

**WORKSHOP ON GENE THERAPY OF CANCER, CANCER RESEARCH INSTITUTE,
MUMBAI (INDIA), SEPTEMBER 4-8, 2000**

PARTICIPATING COUNTRIES : 9 MEMBER COUNTRIES OF THE NAMS&T CENTRE

NUMBER OF PARTICIPANTS : 10

Gene therapy is a new treatment modality wherein genetic material or genes are used for therapy. Although Gene Therapy clinical trials began a decade ago in the West, the developing countries have been lagging behind. Theoretically, monogenic disorders or diseases with a single gene defect are best suited for gene therapy where the defective gene can be replaced or supplemented with the wild type gene. In cancer gene therapy, some of these problems are not too relevant and are surmountable. To date, the number of ongoing clinical trials for cancer far exceed the ones for monogenic disorders / infections / cardiovascular diseases. Promising results are emerging from the phase- I-II clinical trials in cancer gene therapy.

As part of the Centre's Biotechnology programme, the Centre organised a 5-day Workshop on Gene Therapy for Cancer at the Cancer Research Institute (CRI), Mumbai, India during September 4-8, 2000. The Cancer Research Institute (CRI) is a premier bio-medical research organisation and has initiated a programme on Gene Therapy for Head and Neck Cancers and has established facilities of gene therapy of cancer. Pre-clinical trials in gene therapy for head/neck cancers were completed using a xenograft nude mouse model established in the laboratory. Tata Memorial Centre (TMC) and the Department of Atomic Energy, Government of India also supported the workshop.

The workshop was attended by 9 member countries, respectively, Bangladesh (Dr. Md. Quamruzzaman of Dhaka Medical College), Colombia (Dr. Gonzalo Gulvara Pardo of Instituto Nacional de Cancerologia in Bogota), Egypt (Dr. El-Rashdy M. Mohamed of Genetic Engineering and Biotechnology Research Institute in Alexandria), India (Dr. G.R. Chandak and Dr. Amarpal Singh of the Centre for Cellular and Molecular Biology in Hyderabad), Indonesia (Dr. Amin Soebandrio of the Ministry of State for Research and Technology), Iraq (Dr. Nahi Yousif Yaseen of the Ministry of Higher Education and Scientific Research), Nepal (Dr. Mahesh Raj Sigdel of B.P. Koirala Memorial Cancer Hospital in Chitwan), Syria (Dr. Bachour Marroan of the Nuclear Medicine Centre in Damascus) and Vietnam (Mr. Do Anh Tu of Vietnam National Cancer Institute in Hanoi). They were mostly senior practicing clinicians or senior scientists and most of them had a background in tissue culture and molecular biology. Dr. Sylvester L. Kajuina was nominated by Tanzania, but could not attend.

Prof. G. Padmanabhan, Raman Research Professor at the Indian Institute of Science, Bangalore, inaugurated the workshop and gave the Keynote address, which was an excellent overview on Gene Therapy. He highlighted the pros and cons of this promising new mode of treatment. The Workshop course comprised of lectures as well as laboratory exercises. Dr. I. Mitra, Professor of Surgery, Breast Unit, Tata Memorial Hospital spoke on the cancers in the developing countries with special emphasis on cancer control in countries with limited resources. Dr. A. N. Bhisey, Director, CRI, spoke on 'Tissue Culture - a Tool for Gene Therapy Trials'. Dr. R. Mulherkar of CRI gave a detailed description of the various strategies for cancer gene therapy. Dr. R. Mukhopadhyaya of CRI described various viral vectors used for gene delivery, followed by Dr. S.V. Chiplunkar of CRI, who spoke on 'Immunotherapy and Immunomodulation in Gene Therapy'. Dr. M.K. Adwankar of CRI spoke about breeding and maintenance of immuno-comprised mice such as nude mice and SCID mice. Dr. A.S. Wagle of CRI gave an overview of the various animal models used in Gene Therapy and their limitations. Dr. S.A. Pradhan of TMC spoke about the genetics and gene therapy trials pertaining to the Head and Neck Cancers. Dr. S. Panday of Jaslok Hospital and Research Centre discussed the much-debated issues related to safety and ethics in Gene Therapy clinical trials. Dr. A.M. Borges of TMC spoke about the assessment of response to gene therapy. The final talk was by Dr. V.K. Vinayak of the Department of Biotechnology (DBT) of the Government of India on regulatory requirements for the approval of Gene Therapy clinical trials, in which he discussed the guidelines formulated by DBT for writing a clinical trial protocol.

There was active and enthusiastic participation by the participants in the laboratory exercises, which were conducted in the Gene Therapy Laboratory at CRI. Transaction of packaging cell line by retroviral vectors, selection on G418 and testing of the supernatant for infective viral particles was demonstrated and later carried out by the participants. Preparation of tumour cells for injection into nude mice was demonstrated as well as injection of therapeutic cells into the nude mice tumours was carried out.

Apart from the presentation made by the members of faculty, the participants presented their Country Reports. Although most of the countries had personnel trained from the western countries, they either had set-up or were starting to set up molecular biology and tissue culture laboratories. Most of the participants and faculty felt that member countries should set up close collaboration to gain from each other's expertise and experiences.

The workshop concluded with a valedictory function during which Dr. A.N. Bhisey highlighted the salient points emerging from the workshop and hoped that this would be the beginning of future cooperation and interaction among the member countries in this important area. Dr. Bhisey also presented the certificates of participation and mementos to all the participants.