

# 中国生物医药：现状与前景

---

## **Chinese Biopharmaceutical Industry: Current State and Future Development**

**By: Jim J. Zhang, Ph.D.**

**Publisher: JZMed, Inc.**

**August, 2010**

## Report Description

The development of biologic drugs has gradually become the key focus of all drug companies worldwide, large or small, major or startup. Major pharma companies, which used to almost exclusively focus on small molecule drugs, are now paying more attention to biologics. Growing numbers of small biopharma companies also focus on discovery and development of novel biologic drugs or niche technologies which are increasingly licensed in by major biopharma companies.

Meanwhile, therapeutic biologics are gaining increasing acceptance among patients and thus become a new but important type of medication. An increasing number of biologic drugs have become new blockbusters. The global market value of biologic drugs has thus been growing much faster than the traditional small molecule drugs. Moreover, it has been poised to continue to grow in even a faster pace in the foreseeable future.

Although starting relatively late, biopharma industry in China has also been experiencing fast development in the recent decade. The improvement of the industrial infrastructure through the investment of a significant amount of capitals by Chinese government at various levels, the influx of a large number of returnees, increasingly readily available funding from various sources and the entrance of a growing number of experienced multinational companies all have contributed to the fast growth of the biopharma industry in China.

The Chinese biopharma industry has thus received growing attention. The capability of the Chinese biopharma industry in R&D and manufacturing, the quality of Chinese-made biologic products and the service capability of Chinese bio-CROs and bio-CMOs, all have become increasingly important to and concerned by biopharma companies around the world.

The report, “**Chinese Biopharmaceutical Industry: Current State and Future Development**”, analyzed in detail the Chinese biopharma industry in all aspects including its current capability and capacity in R&D, manufacturing and outsourcing service. With the in-depth analysis of its current strengths and weakness, the report provides clear insights into the current development state of this Chinese industry including where it currently stands in the global landscape of the same industry. Moreover, the report also analyzed in depth the future growth drivers and resistors of the Chinese industry and how they would likely affect its future development.

The report is a must-read book to global pharma and biopharma companies that are seeking marketing opportunities in China and collaboration with Chinese biopharma companies, venture capital investors interested in investment opportunities in the Chinese biopharma industry, market research/consultancy companies seeking the information of the development of Chinese biopharma industry, and even the government agencies of those countries that are interested in learning the current and future development of Chinese biopharma industry.

## Key Findings of the Report

- ◆ Although starting relatively late, biopharma industry in China has been experiencing tremendous growth in the recent decade. With the significant amount of capitals invested by government at various levels, the industrial infrastructure such as a large number of advanced biopharma industrial parks established recently in many Chinese cities even those county-level cities, has been greatly improved.
- ◆ Presently, there are close to 1,000 bio-related companies in total spreading all over China. About half of them were, however, established in the recent five years or so. Majority are thus small in terms of their staff size and sales revenue.
- ◆ Almost half of the Chinese biopharma companies are engaged in manufacturing and marketing of biologics, an indication that the Chinese biopharma industry currently is still manufacturing-focused. However, about one fourth of them are R&D focused companies. Most of these R&D-focused companies were established recently by Chinese returnees or Western biopharma companies as their China division or subsidiary, either wholly owned or jointly owned.
- ◆ Of these manufacturing-focused Chinese biopharma companies, the largest group is those that make human recombinant proteins such as various types of interferon, interleukin, growth hormones, growth factor receptors and insulin. In contrast, only a small number of companies in the same group are able to manufacture monoclonal antibodies (MAbs) on large scale, another indication that the current manufacturing capability of the Chinese biopharma industry in the most advanced biopharma area is still in early stage. Combined together, these companies are currently able to manufacture more than 80 types of biologic products.
- ◆ At present, companies that possess capability in upstream are largely those research-focused ones including research institutions; whereas most of those manufacturing-focused companies are still relatively weak in independently developing cell lines suitable for producing desired protein- or antibody-based drugs. It seems that these two segments are separate and few companies currently possess fully integrated capability.
- ◆ China's R&D capability in biopharma industry is also being advanced rapidly, in particular in development of new vaccines. For example, China was the first country in the world that approved the H1N1 vaccine. Nowadays most Chinese drug companies that eye on the international markets have their own dedicated drug R&D team. The most popular form of their R&D organization is an internal research institute. However, in almost all cases, the size of their R&D team is still small and the number of the experienced senior scientists is still very limited. Many of them thus heavily collaborate with those top tier Chinese research institutions. At present, most Chinese biopharma companies have an annual R&D budget between 5 to 8%. A small number of them have the R&D budget exceeding 10%.

- ◆ The Chinese biopharmaceutical market has been experiencing an average annual growth rate of about 25% in the past five years. The current market value of biologic drugs in China is about \$8 B, accounting for about 20% of China's current total drug market value and about 6% of the current global market value of biopharmaceuticals.
- ◆ The current environment for the development of biopharma industry in China is considered best and most favorable. A number of positive factors, both internally and externally, are driving this Chinese industry forward.
- ◆ Internally, the fast development of the Chinese biopharma industry is driven by the support of government, growing numbers of foreign and local Chinese venture capital investors and the entrance of a large number of experienced multinational drug companies. The favorable environment is stimulating the constant emergence of new biopharma companies in China. All these factors are currently rapidly uplifting the overall capability of the Chinese biopharma industry and thus reducing the technical gap between China and the developed countries.
- ◆ Externally, driven by their on-going effort to gradually increase the ratio of the biologic drug candidates to the small molecule drug candidates in their pipelines, major biopharma companies are expected to pursue more collaboration globally with biopharma and biopharma outsourcing service companies. The advantage of the readily available, large number of scientists and engineers in China, coupled with the attraction of the fast growth of the Chinese pharmaceutical market, makes China an ideal place to conduct such a type of research even though the current capability of Chinese scientists still needs to improve in a number of areas.
- ◆ In the dynamically growing global biopharma industry, China seems to have positioned itself well in particular in some frontier research areas such as genomics and stem cell research. The importance of these relatively new technologies has been recognized by the Chinese biopharma companies at almost the same time as most Western companies. Chinese government has also recognized the value of the technologies in these fields and thus decided to provide both financial support and favorable policies to encourage their development in the country.
- ◆ Although the biopharma industry is still young in China, it has gained strong growth momentum. With the further improvement in industrial infrastructure and environment, the influx of experienced foreign biopharma companies and the increasingly readily available funding from a variety of resources, the Chinese biopharma industry is believed to continue to develop in an even faster pace in the near future. We therefore forecast that the Chinese biopharmaceutical market will continue to grow in a CAGR of 28% in the following years and its market value could reach close to \$35 B by 2015.

