Consider post-doctoral training in industry

Grace H W Wong

With the traditional walls between industry and academia falling, industry post-docs offer the best of both worlds.

Is post-doctoral training necessary before getting a job in science? Since publications are vital for obtaining a good position, and the post-doc is the best time for producing publications and building a strong CV, it seems logical that doing a post-doc is essential for getting a job in science. Most scientists agree that post-doctoral training is critical in the development and maturation of a scientist.

Where should you do a post-doc? Since there persists the belief that working in industry makes it difficult to return to academia, it is still more common to take a post-doc position in academia than in industry. My own decision to take a position in industry was based on a desire to work on a particular topic—tumor necrosis factor—which led me to choose Genentech over Caltech. Though I was repeatedly told, “Do not go into industry because you won’t be able to publish,” I have never regretted my decision, and have published more than 10 papers and filed more than 10 patents on cytokines at Genentech. I have been fortunate to have excellent mentors and collaborators, as well as the resources and support for my work.

I began my post-doc, along with David Lowe (currently a partner at Skyline Ventures) and Arnon Rosenthal (now president of Rinat Neuroscience), under David Goeddel, who cloned genes for therapeutic proteins including insulin, growth hormone, interferon- α , interferon- γ and tissue plasminogen activator. We learned not only from our mentor, but also from other post-docs and scientists who taught us their special techniques, discussed their projects and shared ideas and experiences. Eventually, the three of us were

promoted to scientist positions and worked at Genentech for more than 10 years.

The industry advantage

What are the advantages of being a post-doc in industry? Although different companies may have their own cultures, the following advantages are usually present in an industry setting, though it is important to note that excellent academic placements may have some similar benefits as well.

Industry resources and vibrant atmosphere. At Genentech, I benefited from rigorous scientific training in a supportive industry environment without worrying about funding or grant writing. My salary was better than in academia, and I was eligible for bonuses and stock options.

Team productivity. I had the freedom to choose projects, and was encouraged to publish after filing for patents. Moreover, I received bonuses when my work was published in prestigious journals (e.g., *Nature*, *Science* and *Cell*). I had access to core services and colleagues with industry experience and proprietary reagents to share, which helped speed up my discoveries. My projects were intellectually stimulating and relevant to human diseases.

Valuable industry contacts. I was invited to speak about my work at international conferences, and scientists from academia were eager to collaborate with me. My industrial experience and contacts led to several job offers, both from industry and academia. Many of the scientists I met are now friends, collaborators, scientific advisors, directors and investors in my new companies.

Symbiosis. The relationship between you and your company will produce mutual benefits: your enthusiasm provides an impetus for new drug discovery, and the company benefits from your innovative work. If the company is no longer interested in your project, you may carry on in a university. Most

companies do not encourage post-docs to stay; however, people are more likely to hire people they already know.

Christina Scheel, a post-doc at the Whitehead Institute for Medical Research, says, “One concern often voiced by graduate students considering a post-doc in industry is that they bar themselves from going back to academia.” The lines between academia and industry are, however, becoming increasingly blurred. Industry recognizes the value of basic science, and academia looks for opportunities to commercialize research. A successful, productive post-doc from industry, or even a more senior industry scientist, will have little trouble making the transition back to academia. In some cases, it is possible for a researcher to take a discontinued project from industry and continue it in an academic laboratory, or even start up a new company.

Thomas Tan, senior scientist at Eli Lilly believes, “Post-doc training is not necessary for a job in biotech or pharma—but it does not hurt to have one, especially in a good and reputable lab.” Indeed, many companies will hire scientists who do not have post-doc experience. Craig Gibbs, senior director at Gilead Sciences says, “Whether a scientist can be hired without a post-doc depends on the department. For biology, one must have a post-doc; for chemistry, a post-doc is not required.”

Steven Wiley, chief technical officer of VLST Corp. and former senior scientist at Amgen says, “We have hired PhDs for permanent positions without post-doc training, but we will bring them in at a lower level than people who have successfully completed their post-docs. These people are at first treated like advanced technicians, but if they perform well for a few years, they can become full staff scientists.”

Post-docs often have the ideal combination of traits for helping to shape and learn about the drug discovery process in a large

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pharmaceutical company. "They are well trained in the most recent techniques, generally have up-to-date knowledge of their field, and are often disposed to creative and higher-risk research than scientists at later career points," according to Alexander Sasha Kamb, head of oncology at Novartis. Adds Scott Wadsworth, research fellow at Johnson & Johnson Pharmaceutical Research & Development, "Going to a larger company offers the added benefit of seeing what other types of jobs are available to someone with a PhD, and perhaps changing career direction. I've had people move into regulatory affairs and competitive intelligence right out of their post-doc."

Reinhard Ebner, formerly a post-doc both at Genentech and in academia (UCSF and Stanford), emphasizes the dual gains for the post-doc and the company: "Early expo-

sure to corporate thinking can be a valuable experience. A company, any size, will in turn profit from having post-docs under its roof." Now principal scientist at Avalon Pharmaceuticals, he adds, "We have known academic-to-industry career switches for a while now—but along with the traditional walls between industry and biotechnology disappearing—we are starting to see movement the other way as well."

Conclusions

In addition to Genentech, other biotech companies such as Amgen, Biogen IDEC, Serono, Millennium, Genzyme, Chiron, and Gilead, and pharmas such as Abbott, AstraZeneca, Aventis, Eli Lilly, Roche, Johnson & Johnson, Novartis, Pfizer and Wyeth have post-doc training programs. All companies should be encouraged to develop

such programs, as they benefit from the post-docs' enthusiasm and innovative thinking, whereas post-docs gain invaluable industry contacts and experience.

A final word: I strongly recommend that you consider doing a post-doc in industry if the company allows you to finish your project, publish and collaborate. Find a mentor with a good publication record, follow your interests and do good science. All options will be open. Participate in the scientific community and develop a network of collaborators in both industry and academia. Gain the trust and respect of your colleagues, and produce fruitful synergy. Becoming an industry/academic hybrid can enhance your opportunities on both sides of the fence. Doing a post-doc in industry is, in many ways, like scientific heaven, and you may never want to leave.