DOES SIZE REALLY MATTER?

Gaining experience in a large pharmaceutical company provides an education in drug discovery and development that is a desirable and transferable skill set to all sizes of firms.

When picking a career in industry, most people face an important choice: should you join a big pharmaceutical company or a small biotechnology firm? Many people's decision will be based on the well-known stereotypes of these two arms of the drug discovery industry — big pharma are large and bureaucratic dinosaurs, whereas small biotechs are nimble, innovative, entrepreneurial animals. But now the boundaries are beginning to blur. Biotechs no longer fall into the previously held opinion of being a pharmaceutical company without sales, as some of these firms are beginning to bring biological therapeutic compounds to market without the traditional helping hand provided by the larger companies.

Because of this, there is a growing need for small biotechs to have people with experience of pushing compounds through the drug pipeline. One person who is acutely aware of this is Franz Hefti. He was in charge of around 600 people as senior vice-president for neuroscience at Merck and has recently moved to become the executive vice president of development at the Palo-Alto-based biotech start-up Rinat Neuroscience, which employs around 25 people. He says there is a strong argument for gaining experience in a large pharma company first before moving into a small biotech. "Merck, or indeed any big pharmaceutical company, offers an education in drug discovery and development. You learn what will work and what will not. Larger companies tend to concentrate more on estimating which compounds will run into trouble, for example, safety-wise in patients. They have a better idea of how to fine-tune compounds to produce compounds of better quality."

Hefti says small biotechs can underestimate these issues, partly because they do not have such a big team network set up to address them. "In a big company you learn about these issues by internal observations and discussions and you get practical experience of aspects like toxicity and drug metabolism. The same is true of designing the clinical development of drugs. Larger companies carefully think ahead about any regulatory issues; in many cases, biotech's problems are a reflection of an improper understanding of these issues. All this invaluable experience can't be properly described, you just experience it through exposure over many years." One of Hefti's goals is to use his experience to raise funds and to help bring compounds into clinical development.

Daniel Burns, vice-president of discovery genetics at GlaxoSmithKline in Research Triangle Park, North Carolina, says being part of a large global company that has 16,000 people in R&D gives you unprecedented exposure to expertise in the field. "There are so many bright and intelligent people in the company who know a great deal about their subject area. It's an incredible opportunity to get the chance to work with these people, and I'm always learning every day."

Being exposed to such a large number of skill sets means you learn to be innovative and creative by witnessing and taking on new areas and disciplines, says Burns. "For example, when I started at GSK, one project I was working on involved experts in animal models and in X-ray crystallography. We were all working together to develop better targets, and it was exhilarating to watch this level of interaction across the different disciplines in progress. Everyone had a real sense of mission and purpose."

But people in large companies can get frustrated because of the bureaucracy and the career limitations. So, many people move to a smaller company because it gives them the chance to avoid becoming 'pigeonholed' in their own field. In small biotechs there tends to be a higher degree of cooperation and more immediate face-to-face contact with other members in the company to solve problems, which makes certain processes more dynamic. Smaller companies also have a greater impact factor — one person in a group of 20 people will have more of an impact than one person in a group of 200. Scott Sneddon moved from his position of computational chemist at Pfizer to become a senior scientific director at Genzyme in Cambridge, Massachusetts, because he wanted greater interaction and the chance to assume different roles, but he says his experience at the larger company was invaluable. "It was great for me, coming in from Pfizer; I had seen how it had been done the 'right way'. We could teach people here how to use their skills in the drug discovery process. The fun thing for me is I got to pitch in wherever — from making chemical compounds for screening, to building the screens themselves, then setting up an infrastructure for screening as the compound comes out to pharmacology."

Big pharmaceutical companies have taken notice. They have begun incorporating the traits traditionally associated with biotechs into their own operations. GSK has small 'centres of excellence' situated in its sites around London, AstraZeneca's Boston site has a relatively small number of scientists working on a few targeted areas and Merck keeps its research groups down to a reasonable size — all to recreate the dynamic and entrepreneurial environment found in smaller companies. Both sectors are taking steps towards each other out of necessity. The cost of getting a drug through the pipeline continues to rise, and, despite more money than ever being ploughed into R&D and the much-heralded genomics revolution, there have actually been fewer successful candidates in the past few years. Biotech and big pharma aim to reduce the number of candidates that look promising in the lab, but fail in large clinical trials. Scientists who can help solve that problem will find a home in either sector.

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