

## Biotech's long march

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The Chinese biotechnology industry offers immense potential for global companies due to its vast market place, low-cost pool of professional talents and extensive research and development infrastructure. In 2003, the Chinese biotech market was valued at \$3 billion and is projected to reach \$9 billion by 2010, growing at a CAGR of about 17 percent. The industry is one of the key areas for China's high-tech competitiveness and is expected to account for around seven-eight percent of GDP by 2020. According to the Chinese Academy of Sciences (CAS), China is likely to become one of the top five countries in the world in terms of scale of biotechnology industry by 2020. The biotechnology market in China consists of agricultural biotechnology, biopharmaceutical, industrial biotechnology, biological resources technology, and environmental biotechnology – with agricultural and biopharmaceutical segments being the prime drivers of growth.

### **Biopharma & agribiotech lead growth**

The biopharmaceutical industry, aided by strong government support, active efforts of biopharmaceutical companies, and a growing demand for prescription drugs, is a key contributor to the overall development of China's biotech industry. In 2004-05, the Chinese biopharmaceutical market grew by 30.2 percent, accounting for 7.5 percent to the total pharmaceutical sales in the country and seven percent of total global sales. Even though, China's biopharmaceutical industry is still considered rather small in global scale, its rapid growth is poised to continue. Currently, China is home to more than 400 biopharmaceutical companies and is fast becoming one of the key outsourcing hubs for the sector in the world.

Agricultural biotechnology is the other key growth segment. China is second after the US in terms of investment in agricultural biotechnology and is continually increasing its investment in research and development in this sector. Currently, agricultural biotechnology accounts for nearly 42 percent of the total government spend on biotechnology and about 37 percent of the total biotechnology market value. Growth in agricultural biotechnology will be fuelled by the increased need for food grains, with China expected to increase grain yield per hectare by 50-60 percent to cater to an increasing population. Rice, wheat, corn, cotton, soybean and canola crops are the main commodities expected to be genetically-modified by 2010.

Government backs domestic players, competitive benchmarking and marketing strategies.

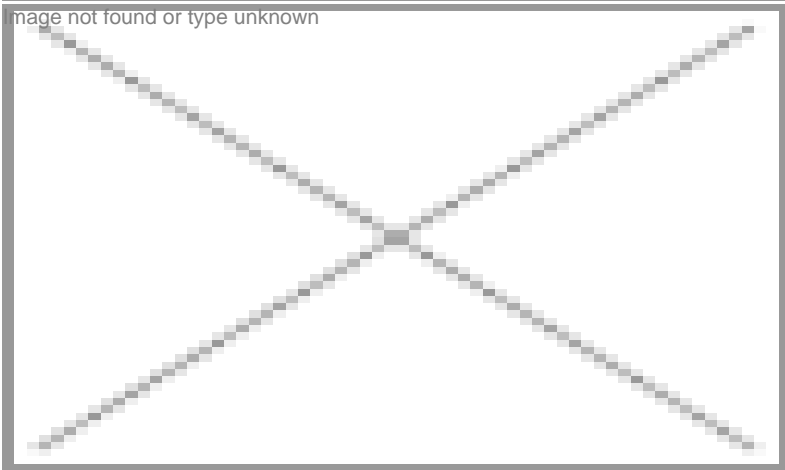
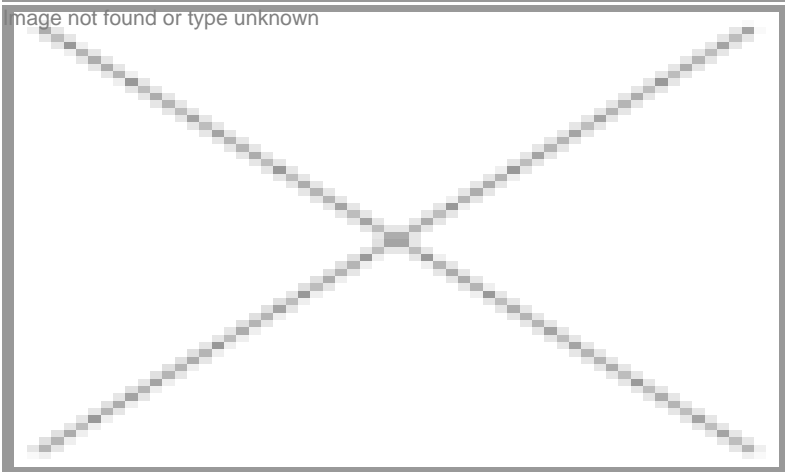
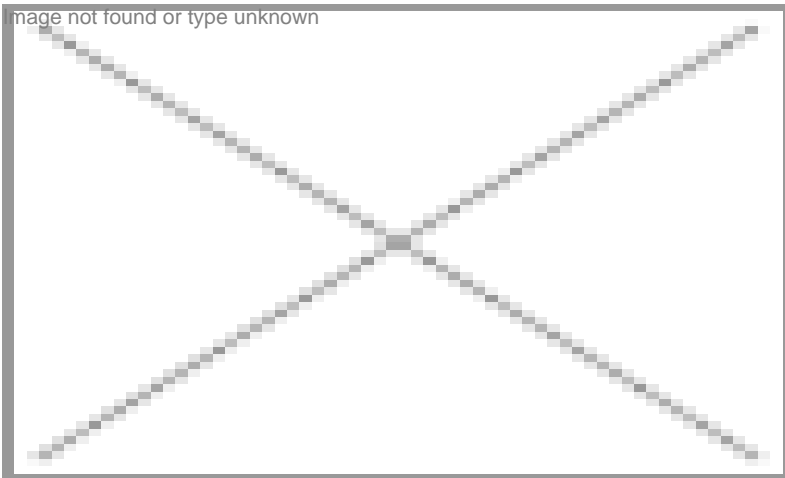
China has been aggressively investing in biotechnology. Over the period 2001-05, the annual government investments increased significantly by 400 percent (CAGR of 200 percent) from \$100 million in 2001 to \$1.2 billion by 2005. This figure is expected to reach \$8.8 billion in 2010 as the government intends to transform China into one of the leading biotechnology player in the world. According to the 2006-2020 National Medium and Long-term S&T Development Plan, the government is expected to invest \$111.8 billion or 2.5 percent of expected GDP, into overall research and development (all sectors) by 2020, with the development of biotechnology being considered the top priority over other industries.

