



Profiles of Indian biotech companies

Narayanan Suresh

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Profiles of Indian biotech companies

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Review

A.2. Profiles of four top biotech companies in India

A.2.1. Serum Institute of India - India's top BioPharma company



Serum Institute overtook Bangalore-based Biocon as India's No.1 biotech company in the annual BioSpectrum-ABLE Biotech Industry Survey in 2006 in revenues. Since then it has retained the crown for three consecutive years.

In recent times, the company has achieved many milestones. In 2007, it announced the launch of its indigenously manufactured low-cost *Haemophilus influenza* type b (Hib) conjugate vaccine under the brand name of HibPRO in India. HibPRO has been priced at Rs 375 or just US \$ 8 for a single dose vial. HibPRO is a vaccine with clinically proven efficacy and safety at an affordable price. According to Dr Cyrus Poonawalla, "HibPRO has undergone series of clinical trials to prove its efficacy and safety in comparison with commercially available Hib conjugate vaccines. With the launch of HibPRO, Serum can extend the benefits of pentavalent or quadravalent vaccines at a very affordable price. These benefits are mainly fewer numbers of injections, lesser pain to the child and protection against multiple diseases such as Hib, hepatitis B, diphtheria, pertussis and tetanus in one injection."

health agencies like WHO, UNICEF, and PAHO (Pan American Health Organization), and also to over 140 countries across the globe. Its vaccines are used in the national immunization programs of several countries. The measles/rubella vaccine is used in catch-up and mop-up campaigns of several countries to control the incidence of measles and rubella. A novel Hib vaccine was launched in March 2007. Serum Institute has a capacity to produce over 100 million doses of this vaccine. The company supplies this new-age vaccine to GAVI (Global Alliance for Vaccines and Immunization), PAHO and UNICEF. According to Dr Poonawalla, "Serum Institute is the only indigenous manufacturers of Hib vaccine in India today unlike other vaccine manufacturers who import the bulk. Hib vaccine is fully manufactured in India." The company supplies the Hib vaccine at a low price compared to those offered by other leading global manufacturers. The vaccine is available under the brand name SiiHIB Pro.

((quote)) "Serum Institute is the only indigenous manufacturers of HIB vaccine in India today unlike other vaccine manufacturers who import the bulk. HIB vaccine is fully manufactured in India."

From its inception, Serum Institute pursued a lot of research and development activities. Established in 1977 as a distinctly separate autonomous body, the main objective of Serum Institute of India Research Foundation is to conduct research in the fields of medical sciences and in natural and applied sciences. The Foundation has several outstanding achievements to its credit. The document "Information Support for Immunization Programme in India" used by the health planners of the Indian government while outlining the seventh Five-Year Plan, was designed by the Foundation in the year 1984 and again in

((Fig. 1.cyrus)) Cyrus Poonawalla © CyberMedia Publications

Founded by India's leading breeder of race horses, Cyrus Poonawalla, in 1966 just to make some vaccines, Serum Institute of India in Pune has today emerged as one of the world's leading producers of pediatric vaccine. Serum is also one of the largest global producers of measles and DTP vaccines in the world. Every second child born in the world gets the first shot of vaccination with the products made in Serum's Pune facility. India's largest vaccine manufacturer, Serum Institute of India, is also one of the leading vaccines producer in the world. Based in Pune, Serum established a global presence in the vaccine market and exports its products to 140 countries. Leading the race in MMR and hepatitis B vaccines in India, Serum Institute of India was also lauded for coming up with vaccine products in the country at affordable prices.

((Fig. 2.fermenter))



© CyberMedia Publications

((Fig. 3.washing)) © CyberMedia



Publications

In the past, Serum's products were supplied to international

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1989. Other notable successes include pilot production of measles vaccine on human diploid cells; industrial column chromatography and affinity chromatography for separation of immunoglobulins; monitoring of vaccine quality in the field; clinical trials of new products; clinical trial of a human diploid cell rabies vaccine with laboratory workers.



