

## Crystal Gazing into India Biotech 2010

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Here is what they came up with when asked to look ahead for Indian biotechnology

### **A new treatment regime**

The new medical approach to disease management looks at disease as a process rather than a state, where tracking disease progression will allow for better therapy. Gene regulation and other bio-algorithms will form the core of a new wave of diagnostics that are now being referred to as "theranostics."

Theranostics are designed to diagnose diseases at their stage of progression to enable the careful and accurate selection of a treatment regimen and to further monitor the patient's response to the said therapy. In short, theranostic tests can determine a patient's response to a specific drug therapy, or guide and assist in choosing the correct and most efficacious treatment regime. Bayer Diagnostics forecasts that the theranostics market will grow by 20 percent per year until 2010.

**Kiran Mazumdar-Shaw**, Biocon

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### **Embedded genes**

Because of its beneficial and sustainable impact on the basic elements of farming, it would not be surprising if biotechnology proves to become the most important agricultural advancement since the first farmer put a seed in the soil.

Sekhar Natarajan, Monsanto India

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### **Corporate research universities**

Our universities provide us great students but have become near bereft of research. If we are to survive, this must change soon. One way is for private-public partnerships to create the university of the future. The private sector can run a quality administration for a quality university. Research institutes should establish themselves in this environment. The university will have a research environment and will benefit. The research institute will be stimulated by teaching and by undergraduate and graduate students and will insure itself from rapid decay. And, a small model that shows proof-of-principle will encourage both mimicry and reform.

VijayRaghavan, NCBS

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### **Cancer, only a zodiac sign**

President Clinton's transcendental prediction that our children's children may only know Cancer as a Zodiac sign is still a long way from being realized but biotechnology seems to have the tenacity and renewed vigor to make science fiction a reality.

I was informed that the general view is that while India is a great place for chemistry, manufacturing and more recently for clinical trials, they are perplexed by what they perceive as a "Biology Hole". The perception is that biologists in India have simply not been trained on the use of these new instruments of biology. It is a bit like asking where our IT industry would be if our software engineers and computer scientists are trained on PC XT's.

Vijay Chandru, Strand Genomics

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### **Designer crops**

We should intensify and deepen our efforts in the field of mobilizing the tools of molecular genetics for developing new strains of crops, forest trees, farm animals and fish. The work already done in our country shows great scope for breeding rice and other crops tolerant to salinity and drought as well as for developing vaccines against animal diseases. I hope the 2nd Anniversary of BioSpectrum will mark the beginning of concerted efforts in our country to assess scientifically the risks and benefits associated with genetic engineering and biotechnology.

MS Swaminathan, Geneticist

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### **Preferred Partner**

With the changes that are taking place in India, biotech industry will soon merge the separating line between discovery, development and market place. All these can provide a breather to the pharma sector-reduction in the time and cost of making new medicines. This could also reduce time from target identification to launch, boost success rates from first human dose to market and a significant reduction in the pre-launch investment per drug to about \$200 million-a cost advantage that Indian industry has been advocating. The current decade is likely to be crucial for biotechnology business.

Rajesh Jain, Panacea Biotec

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### **Profitable business**

This mindset has to change. This decade, which is all set to see a biotechnology boom, will belong to those who have the power to convert their dreams into reality. In other words, it will see the rise of the bioentrepreneur. The ones, who will move away from the safe waters of the laboratory and convert a patentable or testable research dream into a viable business proposition.

India has the potential to become very strong in biotechnology. There has been a phenomenal increase in the number of start-up companies in this area in the last five years. While the current size of the industry is \$700 million, it is expected to grow at 25-30 percent. India ranks third in Asia in patent filings.

Krishna M Ella, Bharat Biotech

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### **Genetic greenbacks**

If our administration gears itself to implement the act effectively, it serves two purposes. On one hand, foreign investment would come forth to shake hands with Indian intellect to develop bio-products with far-reaching benefits to the humanity. On the other, this would put an end to mushrooming of biotech companies without expertise or commitment, proliferating at every corner of the street.

Once this happens venture capitalists (VCs) would not hesitate to get onto the biotech bandwagon. At a global level, during 2004 VCs have reversed a three-year downward trend by investing \$5.6 billion more.

**Varaprasad Reddy**, Shantha Biotechnics

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### **India-made novel medicines**

One can understand intuitively that from 2005 onwards, the number of new molecules, which are under patent to be launched in any calendar year, will not exceed a single digit. Starting with 2-3 new molecules in 2005 and in 2006, it may stabilize to 7-8 new molecules every year after that. Not only that, the molecules eligible for patent, whose application is filed in 1995 onwards, will start going off patent from 2015 onwards. Thus, it is predicted that at any given point of time over the next 25 years, the number of molecules under patent will never exceed even 10 percent of the total molecules being marketed. Also, the patented molecules will always have therapeutic equivalents available.

A business report in 2010 may read somewhat like this.

"Because of globalization, the world is drinking Colombian coffee, using Japanese cameras, driving American cars, ... and being treated and cured by novel medicines discovered in India."