China currently has around 2,500 modern biotechnology companies, more than 20 biotechnology parks located in Beijing, Shanghai and Guangzhou, and major research and development centers in Beijing, Shanghai, Xi'an, Tianjin and Nanjing. In addition, favorable policies related to taxes, finance and human resource have also created a favorable environment for the industry stakeholders as well as potential investors. In the future, the government is expected to encourage biotech companies to increase their capabilities for original innovations. China's biotech companies are still largely generic manufacturers.

However, this situation is changing as companies are becoming more active in innovating to compete in the global arena. The government is expected to strongly encourage this trend by taking serious measures to address IP shortcomings in accordance to TRIPS (Trade-related Aspects of Intellectual Property Rights) and to undergo various regulatory reforms in its healthcare system, product approval, pricing and taxation policies.

### **Cost arbitrage attracts foreign investors**

China is a highly attractive market for international biotech companies keen to leverage on its low cost set up for manufacturing units and R&D, its large pool of low cost professionals, and a relaxed regulatory environment. International companies (such as DuPont, Invitrogen Corp., Dragon Pharmaceuticals Inc. and GeneMedix plc) typically enter this market through joint ventures with local firms, setting up manufacturing bases in China, or outsourcing R&D to local firms. Till the end of 2005, China had about 750 R&D centers supported by foreign capital in the form of joint ventures.



Bridge Pharmaceutical Inc., which opened a research centre in 2006 employing 200 people, cited that its drug development cost is around 80 percent lower in China as compared to the US. Large international pharmaceutical companies like Novartis and Pfizer have also established research facilities in China primarily because of its low-cost research talent pool, with the cost of research scientists estimated to be five-10 times lower than in the US. However, the scope for outsourcing business in the biotech sector to China is still huge with global firms outsourcing less than five percent of their total requirement to China.

### **Is China trailing India?**

While China is expected to dominate the global markets in the future, it is expected to face challenges from other Asian countries such as Singapore, Taiwan, Korea and India. Amongst these, India with its highly qualified researchers and vast market is expected to give China a run for its money.

India offers a huge market for biotech products and has advantages of low-cost technology (for clinical trials, R&D, molecule

synthesis), reasonable cost scientists and researchers, a network of bioscience centres and a strong IT infrastructure. The biotech work outsourced to India is in the form of contract research, clinical research, and research process outsourcing, which started in 2004. As China has focused on agriculture biotech products (BT cotton, rice crops), biotech protein drugs, and traditional Chinese medicine, India has achieved success in areas of enzymes, vaccines (recombinant Hepatitis B), diagnostics and veterinary products (animal health products).

Both the Indian and Chinese governments are determined to build this sector and have put in place various investment-friendly measures to encourage growth. While the Indian government offers 150 percent weighted average tax deduction of R&D expenditure for recognized R&D facilities, the Chinese government provides biotech firms with around two-year tax exemptions on profitability. This is followed by a 50 percent rebate on enterprise tax for the next three years, which is usually extended for another three years. However, both countries are considered to be handicapped by poor IP laws -while India is perceived to have started improving its IP laws, China still lags behind.

The Indian government has recently shifted its patent regime from a process based patent regime to a product based patent regime.