((Fig. 4 vaccine)) © PhotoDisc

In 2006, Serum Institute of India has set up Serum BioPharma Park, India's first biotech Special Economic Zone (SEZ), and developments on this project are still in the process. The park is adjoining Serum Institute's existing manufacturing unit and is a sector-specific SEZ intended to develop biotechnology and pharmaceutical products. The SEZ will allow Serum Institute of India to avail various tax benefits such as income tax and import duty on capital goods. This encouraged a lot of foreign companies to partner with Serum Institute of India to avail and share these benefits. The SEZ will be spread across 55 acres in Hadapsar, Pune. Serum Institute will have 5-6 units in the SEZ. The project is expected to be completed by 2010. The SEZ, which has currently been allocated 55 acres of notified land in phase

would, based on availabilities and opportunities, be gradually expanded to 250 acres. The SEZ will stimulate economic activities by offering larger employment opportunities, attract substantial investments for export production and render services abroad to earn more foreign exchange", Dr. Poonawalla stated.

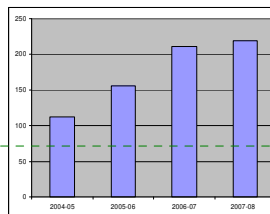


Table 1: Business revenues of the Serum Institute in Million US\$. 2004-2008

<http://www.seruminstitute.com>

A.2.2. Biocon: Aiming for innovation leadership

((Box))

Biocon's strength lies in reinventing. The group divested its industrial enzymes business a couple of years back and is now focused on building a global base through new drug discoveries, developments, and services.



((Fig. 5 kiran)) Dr Kiran Mazumdar-Shaw © CyberMedia Publications

From its humble beginnings in a garage in a Bangalore suburb in 1978 as a manufacturer of industrial enzymes, Biocon has traversed a long way to emerge as one of the companies to watch out for in the next decade. Not just because its founder, Kiran Mazumdar-Shaw, is more famous and the most visible face of

women entrepreneurs in India. Because, in its new role as an innovative company, Biocon is betting big on developing an oral version insulin. And change the way diabetes is treated in India and the world. The phase 2 trials of oral insulin are currently on and regulatory approval for the imminent phase 3 trials will determine the shape of things to come for India's most watched biotechnology company. Of course, Biocon has other businesses too. Realizing the importance of drug discovery services and clinical services, two of its subsidiaries – Syngene International and Clinigene International – are helping to make Biocon emerge as an integrated player with the ability to offer a range of drug discovery and clinical trials to global companies.

Biocon's operational performance remains on a growth track. At a time when many sectors face a severe slowdown, we believe that Biocon has a unique opportunity to leverage our affordable R&D base and forge partnerships that will deliver large contract research,

manufacturing and co-development opportunities over the next 5 years", said Biocon Chairman and Managing Director, Kiran Mazumdar-Shaw. A recombinant insulin, INSUGEN, using *Pichia pastoris* expression, launched in 2004, and a monoclonal antibody-based head and neck cancer drug, BioMAB EFGR in 2007, are keeping the company's profile, along with its statin products custom-made for a number of big pharma companies. Biocon's focus is on novel biologics, mainly monoclonal antibodies



((Fig. 6 biocon)) © CyberMedia Publications

(mAbs), which have resulted in a robust and rapidly advancing pipeline. Some of its key

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programs include the development of Oral Insulin (IN - 105) in the treatment of diabetes mellitus and a new mAb (T1h) targeted against CD6 in the treatment of rheumatoid arthritis (RA). Other programs that are expected to enter preclinical development include BVX-10 (a novel human anti - TNF) and BVX-20 (a novel human anti-CD20). Biocon, in 2007, acquired a 70% controlling stake in German Pharma company, AxiCorp GmbH. This acquisition helped Biocon to market and distribute a range of pharmaceuticals including generics, biosimilars, biologics and innovative pharmaceutical products in Germany and Europe. Biocon's BVX-20 is a novel human monoclonal antibody that binds to CD20, a protein located on both normal and malignant B-cells. After binding, BVX-20 kills B-cells by recruiting the body's own immune system. BVX-20 is intended for use in the treatment of patients with relapsed or chemotherapy-resistant follicular B-cell NHL and CD20- positive diffuse large B-cell NHL in combination with chemotherapy. This monoclonal antibody was developed in collaboration with Vaccinex, a US company, using ActivMab technology. The proof of concept has been shown in animal studies and the molecule is expected to start clinical trials in 2009.

