From Start-Up to Initial Public Offering

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Introduction

The pathway from the conception of a biotechnology company to its metamorphosis into a publicly owned corporation is arduous and convoluted. Evolution from a few people with a good idea to a manufacturer of a commercially viable product requires many essential ingredients, the most critical being financial resources. It has been estimated that the price tag of a product, from idea to launch, can be $250 million and require 10 years of hard work. Financial commitment of that magnitude for that period of time requires a strong belief in the company; not only the technology and products but also the people that manage its progress.

Due to the importance of financial resources, most companies view the completion of an initial public offering (IPO) as an essential component on the critical path toward product approval. Potential investors will be willing to invest in a company’s IPO if they are convinced that there is a substantial likelihood of success: a fundamental technology secured by a strong patent position and a team of persons who are perceived as able to achieve aggressive goals.

The factors that a company must consider in an effort to attract major investments such as an IPO have evolved with the biotechnology industry itself. The purpose of this chapter is to review the birth and development of the biotechnology industry and see how past history has helped define the current criteria by which a company is evaluated for investment.

Seeds Are Planted

Between the 1950s and 1980s, the U.S. government provided a tremendous amount of financial support to academic institutions to obtain a greater understanding of the molecular and biochemical basis of pathological processes such as cancer. As a result, creative scientists were provided the
opportunity to design extremely novel experiments and test unconventional ideas. Funding scientists to discover new foundations of a modern discipline generated a new understanding of biology. The government also established training programs to ensure that there would be a continuous supply of innovative thinkers for the future.

It wasn’t a goal at the time, but this sort of aggressive involvement in biomedical research by the government was the stimulus for an entirely new industry that creates jobs, provides products, and pays taxes. Support of basic science research in academia by the government was the essential ingredient to the creation of an income-generating industry with a life of its own.

Fundamental studies in this new area, called molecular biology, clearly showed that most physiological and pathological processes were regulated, at least in part, at the genetic level. Scientists began to understand the way in which genes were transcribed and that certain diseases were caused by faulty regulation of gene transcription. This resulted in too much or too little protein synthesis that had an adverse effect on normal physiology.

New tools were created to investigate this area. A new vocabulary evolved to communicate those findings. Our understanding of the way in which biological processes functioned and became dysfunctional increased dramatically. It seemed that technological advances were occurring almost daily, and our scientific knowledge base was increasing at an unbelievably rapid rate.

**Biotechnology Is Born**

By the late 1970s and early 1980s enough new information had been generated to allow scientists to create additional tools. These new tools resulted in further and dramatic increases in information and understanding of molecular processes. One very powerful technique that became available during this period was recombinant DNA technology. The ability to isolate, clone, recombine, and express genes opened new research opportunities. These and other tools allowed scientists to understand biological processes in much greater detail. Recombinant DNA technology also provided the ability to obtain large quantities of purified proteins that previously had been available only in extremely limited quantities.

**Plenty of Ideas, Plenty of Companies**

Virtually unlimited supplies of protein allowed scientists to perform experiments that could not be done previously. It was immediately realized that there were very valuable clinical, and therefore commercial, aspects to