

FUELLING THE PIPELINE

Drug pipelines need to be fed, not just with promising compounds, but also with promising scientists. Despite the high-tech nature of the enterprise, the skills most in demand when companies are recruiting can often be the most traditional.

We are all getting used to hearing the concerns about where the next generation of blockbuster drugs will come from, and the often gloomy predictions of the analysts who remind us that, upstream, drug pipelines are looking decidedly lean. But relatively little is said about another possible shortfall — the supply of people who will manage the drug pipelines of the future. Many throughout academia and industry suspect that some of the skills that are essential to drug science are in dangerously short supply, and that it is high time for alarm bells to ring. This month, *Nature Reviews Drug Discovery* has teamed up with *naturejobs* to launch a new section, Drug Discovery Careers Focus, which will mix recruitment advertisements with commissioned monthly articles that will consider the challenges facing those making their careers in drug discovery.

So, what are the essential skills for a twenty-first-century drug discoverer? With all the emphasis being given to the way in which new technologies are revolutionizing drug discovery, one might imagine that companies are only interested in people trained in platform technologies. However, although drug discovery is certainly technology driven, companies find that most new technologies can easily be absorbed by the staff they already have, and indeed, it is no use employing people who are 100% tied to one technique if the essential techniques are set to change five years down the line. Instead, the shortages that are most often described occur in some of the most traditional disciplines, such as pharmacology, chemistry and medicine.

Pharmacologists are an ever-dwindling resource, owing to the fact that the subject is perceived as staid, and most pharma companies are now busy trying to boost numbers by sponsoring studentships and fellowships. Chemists of all types, and medicinal chemists in particular, now have their pick of positions at drug discovery centres, their shortage in the industry being reflected in the five-figure signing bonuses they can command straight out of graduate school. Medically trained people

who can bring innovation to clinical-phase testing are almost unobtainable in certain regions of the world. If this list of ‘missing’ skills looks strangely familiar; it might be because they were essentially the attributes that defined drug discovery scientists of old. Consider Paul Janssen, for instance, arguably the most successful drug discoverer of all time, who invented and took to market 35 drugs during a 30-year career. ‘Dr Paul’, as he was known, combined all these disciplines to develop what those who worked with him described as a ‘nose’ for new drugs. Companies are looking for more ‘noses’.

Alongside the hard-to-find disciplines, one skill that everyone throughout the industry describes as missing in all ‘outsiders’ is a fundamental understanding of how drug discovery works. Pretty much every company runs courses for its new intake in how the process operates, but a key element in helping the uninitiated to understand the business must surely be to get this information disseminated outside company walls. Our new section aims to help with this task.

Observing what courses companies choose to teach new staff can give us a picture of the skills that are in short supply and the changing nature of the industry. Companies big and small are now training their staff in project management, indicative of the trend towards expecting scientists to ‘multitask’ and take a guiding role in the projects with which they’re involved. Although not a new phenomenon for biotechs, this change is sweeping through big pharma companies as they try to capture the exciting non-hierarchical feel of the biotechs, where one bad clinical result can almost destroy a company, and working life is more volatile. But as the larger companies adopt flatter management structures, they encounter the new challenge of finding incentives to make people stay if there is no traditional corporate ladder to ascend. The slightly higher turnover rates that result might not, however, be a bad thing, as even though traditional skills might be best, companies do need to add the odd new competency from time to time.

“Many throughout academia and industry suspect that some of the skills that are essential to drug science are in dangerously short supply”