brands of products”
Kiran Mazumdar-Shaw

Another innovation from Biocon was the introduction of pre-filled syringes of two life saving drugs – GCSF (granulocyte-colony stimulating factor) and EPO (erythropoietin). These innovative products were introduced in mid-2008 for the first time in India. Biocon's pre-filled syringe device incorporates features that provide for simple and safe handling, a discrete appearance of the injector and a retractable needle that reduces the chances of injuries during injection.



((Fig. 8 boy)) © CyberMedia Publications

Commenting on the launch of the pre-filled syringes, Mazumdar-Shaw explained, “The pharmaceutical industry has registered an increasing demand in the market



((Fig. 7, sterile)) © CyberMedia Publications

((quote)) “Biocon stands committed to building big

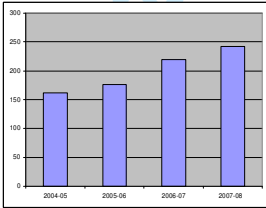


Table 2:
Business revenues of Biocon in Million US-\$, 2004 – 2008

<http://www.biocon.com>

a growing trend of injectable drugs moving into the pre-fill syringe as a presentation format. Worldwide, pre-filled syringe volumes have reached more than two billion units. The opportunity for Indian biotech companies in pre-filled syringes is immense as India is being viewed as a low-cost, high-quality manufacturing base. It has the largest number of USFDA approved plants outside the US.”

((quote)) “The opportunity for Indian biotech companies in pre-filled syringes is immense as India is being viewed as a low-cost, high-quality manufacturing base.”

The company's stock price has been stagnant for quite some quarters now. Nearly 60% of its revenues come from exports of various biopharmaceutical products and Biocon was forced to book a lot of mark-to-market losses on account of its decision to make forward contracts in US \$ at a much lower rate. However, Biocon is poised to grow in the years to come if the big bet on a slew of innovative products come off successfully.

“We are gearing up to increase our top-line performance in biopharma. So the year ahead should see us delivering a better growth in terms of biopharma. We have grown by more than 100 percent in branded formulations sales compared to the previous year. We expect the growth to continue at this rate because the base is small. Biocon stands committed to build big brands of products like Insugen, BIOMAb-EGFR, and Statix.

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A.2.3. Rasi Seeds: Changing the face of India’s bioagriculture

((quote)) "[Rasi Seeds] aims to create genetic variability to suit various climatic zones with wider adaptability."



((Fig. 9.ramas)) M. Ramasami © CyberMedia Publications

Rasi Seeds was envisioned by M. Ramasami, and was initiated in the year 1973 at Attur in Salem district in the southern Indian state of Tamil Nadu. Rasi Seeds made rapid advances from seed production and supply ventures to a commendable position in research and development (R&D) because of the remarkable services of R. Krishnamurthy, renowned for his extra long staple superfine cotton variety Suvin and the popular Medium Staple variety LRA 5166.

Having excelled in R&D in cotton seeds, it went on to expand into a multi-crop, multi-location quality research movement and proved beneficial to the farming community. The company aims to create genetic variability to suit various climatic zones with wider adaptability by producing hybrids of various staple lengths, high strength and a biotic stress tolerance in cotton. The R&D unit is recognized by the Department of Scientific and Industrial Research, Ministry of Science and Technology, Government of India, New Delhi.



((Fig. 10.plant)) Rasi seeds plant © CyberMedia Publications

Rasi Seeds was the second largest seller of Bt cotton (genetically engineered insect-resistant cotton) seeds in India in 2007.

The company has a well-maintained research farm of 140 acres, about 55,000 square feet, contained green house, separate ginning facility for germplasm and other breeding lines, state-of-the-art fiber testing lab (HVI), well-equipped seed testing laboratory, and a separate dehumidified refrigerated facility for germplasm and breeding lines. The company also has a state-of-the-art biotech facility for testing the presence of Bt gene.

