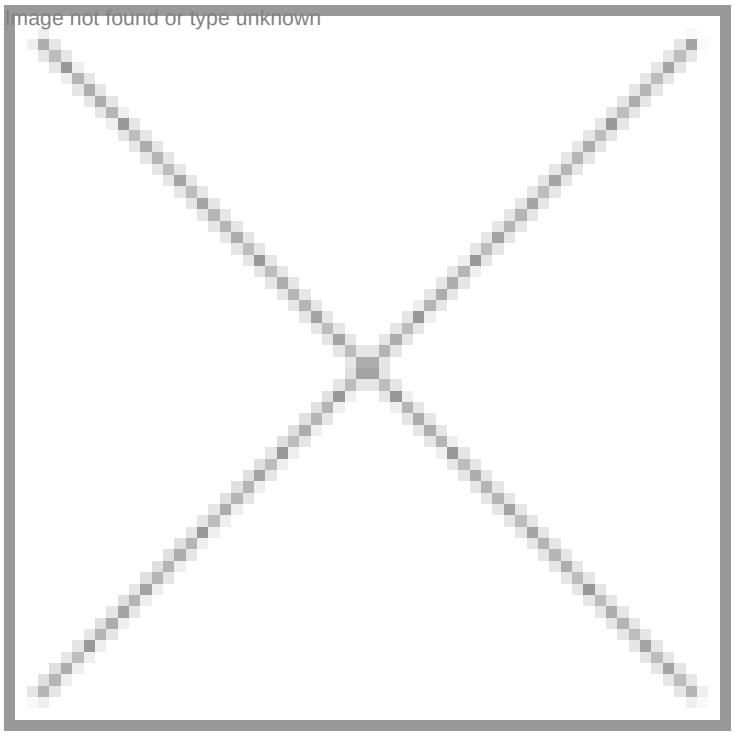
BioSpectrum the business of Bio & Health Sciences

Institute of Bioinformatics and Applied Biotechnology (IBAB)

14 September 2005 | News



Institute of Bioinformatics and Applied Biotechnology (IBAB)

The Institute of Bioinformatics and Applied Biotechnology (IBAB) is a joint venture of the Government of Karnataka and ICICI. Its mandate is to help grow the biotech industry. IBAB has attained high standards in bioinformatics and biotechnology education. The Institute has attained national and international visibility in a short span of three years. Its immediate objectives include: To conduct postgraduate courses in bioinformatics and biotechnology; To undertake short-term training programs for students or working professionals; To work with start-ups in the biotechnology industry; To carry out research in the field of bioinformatics and biotechnology.

The postgraduate diploma course in bioinformatics was the first course launched by IBAB. Currently the fourth batch of students is enrolled. Students are selected based on an all-India entrance test conducted at six centers followed by an interview at Bangalore. A batch of 40 has students with diverse backgrounds such as engineering, medicine, pharma, agriculture, life science, physical, chemical and statistical sciences with good representation from each discipline. Apart from the core courses related to bioinformatics, students undergo training in areas like IPR in biotechnology, business and science, scientific writing etc. The diversity in the students' background has made group study a valuable tool.

The course curriculum is designed to introduce the students to basic concepts in biology, computers, statistics, mathematics, chemistry which form the backbone of bioinformatics to train them in the latest tools and techniques in this area.

The methodology IBAB has adopted to train a diverse class through in-house projects and 6-month internships has proven

itself by the acceptance of IBAB graduates by industry. Today IBAB has a placement rate of 95 percent.

The second course launched by IBAB is the laboratory course in biotechniques. There is increasing demand for reliable technical expertise in the area of molecular biology/biotechnology. Many post graduate courses are unable to provide adequate training in laboratory bio-techniques. This course aims to fill this gap. However, the course is more than just a series of experimental demonstrations and hands-on sessions and involves thorough familiarization with experimental planning, execution and hypothesis-testing.

Apart from the two regular courses IBAB also conducts workshops and short term training programs. IBAB is also involved in promoting entrepreneurship in biotechnology and related areas.

Two R&D companies are being incubated by IBAB. Microtest Innovations is in the area of disease diagnostics, and Cellworks Goup is working in the area of in-silico drug discovery. Additionally several groups of IBAB students are exploring ideas to start their own companies.

