

## Merck moves into biotech

In May, Merck, one of the oldest and stodgiest pharmaceutical companies, entered the biotech arena by announcing its plans to purchase two protein manufacturing firms: GlycoFi for \$400 million and Abmaxis for \$80 million. Now that even the most traditional pharmaceutical companies are acquiring biologics outlets, this could be the final rubber stamp the biotech industry could hope for and make of the acquisition route a suitable exit strategy.

These moves are the latest in a series of acquisitions that have seen other pharmaceutical giants attempt to lock up positions in biotech drug discovery. For example, AstraZeneca acquired UK-based Cambridge Antibody Technology in May and New York-based Pfizer took over the antibody optimization technology company Bioren in August 2005. Even big biotech has gotten into the act with Amgen's purchase of Abgenix in December 2005 (*Nat. Biotechnol.* **24**, 119, 2006).

The moves represent an acknowledgment that biologics are likely to represent a large percentage of future blockbuster drugs, says Frank H. Eckman, principal analyst for The Centient Biotech Investor and chief science officer of Centient Consulting located in San Diego. "I think with the success of products like Avastin, you see that rheumatoid arthritis is now completely protein dominated. Pharmaceutical executives say that one-quarter or maybe even one-half of blockbuster drugs will be proteins. I think they're trying to position themselves to make sure they have part of the pie."

The \$400 million paid for GlycoFi represents a tidy profit for investors, who put \$34.6 million into the company since it was founded in 2000. The premium was due in good measure to the company's proprietary engineered yeast strains, each of which produces a uniformly glycosylated human protein. Using different strains, the technique can produce a library of proteins having identical amino acid sequences but varying glycoforms that can be screened for maximum therapeutic potency. Merck's collaboration with GlycoFi began in late 2005, when Merck began using GlycoFi's production technology to develop vaccines and biologics.

By contrast, Abmaxis's investors probably didn't make out as well as GlycoFi's. Abmaxis had raised about \$8.8 million since its inception in 2000, so investors with a typical 30% stake saw a return of about 300%, well below what A-round investors expect, according to Eckman. In 2004, Abmaxis began collaborating with Merck to reengineer one of its anti-



Through its acquisition of GlycoFi and Abmaxis, Merck is making strides into the biotech space.

bodies (using Abmaxis' computational design and experimental selection) to improve its affinity by more than 70-fold. "It seems likely that Merck in effect bought the program they were working on for a relatively small fee," Eckman says.

Merck is no stranger to collaborating with biotechs in pursuit of biologics. The company has signed at least 16 deals with various companies since 2000 and has a long-standing vaccine program. But the acquisitions signal the company's long-term commitment to biologics, and it is the right strategy, says Mike Ross, a general partner at the venture-capital firm SV Life Sciences in London, which was a major investor in GlycoFi. "If you're going to get into a game as complicated as (protein and antibody production), you don't want to do it by just hiring a few people. It wouldn't surprise me if there were still some companies that they want to buy. These acquisitions were strategically thought out, that much I know."

Ross adds that many protein technology companies are fated to be bought, largely because the technology is worth more to a large pharma or biotech that can leverage it across several different discovery programs. "Merck can put dozens of products through the GlycoFi technology. GlycoFi can't do it itself. It would take more money than a little company could possibly have."

Similar acquisitions are likely. Other big

companies, including some large biotechs, do not have second-generation protein production technologies in hand, and there is a limited pool of small companies still available. "Companies like Lilly, GSK, Novartis and Roche have a history of biologicals now, but there are still a few that don't yet."

Meanwhile, intellectual property issues and technical difficulties in manufacturing and stability have created a high barrier of entry and limited the number of companies competing in that space. The available pool "is shrinking," says Mike King, director of research at the New York investment firm Rodman & Renshaw. "There are probably as many buyers as there are small companies. I think there's still an opportunity for small companies to make a big impact," Ross says. Other available antibody discovery or optimization companies include Xencor of Monrovia, California, Genmab of Copenhagen and Medarex of Princeton, New Jersey.

Big pharma's interest in antibody companies may make it easier for startups and early-stage companies to get funding. Ed Mathers, senior vice president for corporate development for MedImmune and an advisor for MedImmune Ventures, concludes "If big pharma continues to do what they're doing, that gives investors two exit strategies: an IPO or an acquisition takeover."

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