Rasi is the recipient of a national award for R&D from the Department of Scientific and Industrial Research, Ministry of Science and Technology, Government of India, New Delhi. It is the second company to obtain approval for Bt cotton.

Rasi Seeds did extensive research for crop improvement incorporating latest technology in breeding techniques and is aiming for hybrids with earliness, high quality and drought tolerance. The RCH 2 cotton variant especially created history by its remarkable yield in farmers' fields. The company released fourteen elite Bt cotton hybrids for commercial cultivation with approval of Genetic Engineering Approval Committee (GEAC), Ministry of Environment and Forests, Government of India. With that, Rasi emerged first in the number of Bt cotton hybrids released in India. Also many more hybrids are in the pipeline to cover different segments in India.



((Fig. 11.botanist)) © Digital Vision

The company, well known for its pioneering efforts in hybrid cotton, proved itself again by ushering in the Bt cotton technology. The company entered into a tie-up with Monsanto in 1999 to commercialize hybrid cotton with Bollgard technology. It was the second company in the Indian seed industry to do so with its hybrids and many more hybrids are in the pipeline to cover all cotton-growing zones. "Multi-national companies are very strong on the technology front.

Among Indian seed companies, a few companies are struggling to attain technological capabilities, but they are very weak in financial status when compared to multi-national companies. The interference in the pricing of quality value-added hybrid seeds by state governments is creating a negative impact on indigenous seed companies in their efforts."

M. Ramasami points out,

Rasi's ongoing projects include sourcing and evaluation of germplasm lines; breeding for new lines with earliness, erect leaves, orange flint and orange yellow semi-dent grain colors; development of new single cross, modified single cross and three-way cross hybrids for evaluation and identification of high-yield hybrid combinations; and maintenance breeding for parental purity. Rasi group also explores new trends in the industry like corporate and contract farming, which will provide a win-win solution to corporate farmer, spinner, ginner and the seed company.

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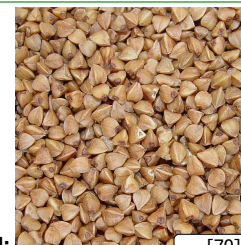
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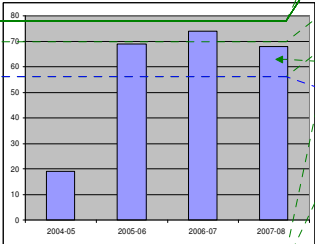
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((Fig. 12 - seeds)) ((wiki commons))

Table 3: Business revenues of Rasi Seeds in Million US-\$, 2004 – 2008



http://www.rasiseeds.com

A.2.4. India's iconic biotech company: Shantha Biotechnics

((Box))

Hyderabad-based Shantha Biotechnics is small compared to the two big giants of Indian biotechnology, Biocon and Serum Institute. However, the company, founded by an electrical engineer, Varaprasad Reddy, in 1993 and named after his mother to produce India's first recombinant hepatitis B vaccine, has an iconic status in Indian biotechnology sector. For Reddy took up the challenge to prove to the world that an Indian company could make recombinant vaccines with world class quality. Today, the company supplies nearly half the global requirements of hepatitis B vaccine for immunization programmes.

emerged as a major supplier of key health-care products to the world. Shantha is currently focusing its R&D efforts in the development of generic biologicals, novel therapeutic antibodies, proteins and vaccines. The company conducts exploratory research in the fields of oncology, infectious diseases and platform technologies. Shanvac-B is the first Indian hepatitis B vaccine to be pre-qualified by WHO, Geneva, for supplying to UN agencies globally. Today, Shantha caters to major international markets including Asia-Pacific, Africa, CIS and Latin America, in addition to supra-nations like UNICEF and PAHO.

Molecular Biology (CCMB), Hyderabad, we made the vaccine in India," surmised Reddy about the iconic start up.

((quote)) "I took up the challenge and founded the company with borrowed family funds. With help from scientists at the Center for Cellular and Molecular Biology (CCMB), Hyderabad, we made the vaccine in India."

