

## Animal Cell Culture and Molecular Diagnostic Techniques

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**A**nimal Cell culture and Molecular Diagnostic Techniques short term training course sponsored by DBT Government of India, was organized by Department of Zoology, Kakatiya University, Warangal in Telangana state. The 15 days workshop from 18<sup>th</sup> August 2014 to 1<sup>st</sup> September 2014 consisted 11 invited special lectures and 23 hands on training practical sessions. This training course brought together 13 research students and 8 faculty (one from Ethiopia) members belong to different Universities, National Institute of Technology and Graduate colleges from different parts of the county.

Inaugural ceremony of the course followed by invited talk on molecular markers for disease diagnosis by Dr. Rajender (NIN Hyderabad). He dwelt with various types of molecular markers, their importance in disease diagnosis, hereditary relationships and agricultural applications like plant breeding, plant purity. Prof. Laxmi Narasu (JNTUH) reviewed the introduction of animal cell culture in India and different cell lines. The immunological diagnostic techniques and principals are explained by Dr. N. Vijaykumar of Kakatiya University (KU).

Dr. V. Lakshmipathi (KU) explained and discussed the importance of hypothesis in designing research experiments and how an ill-conceived hypothesis leads to misreading of experimental results with several examples. The

importance of PCR in molecular biology, forensic analysis, evolutionary biology, disease diagnosis and its process was emphasized by Dr. A. Venkateshwar Rao (KU). It was followed by hands on training regarding PCR for detection of transgenic integration by Dr. A. Sadanandam (KU). The presentations by Dr. Benarjee (KU) stressed the relevance of histological technique in disease diagnosis and clinical importance.

Dr. N. Ramaswamy (KU) discussed the wide application of RFLP technique in gene mapping, identification of genetic diversity, gene deficiencies, disease diagnosis in humans, DNA fingerprinting etc. Dr. Aleem Khan of Hyderabad outlined the importance, origin, characterization and therapeutic implications of hepatic stem cells in liver failure patients. He also briefed the various techniques and markers for the enrichment of stem cells.

Dr. (Mrs.) Geeta Vemuganti (University of Hyderabad) dwelt with the importance of cell culture applications in clinical practice and different types of cell therapy. She also gave hands on training in establishment of primary epithelial cultures. The extraction of hematopoietic stem cells from bone marrow and cell-cell interactions in immune system was dwelt by Dr. G. Raghuramulu (KU).

Dr. (Mrs.) G. Shamitha (KU) gave hands on training in genomic DNA isolation and its quantification from Tasar Silkworm. Dr. N. Prasad (KU) demonstrated animal handling in research and, briefed the importance of lymphocytes in immunology and their isolation from blood. Hands on training to participants in Restriction and Digestion of Lambda ( $\lambda$ ) DNA

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and Radio Immunodiffusion were dwelt by P. Srinivasa Rao and B. Ramaraju (NIT Warangal) respectively.

Dr. (Mrs.) Hema (Shri Venkateshwar University, Tirupati) outlined the methodology and hands on training to participants in western blotting and ELISA techniques. In another practical session Dr. Anitha (Geetam University, Visakhapatnam) demonstrated and gave hands on training in DNA separation and southern blotting technique.

Dr. Estari Mamidala (KU, Course Director) dwelt with Cell culture, cell viability count, staining technique, lymphocyte separation and cultivation of viruses in an embryonated egg in lecture and practical sessions. Dr. Y. Venkaiah (KU) demonstrated and gave hands on training to participants in Electrophoretic separation of proteins through SDS-PAGE technique. Dr. G. Gopinath (Central University of Hyderabad) gave hands on training in isolation of RNA and cDNA and, briefed the latest techniques used in genome isolation.

Finally, to have knowledge of Intellectual Property Rights (IPR) and legal procedures/criteria for having patents was dwelt by Dr. T. Vijay Chandra (KU). He discussed and highlighted the importance of IPR in Biotechnology, emerging issues and challenges in patenting biotechnology material.

Unlike other workshops, in this training course all participants had an opportunity to show their complete involvement in hands on training sessions and got exposure to several techniques. It was a learning experience for all participants. Some of the techniques trained in this course may be familiar to students and faculties of national institutes, central universities and some of the state universities but not to the graduate college students and faculty. Therefore, these kinds of training courses are very essential to train research students and faculty working in graduate colleges. At the outset training programme was well organized and fruitful.

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