Does biotech need pharma?

‘The interdependence of the biotech and pharma companies is not equal’

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Throughout the development of the biotechnology industry, companies have established partnerships and collaborations with large pharmaceutical companies. Value has been created for both parties in these relationships, but yet we are still faced with the question of who needs who in these alliances. Do biotechnology companies need pharmaceutical companies? Are pharmaceutical companies dependent on biotechnology companies?.

Pharma business goals and strategies

To understand the value of an alliance to both a biotechnology company and its pharmaceutical partner, we need to look at the short- and long-term goals of the companies. This means thinking about the business models being pursued by each company. As most biotech CEOs know, when a venture capitalist thinking about investment in your company asks you about your business model, he is really asking ‘how are you going to make money?’

The business goals and business models vary for the different types of companies using biotechnology. A large pharmaceutical company’s core business is marketing and selling drugs. Their customers are patients, doctors and third-party insurance companies. Drugs, like all products, have life cycles, although they are usually longer than product life cycles in other industries. This means that pharmaceutical companies must constantly invest in building their product pipeline. They must also pay attention to Wall Street, where each quarter’s revenues and earnings, and the prospects for the next quarter, will affect the company’s stock price and ability to pay dividends. So, there are conflicting needs between the short-term goal of acquiring late-stage proprietary products for large existing markets to generate earnings, and the long-term challenge of accessing the latest tools and techniques, such as genomics and patient-specific technologies, which will require many years of investment to generate new products and revenues.

Biotech business goals and strategies

By contrast, biotechnology companies face different challenges. All biotech companies are founded around a specific, unique, proprietary technology. Two broad classes of companies exist: those whose mission is to develop the technology and sell it to other companies for use in drug development; and those whose goal is to use the technology to develop drugs themselves.

The output of biotechnology companies that are developing the technology is drug discovery and development tools, targets, and services or information (such as gene sequence or expression data). Their customers are pharmaceutical companies and other biotechnology companies. These biotech companies hope to make money in the long-term from royalties from products sold by their pharmaceutical partners that were developed using their technologies or information. The short-term business goals for these biotech companies are focused on financing the technology development by selling equity and by selling the technology.

By contrast, the biotechnology companies that use technology to develop products are competing with the pharmaceutical companies in their core business. Their customers are also the patients, doctors and insurance companies. However, the biotech companies have choices concerning marketing of their products. They can set up their own sales organization, or use a contract sales force, or use a pharmaceutical company or another biotech company as a partner. As a result, the short-term goals of product-oriented biotech companies are focused on the enormous challenges of raising the large amount of money required for product development. The major challenges they face concern the cost of capital, and the high risks resulting from clinical trial failure.

Both types of biotechnology company have a great need for the public equity markets. Early investors require an exit strategy. In the USA, biotech CEOs have been successful at taking companies public, even though they are losing money and require significant future investment. In fact,

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new financial parameters have evolved for evaluating biotech companies, including annual burn rate (the amount of cash required each year to fund operations) and elaborate models to value the hoped-for future product revenues and royalties. As a result, these biotech companies' short-term strategies are centered on building the company's valuation and market capitalization.

Valuation and market capitalization

Perceived product values drive the prices of biotech company stocks and hence market capitalization. However, interestingly, the company's business strategy also influences the stock price. Wall Street values the direct sales of drug products more highly than royalties from a pharmaceutical partner. In part, this is because of the control retained by a biotech company over timing and priorities through direct marketing, but also because many biotech products are highly successful blockbuster drugs and the earnings are much higher than would have been achieved from royalties. Indeed, all of the large successful biotech companies sell their own products directly in the USA and often in Europe. Many biotech companies whose early strategies were to sell technology have evolved into product companies as they got larger. For example, Millennium Pharmaceuticals (Cambridge, MA, USA) and Human Genome Sciences (Rockville, MD, USA) both have products in the clinic. Companies such as Biogen (Cambridge, MA, USA) made the switch from being royalty-based to having a product orientation. Even Genentech (South San Francisco, CA, USA) initially licensed out product rights and then acquired them back.