When Shantha's Hepatitis B vaccine was introduced at one-tenth the price of the imported vaccine, it shook up the market. Prices crashed. Five other Indian companies too introduced the recombinant Hepatitis B vaccine and today India has the cheapest vaccine in the world. Shantha is the company that most first-time entrepreneurs in Indian biotech have looked up to since 1996.



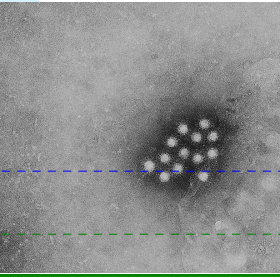
((Fig. 13 Reddy)) Varaprasad Reddy @ CyberMedia Publications

From that small beginning, Shantha Biotechnics has



((Fig. 14 tank)) @ CyberMedia Publications

While attending a global vaccine seminar in California in 1993, I had decided to make Hepatitis B vaccine in India. I tried to get the technology but US companies sniggered at an Indian organization's ability to make quality Hepatitis B vaccine. I took up the challenge and founded the company with borrowed family funds. With help from scientists at the Center for Cellular and



((Fig. 15 hepatitis)) ((wiki commons))

Shantha has also got WHO pre-qualification for its combination vaccine of DPT+ Hepatitis B, Shantetra, enabling supplies to the UN Agencies. Shantha is currently working on therapeutic



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monoclonal antibodies and pegylated proteins. The company expects to launch monoclonal antibodies and pegylated proteins by mid-2009.

To make cutting edge technologies available to the common man, Shantha is constantly exploring the possibilities of partnerships to facilitate innovations in research and development. The french healthcare company Merieux Alliance has currently a 60 percent stake in Shantha Biotechnics. Merieux bought the stake from Oman-based financial firms, which had invested in Shantha a few years ago. This alliance favors synergies in terms of research and clinical development between the group companies. Shantha Biotechnics also has access to the support provided by Merieux Alliances international network.

Shantha extends its excellent in-house expertise, core competences and skill in development of vaccines and biologicals to carry out contract research services to its clients. Contract research is undertaken at Shantha's sprawling 50,000 square feet R&D center. The center is well-equipped with the latest-world class instruments and other support facilities.

Shantha already carried out substantial work for its clients. The contract research work undertaken is in the areas of gene cloning, monoclonal antibody development, expression and purification of recombinant proteins by fermentation, fermentation and purification process optimization, development of polyclonal antibodies, and development of WCB, MCB and analytical methods.

(Fig. 16 scientists)
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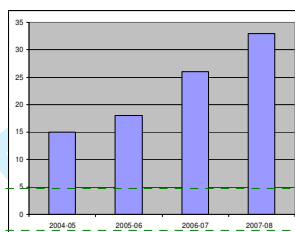
Shantha targets infectious diseases and oncology as its primary areas of interest for conducting R&D activities. It also started collaborative research



with premier national and international research

organizations such as the CCMB and the Indian Institute of Science, among many other national Indian research institutions. A research tie-up with the International Vaccine Institute, Korea, for the development and transfer of technology for various vaccines has complemented Shantha's research strengths.

Table 4: Business revenues of Shantha in Million US \$: 2004-2008



<http://www.shanthabiotech.com>

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Profiles of four top biotechnology companies in India

by

Narayanan Suresh and Ch. Srinivas Rao
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Photo credit : BioSpectrum

serum institute of india
India's top BioPharma company



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COMPANY STATS		
CEO: Dr CS Poonawalla (Chairman)		
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Business Revenue

2004-05	Rs 505 crore (\$112 million)
2005-06	Rs 703 crore (\$156 million)
2006-07	Rs 951 crore (\$211 million)
2007-08	Rs 987 crore (\$219 million)

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An investment of Rs 1,200 crore(\$ 250 million) by Serum has been made for the purpose. This investment has been divided in various phases. The phase I investment will be a minimum of Rs 500 crore (\$ 125 million) for Serum BioPharma Park and the developers would raise funds through internal accruals of the company as well as external borrowings from financial institutions.