## Key Features of the Report

- ◆ It is the first time ever that the report described in detail the complete structure of the Chinese biopharma industry at present time, including the structural composition and size of the Chinese industry and its current capability and capacity in R&D and manufacturing.
- ◆ The report includes the in-depth analysis of the current state, capability and pipelines of innovative biologic drugs in those most capable Chinese biopharma companies, including a list of drug candidates and their development stage, therapeutic target and mechanism of action.
- ◆ In a similar manner, the report also analyzed the current manufacturing capability and capacity of Chinese biopharma companies in both upstream and downstream, including the techniques they currently possess and their strengths and weakness in each area.
- ◆ Through detailed comparisons with their Western as well as Indian counterparts, the report also analyzed in depth where the current R&D and manufacturing capability of the Chinese biopharma industry stands in the global landscape.
- ◆ To those multinational biopharma companies that are seeking collaboration or outsourcing opportunities in China, the report also includes the top 100 best biopharma companies in China. In the company profile of each of these selected companies, detailed description of their capability in R&D and manufacturing, their product list and production capacity as well as quality management are included in addition to their detailed contact information.
- ◆ To those interested in marketing opportunities in China, the report also includes the detailed summaries of the current market values of both overall Chinese biopharmaceutical market and each product category. More importantly, the report further analyzed in depth how the Chinese biologic drug market has performed in the past. Based on the rational analysis of its past growth trend and its future growth drivers and resistors, the report then described a reasonable future growth trajectory for the Chinese biologic drug market, both the overall market and the market of each biologic drug category.
- ◆ More significantly, the report has used a large number of real case studies to describe the current state of the Chinese biopharma industry, including the capability and capacity of Chinese biopharma companies, the real market growth trend displayed by the growth of sales revenue of a number of Chinese biopharma companies in recent years, and how the Chinese biopharma industry and its market being extensively explored by the experienced biopharma companies from around the world.

## **Your Questions Are Answered**

The report provides complete and detailed answers to a variety of questions such as:

- ◆ What is the current state of the Chinese biopharma industry? How many bio-related companies in total are there in China? What is its current structural composition? How big is the current market size of the Chinese biopharma industry? What is the current market value of each biologic drug sector in China? How did they perform in the past?
- ◆ What is the current state of drug R&D in the Chinese biopharma industry? How many companies are conducting R&D on novel biologic drugs? Where are their current R&D programs and development states of drug candidates in their pipelines? Do they have collaboration with the experienced Western biopharma companies and how?
- ◆ What is the current manufacturing capability and capacity of Chinese biopharma companies? What types of biologic drugs are they able to produce at present? What techniques do they possess and are developing?
- ◆ How is the biopharma outsourcing service industry developing in China? What is its current service capability? How are foreign biopharma companies outsourcing in China at present?
- ◆ What are China's current strengths and weakness in biopharma industry? How far does it fall behind compared with their Western counterparts, both overall and in some specific areas?
- ◆ How will the Chinese biopharma industry develop in the following five to ten years? How will China benefit from the new wave of biosimilars? What are China's advantages and disadvantages in this area? How will the global economy and the rapid growth of the global biopharma industry affect the future development of biopharma industry in China?

## About the Author

### **Jim J. Zhang, Ph. D.**

Jim J. Zhang currently is president and managing director of JZMed, Inc., a leading market research company that specializes in the Chinese pharmaceutical, biotechnology and pharmaceutical outsourcing industries. Before founding the company, Jim worked for nine years with Albany Molecular Research, Inc. (AMRI), a US-based and currently one of the world largest CROs. During his tenure at AMRI, Jim was responsible for managing and overseeing multiple drug R&D projects that involved the international cooperation of AMRI's multiple sites (USA, Singapore and Hungary). He played key roles in helping numerous pharma and biotech companies discover and develop a series of drug candidates that later entered preclinical and clinical development including advanced clinical trials. He was also the key contributor to the development of chemical production process for several developmental drugs. Prior to pursuing his Ph.D. program in the US, Jim worked for six years in a China-based CMO as process engineer and developed production process for a number of pharma products.

Jim's technical expertise spans from chemical process research and development to drug discovery and development for viral infection, cancer, chronic obstructive pulmonary disease (COPD) and cystic fibrosis. Currently he holds 18 patents. He is also the principal author of 12 peer-reviewed research articles.

Jim has authored a series of research reports about Chinese pharmaceutical and biotechnology industries. He was also invited by a number of market research firms such as Business Insights to author/co-author industry reports.

Jim received his master's degree in Chemical Engineering from East China University of Science & Technology (Shanghai), and his Ph.D. degree in Synthetic Organic Chemistry from the University of Iowa. He also received additional trainings in Medicinal Chemistry through working at Research Triangle Institute (Research Triangle Park, North Carolina).