Institute of Bioinformatics (IOB)

The Institute of Bioinformatics (accessible at http://www.ibioinformatics.org) was set up in March 2002 as a center of excellence in the field of bioinformatics, without any support from the US or Indian governmental funding agencies. Located on the premises of the International Technology Park, Bangalore, IOB is now a research institute recognized by the Department of Scientific and Industrial Research (DSIR) as a scientific and industrial research organization.

IOB is affiliated to two distinguished universities for the award of PhD degrees. Manipal Academy of Higher Education (MAHE) and Kuvempu University have agreed to accept students from IOB involved in research projects for their PhD degree and thus associate their universities with the growth of this rapidly evolving, multidisciplinary research institute. While IOB scientists are doing cutting edge research, the institute decided to reward them with a chance to do PhD. Under this scheme, IOB has facilitated eight people to register for PhD. Six students of this program are currently undergoing training in cutting-edge technologies such as mass spectrometry and microarray techniques at Johns Hopkins University in the laboratory of Dr Akhilesh Pandey, the founder and chief scientific advisor of IOB. Another student is slated to join his lab shortly. In addition, IOB undertakes regular training program for its scientists through lively interactive sessions on actual research problems. A number of scientists who have worked at IOB have subsequently joined PhD programs in the US, Europe and Australia.

IOB has recently established an experimental laboratory on its premises. Research is currently going on in both proteomics and functional genomics, both in collaboration with Dr Pandey's laboratory. In the proteomics arena, experiments involve analysis of various cell lines to identify interactions present in lower organisms but not reported in humans, by yeast 2-hybrid analysis, co-immunoprecipitation and western blot experiments. Towards this end, IOB is now in the process of acquiring a tandem mass spectrometer to facilitate in-house high throughput proteomics. IOB anticipates that cell lines, blood samples and tissue samples from patients suffering from diabetes, cancer, malaria etc. will be used for DNA microarray experiments to characterize gene expression patterns and their regulation for diagnostic purposes.

Indian Institute of Science (IISc)

The Division of Biological Sciences at the Indian Institute of Science (IISc) is engaged in frontline research at the frontiers of modern biology. It has three major departments, four smaller centers and three facilities and has on its rolls over fifty faculty members and about 300 research scholars and postdoctoral fellows. The scientists in the division deal with almost all aspects of modern biology: molecular biology, structural biology, immunology, enzymology, reproductive and developmental biology, ecological and environmental studies and so on. The methods employed in these investigations include genetic engineering, immunological techniques, PCR, spectroscopy, X-ray crystallography, electron microscopy, bioinformatics and computer modeling.
Ongoing research programs in the Department of Biochemistry include diverse areas in modern biology ranging from Molecular Genetics and Cell Biology (Chromosome Organization and Inheritance, DNA-Protein Interactions, Protein Biogenesis and Trafficking, Protein Degradation, Transcription, Lipid Biochemistry, Organization of Viruses etc.), Various aspects of Organismal Biology (Immunology, Reproductive Biology, Plant Development) to understanding and prevention of various diseases (Malaria, Rabies, Tuberculosis and Plant Viral diseases). The research activities in the department are supported by grants from various Government of India agencies like the DST, DBT, CSIR, DAE, ICMR and international agencies like The Wellcome Trust, UK. Several application-oriented, industry sponsored research projects are also going on at the department. Some of these research projects have also led to useful applications in agriculture and health science. A few national and international patents have also been filed. The department is well equipped to perform research in different areas of biology.

The Centre for Ecological Sciences, a center of excellence at the division, focuses on research areas related to biological diversity, human ecology, ecodevelopment, climate change and tropical forests, social behavior. It has excellent facilities for theoretical as well as experimental research in plant, animal and human ecology.

The division has a molecular biophysics unit (MBU) for research activities in the fields of structure, conformation and interaction of biomolecules. So far about 100 scientists have obtained their PhD degrees and the number of research publications exceeds 1000. The government plans to develop IISc into a world class institute and has earmarked Rs 100 crore for the same in the Union Budget 2004-05.