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it got approval for commercial release of its RCH 2 Bt for the central and south zones, RCH 118 Bt, RCH 138 Bt, RCH 144 Bt RCH 377 Bt for the central zone, RCH 134 Bt and RCH 317 Bt RCH 308 Bt and RCH 314 Bt for the north zone, and RCH 20 Bt and RCH 368 Bt RCH 371 Bt, RCH 111 Bt and RCHB 708 Bt for the south zone. Also

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((quote)) "[Rasi Seeds] aims to create genetic variability to suit various climatic zones with wider adaptability by producing hybrids of various staple lengths, high strength and a biotic stress tolerance in cotton."

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rasi seeds

Changing the face of India bioagri

Rasi Seeds has been the first to engineer genetic variability to suit various agro climatic zones with wider adaptability by producing hybrids of various staple lengths, high strength and a biotic stress tolerance in cotton.

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, managing director, Rasi Seeds.		
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; its popular RCH 2 Bt. RCH 2 is one among the very few proprietary research hybrids that has been notified by the Government of India. The cotton hybrids RCH2, RCH 20, RCH 134 and RCH 138 were among the top ranking hybrids in the All-India Co-ordinated Cotton Improvement Project.		
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CEO: M Ramasami (Managing Director) Start-up Year: 1973 Address: 273, Kamarajanar Road, Attur, Salem - 636 102, Tamil Nadu Tel.: 91-4282-241007/242007 Fax: 91-4282-242558 Website: www.rasiseeds.com		
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2004-05	Rs 728 crore (\$162 million)
2005-06	Rs 793 crore (\$176 million)
2006-07	Rs 990 crore (\$220 million)
2007-08	Rs 1090 crore (\$242 million)

CEO: Dr. Kiran Mazumdar-Shaw (Chairman and Managing Director)
Business: Manufacturer of biopharmaceuticals and industrial enzymes
Start-up Year: 1978
Address: 20th KM Hosur Road,
Electronic City, Bangalore – 560100, India
Tel.: +91 80 2808 2808
Fax:+91 80 2852 3423
Website: www.biocon.com

“Biocon stands committed to building big brands of products”
-- Dr Kiran Mazumdar-Shaw, CMD, Biocon

“We are gearing up to increase our top-line performance in biopharma. So the year ahead should see us delivering a better growth in terms of biopharma. We have grown by more than 100 percent in branded formulations sales compared to the previous year. We expect the growth to continue at this rate because the base is small. Biocon stands committed to build big brands of products like Insugen, BIOMAb-EGFR, and Statix.”

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BIOCON
Aiming for Innovation Leadership

((Box))

Biocon's strength lies in reinventing. The group divested its industrial enzymes business a couple of years back and is now focused on building a global base through new drug discoveries, developments, and services.



((Fig. 5 Kerala coast)) © Flat Earth

From its humble beginnings in a garage in a Bangalore suburb in 1978 as a manufacturer of industrial enzymes, Biocon has traversed a long way to emerge as one of the companies to watch out for in the next decade. Not just because its founder, Mrs Kiran Mazumdar-Shaw, is more famous and the most visible face of women entrepreneurs in India. Because, in its new role as an innovative company, Biocon is betting big on developing an oral version insulin. And change the way diabetes is treated in India and the world. The phase 2 trials of oral insulin are currently on and regulatory approval for the imminent phase 3 trials will determine the shape of things to come for India's most watched biotechnology company.

Of course, Biocon has other businesses too. Realizing the importance of drug discovery services and clinical services, two of its subsidiaries---Syngene International and Clinigene International--- are helping to make Biocon emerge as an integrated player with the ability to offer a range of drug discovery and clinical trials to global companies.

"Biocon's operational performance remains on a growth track. At a time when many sectors face a severe slowdown, we believe that Biocon has a unique opportunity to leverage our affordable R&D base and forge partnerships that will deliver large contract research, manufacturing and co-development opportunities over the next 5 years," said Biocon Chairman and Managing Director, Mrs Kiran Mazumdar-Shaw. A recombinant insulin, INSUGEN, using *Pichia pastoris* expression, launched in 2004, and a monoclonal antibody-based head and neck cancer drug, BioMAB EGFR in 2007, are keeping the company's profile, along with its statin products custom-made for a number of big pharma companies.

