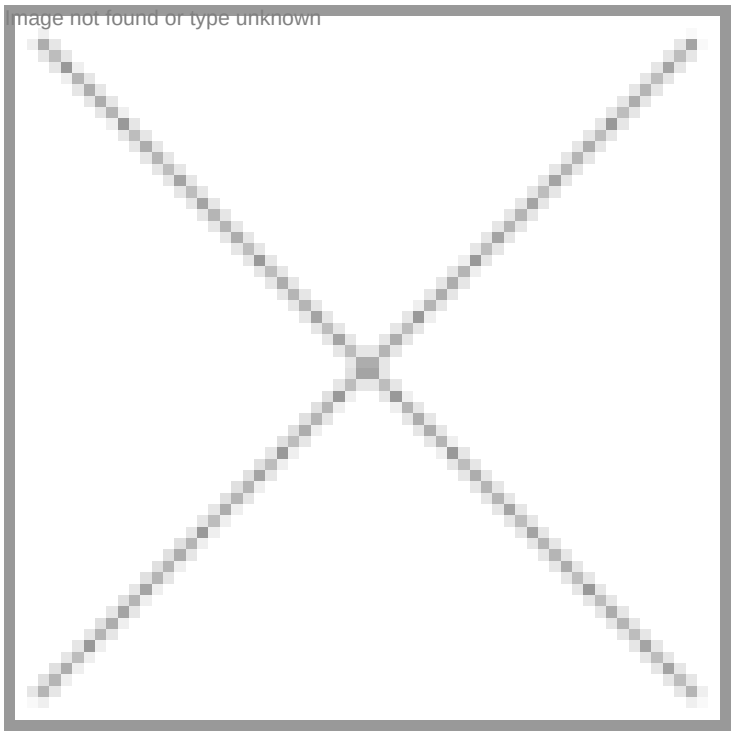
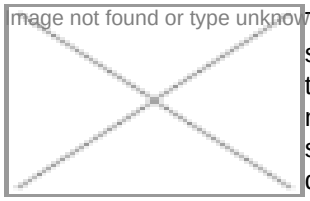
BioSpectrum the business of Bio & Health Sciences

A versatile gene lab

10 June 2003 | News



Established in 1966, as the center for biochemical technology (CBT), the institute has emerged as a full-fledged laboratory in the CSIR set up. Initially the center was started as the "biochemicals unit" with a grant-in-aid project from the CSIR to provide rare biochemicals and reagents for biomedical research in India.



To reinforce the efforts to place India on the world map by carrying out cutting edge research, some strategic changes were made by CBT last year. An important step in this direction was to change the name of the institute to the Institute of Genomics and Integrative Biology (IGIB). This change of name was based on the assumption that the new name would give impetus to the focus area and shall also project the motto of study of biology in an integrative manner. It was in line with the distinctive image of the institute with it's new R&D programs such as comparative genomics, proteome analysis, in-silico drug target discovery, novel screens for drug target development, SNP analysis for predictive medicine were taken up to develop effective, competitive and commercializable technologies for new drug discovery.

A network program on functional genomics, supported by the Department of Biotechnology (DBT) was initiated at IGIB in 1988. An interactive program involving molecular biologists, immunologists, organic chemists, molecular geneticists and information technologists along with medical scientists from various institutions in the country was envisaged to make use of the knowledge derived from genomics.

The laboratory is working on major projects related to immunology and molecular genetics of respiratory disorders including

allergy, fungal infections and predisposition to asthma, molecular genetics of neuro-psycho disorders and functional significance of repetitive sequences in the genome, genome informatics and drug target identification. IGIB is also working on the development of molecular markers for pathogenic organisms, including Mycobacterium tuberculosis, molecular recognition/interaction studies,design and synthesis of modified oligonucleotides for antisense and gene targets and design, synthesis and structural studies of peptides with a role in neurological function and dysfunctions.

IGIB has world class equipment and infrastructure facilities for genomic research. The institute has plans to come up with a new P3 grade biosafety facility. In terms of infrastructure and special facilities, IGIB is rated to be among the top five institutions in the country

IGIB has partnered with Chatterjee Group to establish a technology incubator along with genomic service facilities.

IGIB has been focusing on collaborative research with other leading institutes/laboratories and with large corporate players in recent times. The institute has partnered with Nicholas Piramal Pvt. Ltd., a leading pharma company to set up a joint research project called "Genomed". The institute also has a joint research agreement with Bharat Biotech, Hyderabad, under the Technology Development Board (TDB) program of the Department of Science and Technology (DST).

IGIB is also actively engaged in developing the human resources in areas involving new biology and information technology. Anticipating the arrival of the first draft of the human genome sequence and that of a large number of model organisms, the institute has positioned itself as a leading 'knowledge center of genomics research' in the country and globally. The institute has also tied up with Chembiotek, a unit of the Chatterjee Group, Kolkata, for human resource development in the area of bioinformatics.

To cater to the increasing demand for space, the institute is looking forward to its shift to the new twin-building campus proposed to be constructed on Mathura Road in South Delhi.

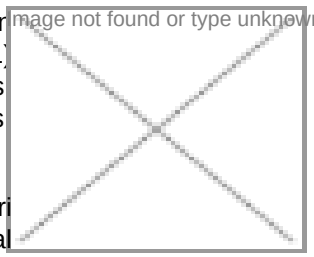
Faiz Askari

"The coming era will belong to hybrid scientists"

Dr Samir Brahmachari needs no introduction to the community of biotechnologists in India. As the director of the New Delhi based Institute of Genomics and Integrative Biology (IGIB) since August 1997, he is actively involved in furthering the cause of genomis and biotechnology in the government, academia and industry.

