

National Conference on “Stem Cell Biology and the Era of Regenerative Medicine”

Organized by Dept of Anatomy, AIIMS Raipur (4th - 5th FEBRUARY 2014)

A national conference on Stem Cell Biology and the Era of Regenerative Medicine was organized on 4th and 5th of February 2014 by the Dept of Anatomy, AIIMS, Raipur. The Chief Guest for the Inaugural session was **Dr. SK Pandey**, Vice Chancellor, Pt. RSS University, Raipur and **Dr. Shrikanth Rajimwale**, Registrar, Chhattisgarh Medical Council was the Guest of Honour. It was presided over by **Dr. Nitin M Nagarkar**, Director, AIIMS, Raipur.

Day 1 (4 Feb)

The scientific deliberations started with the introduction of the concept of stem cells, their various types and sources and the terminology used in this novel form of therapy, by **Dr. DK Sharma**, Head of Anatomy Dept, AIIMS, Raipur and the Organizing Chairperson of the conference.

In keynote address, **Dr KS Ratnakar**, ex-Professor, AIIMS, New Delhi, summarised the important milestones crossed by medical science and introduced the topic of stem cells and their role in treatment to the gathering. He discussed some of the problems of the education system and suggested goals to be achieved by institutes like AIIMS. He brought to the attention of the audience the geographical location of AIIMS Raipur and the importance and necessity of developing a genetic registry of the indigenous population of Central India. His talk set the tone for a strictly scientific and yet a highly enthusiastic deliberation.

Dr. Sujatha Mohanty, Senior Scientist from AIIMS, New Delhi appraised the audience of the scientific work being done in the Stem Cell Facility, AIIMS, New Delhi. She described in detail how they had cultured stem cells from different sources and used them for the treatment of several different and difficult problems.

Dr. Naveen Khattry, Professor in-charge of Bone Marrow Transplantation Unit at Tata Memorial Hospital, Mumbai gave a detailed report of the regular treatment being administered in intractable cases of blood cancer using stem cells in his department. He showed how they could cut down on the high doses of chemo and radiotherapy when used in combination with stem cells.

Dr Ajit Saxena, Professor and Head, Pathology, AIIMS, Patna, gave a report of work being done on neural tube defects (NTD) at their centre. NTDs are severe congenital problems in new born babies posing extreme danger to their life. His work inspired the students as it comes from a young institute.

Dr. Madhu Shankar Nainar, a leading cardio- thoracic Surgeon of Chennai, displayed his work of using stem cells to treat many heart problems. He showed how myocardium could be salvaged after a heart attack by transplanting the patient's own stem cells. He discussed the results they obtained from different routes of administration and in different age groups etc.

Dr. P. K. Patra, Professor and Head, Biochemistry, Pt. J. N. M. Medical College, Raipur, is accredited with having developed the most well equipped research laboratory in Central India. He enlightened the audience with his work on healing the most stubborn non healing ulcers with Platelet Derived Growth Factors.

Dr. B. Ram Reddy, Professor and Head, Physiology, Apollo Institute of Medical Sciences, Hyderabad, gave a thought-stimulating lecture on the need of understanding Theoretical Biology in the science of regeneration. He discussed how mathematical tools, quantum mechanics, statistical mechanics and stochasticity explain the 21st century biology and have become indispensable platforms for an in depth understanding of developmental biology.

Day 2 (5 Feb)

The opening session of the second day saw **Prof. Geeta Vemuganti**, Dean, Central University of Hyderabad, beginning the day with a wonderful presentation on the work being done at L. V. Prasad Eye Hospital in regenerating otherwise permanently damaged corneae using stem cells and how blindness could be overcome using this modality of treatment.

Dr. Nibedita Lenka, Senior Scientist at National Center for Cellular Science, Pune presented her work on neural stem cells in the laboratory. She demonstrated proof of regeneration of dopaminergic neurons in damaged Substantia Nigra in her presentation. The convincing proof of her slides reposed confidence in the theory of stem cell regeneration.

Dr. Rama S Verma, Professor of Biotechnology, IIT, Chennai, and also a member of the Committee for drafting the guidelines for Stem Cell Research and Therapy, appreciated the progress being made in the field of Stem Cell Therapeutics and alerted the audience to the dangers of unethical practices and the possible misfortunes to the patients. He discussed in detail the guidelines to be followed and the dos and don'ts of this emerging field.

Dr. Ashok Mukhopadhyay, Senior Scientist, National Institute of Immunology, New Delhi, detailed their work of using bone marrow derived stem cells for treatment of liver diseases. He explained the difficulties and limitations in producing animal models of cirrhotic liver, but showed that stem cells have a promising role in reducing the fibrosis that occurs in this disease.

Dr. B. J. Rao, Senior Scientist at Tata Institute of Fundamental Research, Mumbai, presented an elaborate and detailed lecture of Chromosomal damage and its relevance to understanding stem cell biology. He threw light on the significance of the location of the chromosomes and their mobility in gene damage. He explained the need of concept of stochasticity in understanding advanced biology.

Dr. Deedipiya Devaprasad, Senior Consultant in Chennai represented an organization from Japan (NICHI). He delivered a highly stimulating lecture on a different aspect of stem cell treatment, immunocytotherapy. He detailed at length how they used stem cells to fight many cancers, mainly solid tumours. He explained how this mode of therapy decreases the need for the intense chemotherapy, which is so toxic and has the potential to give a disease free life to cancer patients.

Dr. Manoj Majumdar, one of the foremost researchers in stem cell therapy in India, showed how he had developed simple methods for the production of skin from stem cells. He displayed the miraculous results in wound healing. His elucidation of the concept of Fluid Skin won wide acclaim.

Dr. Vijaya Kumar Konuri, Associate Professor of Anatomy at AIIMS, Raipur and the Organizing Secretary of this Conference, brought to the notice of the audience about the alternate sources of stem cells, in particular, fetal stem cells. He showed how a dead fetus could become the source of living stem cells. He made the entire audience think about the Era of Regenerative Medicine, the tasks of the faculty in this era and the role the medical students are expected to play. He once again pointed to the students to master the fundamentals of theoretical biology, the stochastic model of nature and to develop the need for the Quantum Mechanical model of living organisms.

Valedictory Function

The Event ended with the hope that this Conference will be the starting point for the development of an advanced research institute of Genetics with a Stem Cell Unit in AIIMS, Raipur.

The conference brought together speakers of national and international repute on a common platform and the discussions ignited the desire of the delegates and budding doctors of AIIMS, Raipur alike to take up research in this new mode of therapy that offers hope to the public suffering from various intractable diseases like cancer, heart disease, liver disease, paralysis, arthritis, Parkinson's disease, etc.