Biocon's focus is on novel biologics, mainly monoclonal antibodies (Mabs), which have resulted in a robust and rapidly advancing pipeline. Some of its key programs include the development of Oral Insulin (IN -105) in the treatment of diabetes mellitus and a new MAb (T1h) targeted against CD6 in the treatment of rheumatoid arthritis (RA). Other programs that are expected to enter preclinical development include BVX-10 (a novel human anti - TNF) and BVX-20 (a novel human anti- CD20).

Biocon, in 2007, acquired 70 percent controlling stake in German Pharma company, AxiCorp GmbH, for a consideration of €30 million. This acquisition helped Biocon to market and distribute a range of pharmaceuticals including generics, biosimilars, biologics and innovative pharmaceutical products in Germany and Europe.

Biocon's BVX-20 is a novel human monoclonal antibody that binds to CD20, a protein located on both normal and malignant B-cells. After binding, BVX -20 kills B-cells by recruiting the body's own immune system. BVX-20 is intended for use in the treatment of patients with relapsed or chemotherapy-resistant follicular B-cell NHL and CD20- positive diffuse large B-cell NHL in combination with chemotherapy. This monoclonal antibody was developed in collaboration with Vaccinex, a US company, using ActivMab technology. Proof of concept has been shown in animal studies and the molecule is expected to start clinical trials in 2009.

Another innovation from Biocon was the introduction of pre-filled syringes of two life saving drugs--- GCSF (granulocyte-colony stimulating factor) and EPO (erythropoietin). These innovative products were introduced in mid-2008 for the first time in India. Biocon's pre-filled syringe device incorporates features that provide for simple and safe handling, a discrete appearance of the injector and a retractable needle that reduces the chances of injuries during injection.

((Fig. 6 syringe))

Commenting on the launch of the pre-filled syringes, Mazumdar-Shaw explained, "The pharmaceutical industry has registered an increasing demand in the market segment of pre-filled syringe systems over the past ten years. These systems have the endorsement of healthcare professionals worldwide. There is a growing trend of injectable drugs moving into the pre-fill syringe as a presentation format. Worldwide, pre-filled syringe volumes have reached more than two billion units. The opportunity for Indian biotech companies in pre-filled syringes is immense as India is being viewed as a low-cost, high-quality manufacturing base. It has the largest number of USFDA approved plants outside the US."

((quote)) "The opportunity for Indian biotech companies in pre-filled syringes is immense as India is being viewed as a low-cost, high-quality manufacturing base. It has the largest number of USFDA approved plants outside the US."

The company's stock price has been stagnant for quite some quarters now. Nearly 60 per cent of its revenues come from exports of various biopharmaceutical products and Biocon was forced to book a lot of mark-to-market losses on account of its decision to make forward contracts in US \$ at a much lower rate. However, Biocon is poised to grow in the years to come if the big bet on a slew of innovative products come off successfully.

COMPANY STATS:

Business Revenue

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COMPANY STATS

Rasi Seeds

Business: Producer of agribiotechnology products

Bt cotton revenues

2004-05	Rs 86.87 crore (\$19 million)
2005-06	Rs 309.49 crore (\$69 million)
2006-07	Rs 333.33 crore (\$74 million)
2007-08	Rs 293.28 crore (\$68 million)

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Hepatitis B

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Hepatitis B

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Hepatitis-B

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Hyderabad

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Flat Earth

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COMPANY STATS:

Business Revenue

2004-05	Rs 67 crore (\$ 15 million)
2005-06	Rs 82 crore (\$ 18 million)
2006-07	Rs 115 crore (\$ 26 million)
2007-08	Rs 150 crore (\$33 million)

CEO: Mr KI Varaprasad Reddy (Managing Director)

Start-up Year: 1993
Address:
Vasantha Chambers, III & IV Floor
H.No.5-10-173, Fateh Maidan Road
Basheerbagh
Hyderabad – 500 004
Tel.: 91-40-2323 4135 / 6
Fax: 91-40-2323 4103