IGIB is one of the recent stars of the 38-laboratory chain of research centers run by the Council of Scientific and Industrial Research (CSIR). Before he joined the CSIR family, Brahmachari was a professor at the Indian Institute of Science, Bangalore, a premier research center. IGIB hit the headlines recently when a group of scientists at the institute developed a globally competitive software program which allowed decoding of the genome sequence of the SARS (severe acute respiratory syndrome) virus.

Brahmachari and his laboratory is an example of the successful handling of the emerging convergence of information technology and modern biology. He strongly feels that the coming years will see the emergence of a new breed of hybrid scientists working in both information technology and biotech who will create a new paradigm in the biotechnology arena. As an active researcher, his topics include functional genomics, genome informatics and structural biology.



Brahamachari has won a number of prestigious awards such as the Young Scientist medal (Indian National Science Academy in 1979, Kani medal (National Cancer Research Center, Tokyo in 1981) Shanti Swarup Bhatnagar Prize (1990), R Krishnamurthy Award (Society of Biological Chemists India in 1998). FICCI Award 1998-'99 and the Millennium Medal (Indian Science Congress 2000)and Goyal Prize 2001.

He was elected as a member of the Human Genome Organization (HUGO) in 1991. Brahmachari has also received the Ranbaxy Research Award - 2001 for outstanding contribution in medical sciences in January 2003.

He is currently working on disease genomics and functional genomics in silico.

Brahmachari shared his vision for the Indian biotech industry in an exclusive chat with BioSpectrum. Excerpts:

How do you rate the success of IGIB?

Over a very short period of time, the kind of responses we have got from the industry have motivated us to work for further success. We hope that industry participation with IGIB will continue to grow in genomics and bioinformatics. Our aim is to become a major knowledge provider in biotechnology. Our talented young work force also makes me feel proud. I am saying this after giving more than 100 lectures in various gatherings of people from the knowledge sector and interacting with the participants from schools to CII shows in the past few years.

Which are the major thrust areas at IGIB?

Functional genomics, disease genomics, diabetes and neuro-psychiatric diseases are among our focused areas. Apart form these we are also going to expand in silico biology because the scenario in the coming four or five years will be more in favor of "information scientist" rather than pure biologists or hardcore computer professionals. Our effort is to create over 25 hybrid scientists in IT and biotech. In the future, this work force will be the backbone of IGIB.

India is well known for its knowledge base. Do you think that it is now the time to keep the knowledge base intact within India ?

Our scientists leave the country only to move to a hassle-free work environment. If we succeed in creating the hassle-free environment here itself, then we can keep our work force intact. At IGIB we are working hard to create such an environment. Within the next few months, we are going to recruit 20 more scientists for all our thrust areas. Apart from that we are also trying to affiliate scientists of Indian origin who are working abroad.

We just have to make Indian work environment 'hassle-free'. If we manage to create such an environment here, most of the potential work force of Indian origin working abroad in this field may love to come back and give their best to the country.

How will you compensate for the vast difference in the compensation package for scientists in India and abroad?

There are many of us who love to do those things which we like the most. But there are some who would do the opposite for money. We are trying to draw in all those individuals who want to pursue their dreams which are different from what they are doing at present.

To popularize any new technology it is necessary to produce user friendly products.Do you think this will happen in biotech too?

As long as we are working in cutting edge technologies, we will help the masses in some way or the other. What we are doing today is definitely going to reach the masses after some years. All the examples of science we have in our house, offices etc were developed long time back. We hope the same thing will happen in biotech also.

What projects are in the IGIB pipeline in bioinformatics?

We have successfully launched a software 'PL Host' capable of predicting genes function quite effectively. Now we are working on an advanced version. 'Genedecoder' is also another software in the making. It would be capable of identifying new genes. We have another software called 'Seepath' which is capable of identifying bacterial and viral surface adhesins/ antigens which could be useful in drug discovery.

What are the expectations of scientists from corporates and the government to make the biotech industry grow?

R&D activities at the corporate levels must increase tremendously. The R&D expenditure in the Indian market is much lower than that in other countries. This is the major reason why they have better output than us. We all believe that the future will bring many good results for the industry. As far as the Indian government's efforts are concerned it has initiated many steps to boost biotech long ago. But I am strongly in favor of the government taking steps to remove certain hurdles created by the bureaucracy. And of course the government should stir itself to create a 'hassle-free' environment.

What will be the new focus areas of IGIB in this field?

Apart from whatever I have mentioned earlier, we are working on discovery genomics and application genomics. At IGIB we also have a lot of programs to create a platform for providing services, training and product development. IGIB 's new building at Mathura Road, New Delhi is also under planning. On the industrial collaboration front, we have a good tie up with Strand Genomics to develop a system biology platform for various diseases. We also have a very good tie up with Pune University in

the field of bioinformatics.

What is your advice to the young people who want to become a part of this industry?

Young people should believe in themselves and work accordingly. Success will only come after a long phase of hard work. They should focus on innovative ideas and new research areas. They have to keep on suggesting new ideas and expand their horizons even when discouraged. Learn to swim against the current if need be.