

# THE LAST WORD

## THE LOGIC OF GROWTH

by Francois Leveque

The takeover of Genentech by the Swiss group Hoffmann-La-Roche confirms that an ever-increasing critical mass is essential to remain competitive in the pharmaceutical industry. The international press, especially in Europe, blamed Genentech's situation on Wall Street's shortsightedness. In essence, however, the takeover by Roche was prompted by the collapse of Genentech's internal dynamics of growth.

New technologies often yield market opportunities for start-up companies, but newcomers seldom sell to industrial markets without buying out a firm already in place. Dissuasive barriers exist based on size, experience, and notoriety. In the U.S., market entry in high technology is easier than in Europe: the venture capital markets are older and stronger, and the American entrepreneurial spirit makes financing R&D projects with a long time-to-profitability easier. Thus Genentech, being among the first—and best-funded—companies to exploit the commercial applications of the techniques of genetic engineering, could integrate the whole range of pharmaceutical activities, from research to marketing. This in an industry where most firms are over a century old and only one major firm has emerged within the last 20 years (Syntex).

Genentech's sales now approach \$400 million. The company employs 1,700 people. With such rapid and impressive growth, why did its management trade off the company's independence?

Genentech maintained its initial technical lead in recombinant DNA technology by progressive downstream integration. Human insulin, interferon, growth hormone, and tissue plasminogen activator (t-PA) were among the first recombinant molecules synthesized. Genentech backed up these research successes with strong patent positions in the U.S., and continued to leverage its strength in R&D by licensing its human insulin and interferon to large pharmaceutical firms. It also integrated downstream into clinical testing and drug registration, thereby maintaining its bargaining position with the pharmaceutical firms in licensing. The company could have left it at that: selling off rights to approved drugs to larger firms that would produce and market them.

But from the outset, Genentech's strategic goal was to become a fully integrated pharmaceutical company. Its entry into that select group began with the manufacturing and marketing of human growth hormone (hGH). In 1985, recombinant hGH was approved and quickly dominated the market. The monopoly position on growth hormone was critical to Genentech's marketing strategy for its own products: the market was large, with a high rate of growth. The company seemed to have everything possible going in its favor.

Yet the emergence of each new high-yield product pushed Genentech's growth dynamic farther along. Investment capital poured into the company to fund all phases of research, development, manufacturing, and marketing. Forty percent of t-PA's \$178 million first-year sales were reinvested into the product's marketing. The

race to develop the biggest industrial research facilities led the company to invest \$157 million in 1989 (compared to \$96 million in 1987 and \$65 million in 1985).

This logic of growth had several consequences. First, any mistake was extremely costly. The firm had to be efficient in all aspects of its business: Even though it was young, its business contained high technical risk, and no guideposts of success in commercializing biotechnology existed. Delays in approvals, setbacks in patent protection, disappointing clinical trial results, manufacturing overcapacity—which all happened with t-PA—immediately caused a fall in stock price. When these things happen, investor confidence then must be regained through clever public relations or by holding out bright prospects for the next products in the pipeline (which, of course, magnifies expectations farther down the line, and pushes the spiral ever higher). And if those next products are not "blockbusters," revenues will not be sufficient to recoup the monies expended to market the previous products and to fund the discovery of new products.

Inevitably, in such a scenario, the integration process will collapse and the spiral will unravel. Neither growth hormone, which lost its monopoly with the arrival of Lilly's methionine-less protein, nor t-PA, challenged by streptokinase, could generate enough net revenues—despite their being multi-hundred-million-dollar products. And the next round of products for the mid-1990s—led by relaxin, gamma interferon, and argatroban—face significant competition in smaller markets, and so could not generate the net revenues needed to maintain growth.

Paradoxically, to preserve the entrepreneurial spirit and the capacity for fast and efficient drug discovery, management chose to sell out to a major player. Hence the deal with Roche, which purchased 60 percent of the company and injected almost a half-billion dollars in R&D, for a cost equivalent to 49 times Genentech's net 1989 profit (a price/earnings ratio in line with today's pharmaceutical industry practices).

Based on the Genentech scenario, biotech companies that choose forward integration in pharmaceuticals have very low probabilities of success as independent firms. Even Amgen, whose erythropoietin (EPO) dominates the market even moreso than Genentech's early products, will face similar problems of maintaining the growth spiral. And as time goes on, the probability of biotech companies succeeding independently shrinks still more—competition on genetically engineered drugs is increasing, small companies have fewer advantages in R&D as major corporations enter the biotech arena, and clinical testing and overall product development costs are escalating.

Indeed, "big is better" becomes a true and necessary statement in the pharmaceutical industry.

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