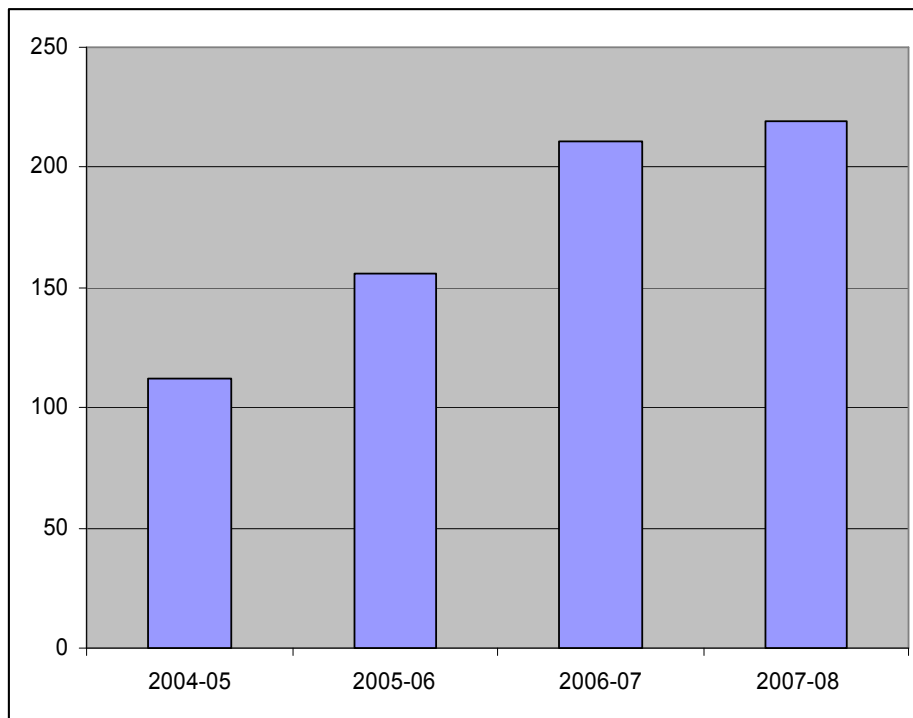
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((Fig. 8 lab)) © Photo Disc

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Table 1: Business revenues of the Serum Institute in Million US-\$, 2004-2008



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Table 1: Business revenues of Biocon in Milion US-\$, 2004 – 2008

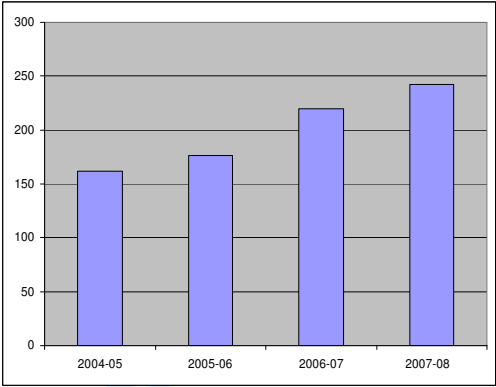
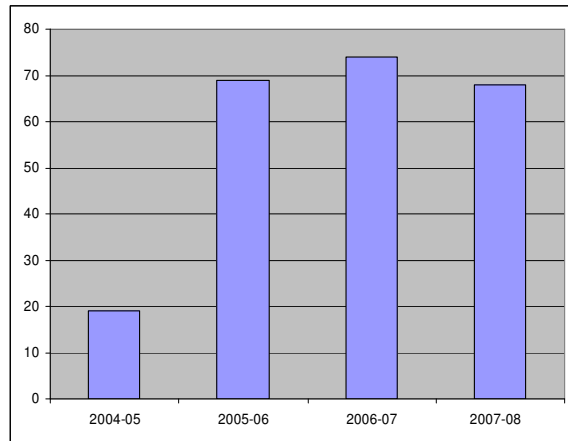


Table 1: Business revenues of Rasi Seeds in Million US-\$, 2004 – 2008



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Table 1: Business revenues of Shantha in Milion US-\$, 2004 – 2008

