mone insufficiency in adults, and Ares-Serono has completed a phase III trial of rhGH to treat the 15-20% of AIDS patients who suffer from muscle wasting.

Now faced with increased competition in the U.S. market, Genentech, too, is addressing convenience issues and additional indications. It has enrolled every patient who has received its rhGH in a phase IV study initiated in 1985. The company is awaiting FDA approval of a liquid version of Nutropin, which would be more convenient to administer. And earlier this year, Genentech announced a collaboration with Alkermes (Cambridge, MA) to develop Alkermes' ProLease microencapsulation technology for sustained release of rhGH. In addition, Nutropin is in phase III trials in children with short stature associated with Turner syndrome, and is in phase II trials to treat growth hormone inadequacy in adults.

—Vicki Glaser

Vicki Glaser is a freelance science and medical writer in Allentown, PA.

COMMENTARY ON WALL STREET

Gregory B. Brown Peter F. Drake

After the drought, a revitalized industry

The industry has modified drug development to more realistically manage risk through a more robust, comprehensive program of trials.

The extended drought in biotechnology funding was, in spite of its painful nature, unpleasantly beneficial. The industry that has emerged from the drought is one that is fundamentally fitter, and that has, in crisp Darwinian fashion, configured itself for survival in austere times. In fertile periods, such as the one that began as the end of summer turned to autumn, the reinvigorated biotechnology industry will thrive. We see the current period as offering the potential of sustained growth for an essentially health-ier sector.

Foremost among the factors that set the stage for a positive move in the sector have been substantial improvements in the industry's underlying performance. Biotechnology's period in Wall Street's penalty box followed hard on the heels of a chain of high-profile clinical trial failures. As in ice hockey, the investors cheered and bet on other games, as biotechnology sat frustrated, repenting silently on the sidelines. The recent resurgence in investor interest was preceded by a number of heartening clinical trial successes, such as Cephalon's (West Chester, PA; see graph, above) early reports in mid-June of a successful outcome in the phase III study of Myotrophin in amyotrophic lateral sclerosis. The unsuccessful clinical trials had served to remind the biotechnology industry of the risks inherent in pharmaceuticals. The industry has modified drug development to more realistically manage risk through a more robust, comprehensive program of trials. An example of thisnew approach is Amylin Pharmaceutical's (Palo Alto, CA) program, which includes 14 phase II trials and 6 phase III trials.

Commensurate with increased thoroughness in clinical development programs, projections of capital needs have become more cautious and more realistic. The steady pace of corporate partnering of products and programs over the last year has provided biotechnology companies with experienced development partners and new sources of capital. This maturation in corporate strategies of capital planning and access has further offset the investor's risk.

At the same time, as companies have made fundamental modifications of the business model to better modulate risk, investors have altered their analyses in subtle but important ways. In keeping with the experience base, investors have lengthened projected development timelines and expanded the projected capital requirements of companies. The recent acquisitions of Genetic Therapy, Inc. (Gaithersburg, MD) by Sandoz (Basel, Switzerland) and of Affymax (Palo Alto, CA) by Glaxo (London, U.K) have reminded investors of the potential upside offered by company valuations to strategic buyers.

Taken together, these changes in investor perceptions have resulted in a greater willingness to consider investment in biotechnology, with a more realistic appreciation of risk.

An independent, but no less important, development lies in the evolution and realignment of the biopharmaceutical cluster through alliances. The pace of relationship formation continues, albeit without the wholesale consolidation of biotechnology companies that had been heralded but never materialized. Large pharmaceutical companies have had a consistent interest in biotechnology, but, even as it has recognized its own weaknesses, big pharma's response time is still lengthy. This means that we are likely to see deals and relationships continue to unfold over the coming months, reflecting the work of months past. These deals will continue to remind strategic investors of the value of biotechnology.

In a word, the biotechnology industry is healthy. Before antibiotics, physicians anxiously awaited a "crisis," which, if successfully endured, heralded a prompt recovery. The biotechnology industry, so dependent on the capital markets for its explosive formation and early nurture, depended on the capital markets to induce its "crisis" as well. And it has emerged from its crisis a stronger, healthier, more durable industry that should deliver a generation of innovative products to improve human health and reward patient investors.

Gregory B. Brown and Peter F. Drake are at Vector Securities International Inc., 1751 Lake Cook Road, Suite 350, Deerfield, IL 60015.

For information on upcoming meetings, turn to the classified section.