Life beyond the walls

Many large drug companies are now taking advantage of the specialist skills offered by smaller biotech firms in their search for new drugs. This trend for outsourcing elements of research is forcing a careful evaluation of licensing policy, says Adam Smith.

Over the past couple of decades, in parallel with the 'biotech explosion', large pharmaceutical companies have become more willing to look outside their own walls for ideas and leads to fuel drug development (see *Nature* **414,** 482–483; 2001). It makes sense for them to benefit from the specialist technology or knowledge bases offered by smaller companies. And the smaller biotech firms can gain from the help offered by their larger partners when it comes to turning the therapeutic opportunities they have identified into commercial products.

At one time the shift towards outsourcing discovery efforts looked like threatening the existence of the in-house teams at big companies. "Five or six years ago, prestigious leaders in the pharmaceutical industry were talking about the 'paradigm shift', in which pharmaceutical companies would be seen as drug-development warehouses and biotechs as the creative engines," says Tomi Sawyer, a vice-president at ARIAD Pharmaceuticals in Cambridge, Massachusetts.

Tomi Sawyer: smaller companies are attempting to develop their own drugs.

But what has actually emerged is a more symbiotic relationship. According to Franz Hefti, senior vice-president for neuroscience research at Merck Research Laboratories in San Diego: "Biotechs now compete with the internal discovery programmes of large pharmaceutical firms."

One of the weapons used by big drug companies to maintain their competitive edge over biotech firms is the PhDs they employ to scout for licensing opportunities. Until the mid-1990s, licensing departments tended to react to biotech's advances. Now they've become much more proactive, looking at everything from basic science to drugs ready for development. The Danish health-care company Novo Nordisk has underlined the importance of licensing basic science and discovery research by separating its scientific licensing department from the more established commercial licensing of drug-development opportunities.

To benefit from this competition, pharmaceutical companies need to be sure that they understand what is being offered to them, opting to license only the very best ideas. "The critical factor for this approach to be successful is that, without an in-house knowledge base, the likelihood of harvesting the fruits of scientific licensing is very small," says Mads Krogsgaard Thomsen, Novo Nordisk's executive vice-president and chief scientific officer. Maintaining a critical mass of discovery scientists within the company acts as a "sanity check" on the licensing decisions, according to Krogsgaard Thomsen. "You can only outsource up to a level that you can still control," he says.

The prediction of a paradigm shift may also have underestimated biotech firms' desire to be more than just 'creative engines'. "A lot of small companies are taking the high-risk, high-profit strategy of trying to develop their own drugs," says Sawyer. Summing up the sense that biotech discovery efforts will certainly complement, but never replace, discovery research in big pharmaceutical operations, Sawyer says: "I don't know if anything has changed in 10 years, in terms of the skill set that is needed to join a large pharmaceutical company."

In-house knowledge is vital, according to Mads Krogsgaard Thomsen.

Some larger companies, such as GlaxoSmithKline and Novartis, are busy trying to capture the entrepreneurial spirit that smallness fosters by redesigning their discovery teams worldwide into a collection of 'biotech-like' groupings.

Another driver for such change might be the perception of a more flexible working environment within biotech, and the desire to keep employees in the pharmaceutical industry happy and motivated and in "less of a coal-miner situation", as Hefti puts it. ■

Adam Smith is editor of *Nature Reviews Drug Discovery*.