

**INTERNATIONAL HANDS-ON TRAINING COURSE ON DNA SEQUENCING AND
GENOTYPING, CENTRE FOR CELLULAR AND MOLECULAR BIOLOGY,
HYDERABAD (INDIA), FEBRUARY 25 – MARCH 10, 2002**

PARTICIPATING COUNTRIES : 7 MEMBER COUNTRIES OF THE NAM S&T CENTRE

NUMBER OF PARTICIPANTS : 15

Availability of the complete genomic sequence of the man as well as many other organisms has been a major achievement of biology although its deciphering has yet to go a long way. Each individual's genome, especially in case of humans, may vary at millions of positions. Some of these variations are associated with genetic disorders, and some are polymorphic and do not cause any phenotypic abnormality. Some SNPs (single nucleotide polymorphisms) could be important for targeting of drugs. High-throughput genome analysis using marker assays allows for diagnosis of genetically inherited disorders, population genetics, forensic and parentage identification, gene mapping, livestock and crop improvement, pharmacogenomics and molecular taxonomy, etc. Use of automation in PCR (polymerase chain reaction), DNA sequencing and genotyping increases the efficiency of the whole process by several-fold.

The Centre under its Biotechnology programme had earlier sponsored an International Training Course on DNA Fingerprinting at the Centre for Cellular and Molecular Biology (CCMB), Hyderabad, India during November 1997, in which a number of member countries of the Centre had participated. Since then, with the developments in genome research and use of automation in PCR, the Centre had proposed a Training Course on DNA Sequencing and Genotyping which was approved by the 2nd Bureau Meeting of the 9th Governing Council held in Mauritius in September 2001.

In pursuance thereof and as part of its Biotechnology programme, the Centre sponsored an International 2-weeks Hands-on Training Course on DNA Sequencing and Genotyping, which was held at the Centre for Cellular and Molecular Biology (CCMB) at Hyderabad (India) during February 25 – March 10, 2002. The training course was organised to study and review the new developments and impart training in latest techniques used in genome research.

In view of the specialised nature of the course and equipments, the number of participants had to be restricted and they were selected on the basis of their background and interest by the organisers. Accordingly, scientists from six member countries of the Centre, viz. Bangladesh (Dr. (Mrs. Haseena Khan of the University of Dhaka), Egypt (Mr. Amr. Mohamed Mahamoud Ageez of the Agricultural Genetic Engineering Research Institute in Giza), Indonesia (Dr. Mrs. Yeva Rosana of the University of Indonesia in Jakarta), Iraq (Dr. Ms. Lina Abdul Karim Al Amir of Baghdad University), Malaysia (Mr. Primulapathi of the Department of Chemistry in Selangor) and Syria (Dr. Salah Addin Al Khayer of the Veterinary Institute in Lattakia), apart from a few scientists from the academic and medical institutions in India attended the training course. The faculty of the

training course was largely drawn from amongst senior scientists of CCMB and other institutions in India besides a number of scientists from Canada, the UK and the USA. The course comprised of lectures, practicals and demonstrations.

The Training course was inaugurated by the eminent scientist and founder director of the CCMB, Dr. P.M. Bhargava, who gave an interesting insight into the human genome project since the discovery of DNA and RNA by Drs. Crick and Watson. Dr. Lalji Singh, Director of the CCMB earlier spoke on the activities of the CCMB in this area including developments in DNA fingerprinting and sequencing and genotyping. The scientific programme started with a keynote lecture on DNA fingerprinting entitled 'Tricks of the Trade' by Dr. Lalji Singh and with an overview of Molecular Marks by the Course Convenor, Dr. K. Thangaraj, who also spoke on 'Challenges in Analysing DNA Samples of Bad Quality and Less Quantity'. Other speakers from CCMB included Dr. G.R. Chandak who made a presentation on 'Genetic Analysis of Complex Disorders (Emphasis on Bronchial Asthma)', Dr. S. Subramanian on 'Biological Database and DNA Sequence Analysis', Dr. M.W. Pandit on 'Bioinformatics: an Overview', Dr. S. Tiwari on 'Gene Identification: Quest for Rosetta Stone', Dr. Satish Kumar on 'Conservation and Utilization of Domestic Animal Biodiversity using DNA Markers', Dr. Ramesh V. Sonti on 'DNA Markers for Assessing Purity of Parental and Hybrid Lines of Rice', Dr. Guru Prasad on 'Bioinformatics in the Post-Genome Era', Dr. Ramesh K. Aggarwal on 'DNA Markers in Crop Improvement: Work being Carried Out at CCMB', Dr. Rakesh Mishra on 'Whole Genome Approaches to Identify Chromatin Elements with Regulatory Function', Dr. Utpal Bhadra on 'Gene Silencing: New Target for Functional Genomics and Drug Development' and Dr. L. Sashidhara on 'Comparative Genomics'.

The presentations made by other speakers were on 'Microarray Analysis of Sex Specific Gene Regulation in Drosophila' by Dr. Justin Andrews of Indiana University, USA; on 'The Y-chromosome and Human Genetic History', by Dr. Chris Tyler-Smith of Oxford University, UK; on 'Proteomics Approach to Study Oxidation Stress in Neuro-Degeneration' by Dr. Siyaram Pandey of the University of Windsor, Canada; on 'Human Genome Project: Progress and Perspective' by Dr. J. Nagaraju of the Centre for DNA Fingerprinting and Diagnostics, India; on 'SNP Strategies in 2002 and Sequencing Chemistry' by Dr. Yogesh Prasad of Labindia, India; and on 'Plant Diversity Analysis using Capillary Electrophoresis: Micro-satellite Markers for Evaluating Gene Flow in Pigeonpea' by Dr. H Buhariwalla of the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), India.

The valedictory function was presided over by Dr. P.M. Bhargava, who also interacted with participants. Dr. K.P.C. Gandhi, Director, AP State Forensic Sciences Laboratory (India) was the Chief Guest at the function and distributed the certificates to the participants.

The training course was preceded by a 2-day symposium on a related topic 'Functional Genomics' on February 23-24, 2002, which was also held at CCMB. The Centre had arranged that the participants from the member countries of the Centre attending the Training Course on DNA Sequencing and Genotyping

could also participate in the symposium, which was otherwise attended by a large number of Indian and foreign scientists. The topics covered in the symposium were High Throughput Approaches to Functional Genomics; Proteomics; Functional Analysis of Mouse Genome; Functional Genomics of the Non-coding Genome; and Computational Approaches to Functional Genomics. The Keynote address entitled 'DNA Microarray: Exploiting Genome Sequence Information' at the symposium was delivered by Dr. Ed. Southern, FRS of Oxford University (UK).