

Education & Training

Prof. Sergio Ferrari completed his University studies obtaining the degree in Medicine summa cum laude in 1975 at the University of Modena, Italy, discussing an experimental thesis entitled “ Quantitative evaluation of dsRNA in normal lymphocytes and leukemic blast cells nuclei by immunochemical method”. This experimental work has been carried on in the Prof. U. Torelli’s laboratory at the Institute of Medical Pathology, Modena.

This thesis was published by the Modena University Press and Dr. Ferrari obtained for this work the following awards:

in 1975 “Giacomozzi Foundation” and

in 1976 “Lepetit” and “Adolfo Bellentani”.

In 1977 winner of a national AIL (Italian Association against Leukemias) fellowship.

He obtained, in 1978, the PhD in Clinical and Experimental Hematology at the University of Modena with the highest mark 70/70 and laude discussing the thesis entitled “Experimental evidence of dsRNA in human lymphocytes nuclei”.

Research Experience

From 1980 to 1992 researcher at the University of Modena, School of Medicine, Institute of Haematology.

In 1980 he obtained a short term EMBO fellowship to participate to a workshop “Regulation of Gene Expression” in Glasgow, England.

From 1984 to 1986 he had a post-doctoral fellowship at Temple University, Philadelphia, U.S.A.

In 1989 he was qualified in a national examination for a vice-Director position at the Regina Elena Cancer Research Institute, Laboratory of Molecular Oncogenesis, Rome.

In 1990 he received the National Award "Alberto Neri" by "Riccardo Favretto Foundation" for his biomedical research in the field of Acute Myeloid Leukemias.

From 1992 to 1999 Associate Professor of Cell Biology (SSD BIO/13 Applied Biology) at the University of Modena, School of Medicine, Department of Biomedical Sciences.

From 1999 Full Professor of Cell Biology at the University of Modena and Reggio Emilia, School of Medicine, Department of Biomedical Sciences.

Actually he is staff member of the Bioscience and Biotechnology Faculty, University of Modena and Reggio Emilia

RESEARCH ACTIVITIES

From 1975 to 1983 he did research in the Experimental Hematology Center, University of Modena, being involved in the production and characterization of dsRNA specific antibodies; studies on pre-mRNA and Ribosomal RNA precursors metabolism in normal and leukemic cells; studies on the kinetic complexity and abundance of normal and leukemic DNA and mRNA molecules by using liquid reassociation and hybridisation techniques.

Furthermore, in the same period, he studied the gene organization and expression of several oncogenes, particularly c-Myb, c-Myc and c-Fes, in acute and chronic leukemias.

In 1980, with a short EMBO fellowship, he worked at the Beatson Institute for Cancer Research in Glasgow, U.K., with Dr. George Birnie, optimizing the methodology of differentially cDNA libraries screening and molecular characterization of the selected clones.

From 1984 to 1986, he did research, as a post-Doc, at the Temple University, Department of Pathology, Philadelphia, USA, with Dr. Renato Baserga, studying cell cycle related genes. Particularly, he was involved in cloning of human Vimentin, Calcyclin and ADP/ATP translocase genes from mouse cDNA libraries, their genome characterization by sequencing, functional characterization of the promoter regions by deletion mutants and chromosome gene mapping by in situ hybridization and Southern blot analysis of a panel of human/mouse hybrid cell lines.

Since 1987, his research work was based on the study of the molecular mechanisms underlying the differentiation block of acute leukemia blast cells and on the identification of regulatory genes of myeloid differentiation and apoptosis of normal and leukemic cells. Particularly, several gene products were inactivated by using "antisense strategies", to understand their functional role in cell proliferation, differentiation and apoptosis of myeloid cells, and among them c-Myb, c-Fes protooncogenes and the Bax

gene. Furthermore, he is involved in the identification of interacting proteins of the signal transduction pathways of non receptor tyrosine kinases, particularly of the c-Fes protooncogene.

Since 1994, he is also involved in the study of the functional role of VDR and RAR alpha nuclear receptors in normal and leukemic hematopoiesis and in the development of new differentiation and pro-apoptotic therapeutic strategies in acute myeloid leukemia blast cells. Original results suggest that these nuclear receptors are involved in the myeloid commitment phase of hemopoietic stem cells.

For a short period of time , from 1997 to 2000 he was also involved in studies of molecular genetic and particularly in the mutational analysis of BrCa1 and BrCa2 in the hereditary types of breast cancer and in the organization, development and automation of genome analysis in collaboration with the oncology group in Modena and with the "Policlinico" hospital.

Since 1998 he carried on researches for the development, synthesis and evaluation of the biological activity of IL-6 antagonist peptides, c-Fes SH2 inhibitory peptides, transloading peptides and in the development of plasmid and retroviral expression vectors to use in antisense (siRNA) and overexpression strategies to evaluate the functional role of myeloid and erythroid specific genes in cell lines and in human and mouse hematopoietic stem cells.

Since 2000 he developed, in the Department of Biomedical Sciences, the methodology of DNA microarrays and the bioinformatics tools for data analysis. These studies have been applied to the genetic control of normal myelopoiesis and particularly to the study of hemopoietic stem cells obtained from different sources (bone marrow, peripheral blood and cord blood) but also to mesangioblast in collaboration with Prof. Giulio Cossu, DIBIT (Milan) and to leukemic hemopoietic stem cells obtained from patients with CML in collaboration with the Bologna University.

Actually is doing research on specific hemopoietic transcription factors involved in the commitment phase of hemopoietic stem cell and, based on different methodological approaches, to try to define the genetic programs underlying the lineage choice of HSC and therefore the differentiation plasticity.

He is head of the cellular and molecular biology laboratories and also of the DNA microarrays lab. of the Biomedical Sciences Department, University of Modena.

He is member of the Editorial Board of the journal "Antisense and Nucleic Acid Drug Development" and of the national board of A.I.B.G (Italian Association of Biology and Genetic).

He was member of the national committee of other scientific societies and among them ABCD (Italian Association of Cell Biology and Differentiation) and SIES (Italian Society of Experimental Hematology).

Since 1990 he is member of the AACR (American Association for Cancer Research).

His scientific activity can be summarized as follow:

96 peer reviewed scientific papers;

14 scientific paper on international journals not cited in the SCI;

10 chapters on scientific books;

250 abstracts of national and international congress and

more than 160 conferences, seminars, lectures and communications in Italy, Europe and USA.

Since 2004 is member of the steering committee of the Leukemia Res. Net European program for the molecular phenotyping of leukemias.