such postdocs see a benefit in perhaps being an inventor on a patent instead and are choosing to take their career in a different direction,” says Ranganathan. “We talk to them at the outset and explain the constraints, so they embark on such efforts with eyes wide open.”

How to Apply for an Industrial Postdoc
Companies like NIBR and Genentech have formal application and screening processes for their postdocs, which are managed through a centralized office. Prospective postdocs at many other companies apply to the human resources department in response to a specific position listed on the company’s website or advertised elsewhere. In some cases postdocs at large pharmaceutical companies without a formal postdoc program obtained their positions by contacting individual researchers directly.

It pays to be creative. Richard Kho found a position as a postdoc at the San Diego–based biotech company Triad Therapeutics (which closed its doors in 2004) even when there wasn’t one available. Late in 2000, when Kho was finishing his Ph.D. and had decided he did not want to stay in academia, he saw an advertisement for a research associate position at Triad on an Internet job search engine. While the position was a perfect fit for his research interests—a mix of bioinformatics and genetics—it called for someone with a Bachelor’s degree who would report to a Ph.D.-level scientist. “I replied to the advert and explained that I had a Ph.D. but wanted to work in this area,” says Kho. “We were able to turn it into a postdoc position.”

Kho ended up with a patent and two publications during his two-year postdoc, which then led to a permanent position at Triad. Although the strategy worked well for Kho—now an employee with the UK-based software company InforSense—he admits it was a gamble. “If you go to a company without a formal postdoc program there are few safeguards. In my case my supervisor was very good and very academically oriented,” says Kho. “If you seek a postdoc position where a postdoc program does not exist, you should be proactive to get the training you need.”

Marc-Olivier Baradez used a recruitment agency to find a postdoc position at ReNeuron, a company formed 10 years ago as a spin-off of research conducted at Kings College London. After completing his Ph.D. in the stem cell field at Kingston University in South West London, followed by postdoctoral research at Rice University in Texas, Baradez started looking for a second postdoc position in London, in the same research area. After not finding anything that met his expectations within academia, he turned his sights to the biotech sector.

“A big advantage here at ReNeuron is that there is a lot more money to do the work. We have few constraints other than sticking to a deadline and achieving a set of goals by the deadline,” he says. Baradez also enjoys the fact that his research is focused on therapeutic applications. “It is like having a justification for what you do on a daily basis.” continued »
Internship Opportunities

Because industrial postdocs are not a good fit for everyone, internships can provide a good way to test the water without making long-term commitments. These positions, typically available at the undergraduate, graduate, and postgraduate levels, last anywhere from six weeks to a year. “The summer internship program at Merck gives students a flavor for what it is like to work in industry. Some are enamored and some decide it is not for them. It is a really important trial,” says Donald Nicholson, vice president and franchise worldwide basic research head at the Merck Research Laboratories.

Some of the companies that provide internship opportunities to students in science and engineering fields are:

- Amgen
  www.ext.amgen.com/careers/campus.html
- Amylin Pharmaceuticals, Inc.
  careers.amylin.com/internships.asp
- AT&T Labs, Inc.
  www.research.att.com/index.cfm?portal=18
- Becton Dickinson and Company
  www.bd.com/careers/internships
- Biologic Company
  www.biologicco.com/employment/intern.htm
- Boeing
  www.boeing.com/employment/college/internshipDetails.html

Making the Right Choice

Depending on the company and the project, it can be more of a challenge to get publications out as a postdoc in industry. One way to determine whether a company encourages its scientists to publish is to do a PubMed search that includes the company’s name. Many companies also list publications on their website.

“There is tight control about how much we can publish, although we are encouraged to attend meetings,” says Baradez, adding that he does not think this would necessarily hurt his chances of returning to academia. “If I ever leave I will have a background and skills that are valued in academia.”

Because research at a company often involves proprietary information, it can be difficult to share results with other scientists. “I have been on several hiring committees for people going from one company to another and often they cannot really talk about what they have done,” says Sam John, a staff scientist at the National Institutes of Health (NIH). “The interview process then becomes challenging in identifying candidates that fit the needs of the company.”

John chose to do a postdoc at the former biotech company Tularik in San Francisco (which was acquired by Amgen in 2004) because the people who headed the company had a reputation for excellence in research. At Tularik, John had an interesting project and all the support he needed to complete it in a two-year period. Despite the resources, he quickly realized that industry was not for him. “The nature of industry projects is highly focused and I wanted something with more wiggle room,” he explains. He remained at Tularik less than a year and then opted for a more traditional postdoc appointment at Penn State. After a short stint at another biotech company, he joined the National Cancer Institute at NIH.

Featured Participants

- Amgen
  www.amgen.com
- AstraZeneca
  www.astrazeneca.com
- Boston College
  www.bc.edu
- Ciba
  www.ciba.com
- Genentech
  www.gene.com
- Merck
  www.merck.com
- National Institutes of Health
  www.nih.gov
- National Science Foundation
  www.nsf.gov
- Novartis
  www.novartis.com
- Novartis Institutes for BioMedical Research
  www.nibr.novartis.com
- ReNeuron
  www.reneuron.com

Industrial postdocs offer a valuable experience for those wishing to pursue a career in industry—providing an early start along that chosen path. But these positions can sometimes be a good choice for those who end up staying in academia. Depending on the program, they can offer an opportunity to do high level science in a different environment and to establish connections with researchers in the industrial sector. These positions may be harder to find than the more traditional postdoctoral appointments in academia, but for some they are worth the extra effort.

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