Financial strategy

Sometimes financial and business strategies evolve by default. External factors influence a company's options. If a company cannot find a marketing partner at the right price, it might choose to market directly in particular markets. Several years ago, a popular strategy was to find a Japanese pharmaceutical partner who would help fund R&D in exchange for the marketing rights in Japan. Similarly, a European partner was sought for Europe, and the biotech company would handle sales in the USA itself.

Additionally, a company's options are affected by the cycles of interest in biotech by Wall Street. From 1998 to 1999, investors were consumed by 'dot-com' mania and biotech had several dry years for raising capital. However, in late 1999 and early 2000 the Internet bubble burst and investor's focus switched heavily into biotech. At the same time, fortuitously, scientists announced the completion of the sequencing of the human genome. This led to a frenzy of biotech investment, as people called their brokers with orders to 'buy me some genomics'. In 2000, the biotech industry had its most successful year ever for raising capital.

From 1998 to 1999, many biotech companies had to license product rights to raise cash to keep afloat. In addition, whenever the capital markets are tight, there is constant discussion of merger activity and the 'need' to consolidate the biotech industry. However, relatively few mergers and acquisitions (M&A) seem to occur in the biotech industry, because there are few savings that can be achieved from consolidation. Now, after the opportunity for raising capital in the biotech industry in 2000, companies are rich in cash, and talk of consolidation has gone. In the first half of 2000, many companies were able to raise sufficient funds to cover their cash requirements for 4–5 years or more.

Other external cycles affect biotech companies. Periodically, waves of M&A activity engulf the pharmaceutical industry. Bigger is seen as being better for marketing and sales of drugs. However, innovative research is best in smaller, more nimble organizations. Mergers within the pharmaceutical industry result in fewer organizations for biotech companies to form collaborations with.

The interdependence of biotech and pharma companies

Evaluation of the business goals and the strategies of biotech and pharmaceutical companies shows that the two industries do need each other. However, the dependence is not equal. For example, the biotech industry has become a significant source of technology and products for the pharmaceutical industry, such that the pharmaceutical companies have essentially outsourced their early stage R&D. They are dependent on biotechnology companies to take early, high-risk technologies and develop the tools and techniques to the point where they can be used directly for drug discovery. Similarly, biotech companies can manage the clinical development of potential drugs, identify the best medical applications and take the high risk of failure that occurs early on. Thus the pharmaceutical industry has become consistently and highly dependent on the biotechnology industry.

This dependence is not matched from the perspective of the biotechnology industry. Although many biotech drugs do require a pharmaceutical company sized sales force to successfully market a particular drug, there are many products where options exist and choices can be made. A biotechnology company with good clinical data can choose to market directly, use a contract sales organization, select a large biotechnology company with a sales force, or partner with a pharmaceutical organization. In fact, the largest

biotechnology companies are often attractive partners for other biotech companies. The choice by the biotechnology company will focus on which transaction will allow it to retain the most value of the product. Hence, the needs of the pharmaceutical companies for products to license in, is not matched in the same way by the needs of biotechnology companies for marketing partners.

However, the biotechnology industry does need support from the pharmaceutical industry in one important way. When the equity markets are tight for biotechnology companies, the pharmaceutical industry can provide an alternative source of money. When negotiating with a potential pharmaceutical partner, most biotechnology companies are balancing their short-term cash needs to finance operations, against the long-term goal of retaining the upside in the product revenues. When evaluating the successes of the large, product biotechnology companies it is clear that significant value can be created and retained by a company through the establishment of its own sales organization.

In establishing alliances, both biotechnology and pharmaceutical companies need to be aware of each other's goals and strategies. The biotechnology industry dogma has always been to raise money whenever it is possible, not when it is needed. The pharmaceutical companies need a parallel dogma of acquiring product rights whenever possible, not when the pipeline is empty.

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Do YOU think partnering is essential to the growth of both biotech and pharma companies?

What new or alternative approaches do you think biotech/pharma companies can use to enable them to significantly increase productivity?

Where do you see the industry in 20 years time?

Please send your comments to Dr Rebecca Lawrence, News & Features Editor, *Drug Discovery Today*
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