

Curriculum vitae Dr. Nicoletta Zini

Born December 04, 1958-Bologna, Italy

1981: Degree in Biological Sciences-University of Bologna, Italy

1983-2001: Researcher position at CNR

From 2002 : First Researcher position at CNR

Current position: First research level at Institute of Molecular Genetics “Luigi Luca Cavalli-Sforza” (IGM) - CNR, Unit of Bologna, c/o IRCCS Istituto Ortopedico Rizzoli, Bologna, Italy.

Teaching activities:

In 1991: lecturer at course "School of Electron Microscopy applied to Biology and Medicine ", organized by Italian Society of Electron Microscopy

In 1992: lecturer at practical course "Monoclonal antibodies" 92 "Production and in vitro and in vivo use, organized by School of Oncology and Biomedical Sciences.

In 1994: lecturer at practical course "Monoclonal Antibodies. IV Course ", and theoretical and practical course" Immunological Techniques Applied to Electron and Confocal Microscopy "organized by School of Oncology and Biomedical Sciences.

In 1995: lecturer at theoretical and practical course "Immunological Techniques Applied to Electron and Confocal Microscopy" organized by School of Oncology and Biomedical Sciences.

In 2002: lecturer at theoretical and practical course "Ultrastructural immunocytochemistry, in general training program for CNR.

Research projects:

In 1986: coordinator of CNR scientific project "Application of new methods for the study of supramolecular nucleus and its changes during the transcription."

From 1987 to 1997: coordinator of CNR scientific project " Transcriptional adjustments in minor chromatin components".

In 1988: involved in "Rizzoli Orthopedic Institute" Bologna (IOR) annual project "Ultrastructural and cytochemical investigations on synovial changes throughout rheumatic arthritis".

In 1989: involved in IOR annual project "Application of analytical techniques in SEM and STEM to study biomaterials," "Ultrastructural and cytochemical investigations on the synovium during rheumatic arthritis" .

In 1990, involved in IOR annual projects "Ultrastructural analysis of experimental and clinical prosthetic materials", " Ultrastructural and immunocytochemical investigations on muscular dystrophy," " Membrane receptors and signal transduction in osteoblast primary cultures".

In 1991: involved in IOR annual project: "Effect of pulsed electromagnetic fields (PEMFS) on membrane protein particles of cell membrane of osteoblast culture";"Application of ultrastructural and cytochemical techniques and Raman spectroscopy to study the interaction between the prosthetic materials, and tissues, "Immunocytochemical study on dystrophin localization. "

In 1992: involved in IOR annual project "Immunocytochemical study on the relationships between dystrophin and cytoskeleton" "Pulsed electromagnetic fields and ionization effect on osteoblast membrane particles".

In 1993 involved in IOR annual project: " In vitro ultrastructural and functional study of P-glycoprotein in human tumor cell lines", "Mechanism of activation and subcellular distribution of phospholipase C

isoforms in human osteosarcoma cells grown in vitro", " Immunocytochemical study of the relationship among dystrofin, cytoskeleton and cell membrane ".

In 1993: involved in University Ministry of Scientific and Technological Research (quota 40%) project " Human Morphogenesis, histogenesis, organogenesis ", in "Nuclear signal transduction during differentiation and embryonic development" scientific research.

In 1994: involved in IOR annual project " Intracellular messengers activation by cytokine in human osteosarcoma cells", "Use of synthetic oligonucleotides for identification of single exons of dystrophin gene ", "Cytochemical investigations on glycosaminoglycans in discondroplasia cartilage matrix by mechanical-osmotic stress", "Phosphoinositide and enzymes involved in signal transduction immunocytochemical localization in osteoblastic lines".

In 1995: involved in University Ministry of Scientific and Technological Research (ex quota 40%) project " Human morphogenesis, histogenesis, organogenesis ", in " Nuclear signal transduction during embryonic differentiation and development" scientific research.

In 1995: involved in IOR annual project "Structural characteristics of adriamicin drug-resistance osteosarcoma cells: image analysis and electron microscopy evaluation," "Ultrastructural analysis on phospholipid role in mineralization, " Signal transduction metabolic appearance in mesenchymal and human osteosarcoma cells and their agonist modulation "

In 1996: involved in IOR annual project "Ultrastructural analysis on surface changes in experimental cases of discondroplasia", "Merosin localization sites identification in muscle and peripheral nerve for the study of congenital myopathies associated with merosin deficit (CMD-MD)," Signal transduction characterization in human osteosarcoma cells in response to cytokines and in the course of drug resistance", "Extracellular matrix phospholipid involvement in cartilage and bone tissue mineralization"

In 1997: involved in IOR annual project "Molecular and ultrastructural characterization of cytokine hormone-like signal transduction in osteosarcoma cells."

In 1997: involved in University Ministry of Scientific and Technological Research (ex quota 40%) project "Exogenous factors and nuclear target of cell survival regulation."

In 1997: involved in University of Bologna project (ex 60%) " Nuclear signal transduction in human drug-resistant osteosarcoma cells."

In 1998: involved in IOR annual project " Molecular and biohumoral indicators useful for diagnosis and prognosis of tumor."

In 1998, 1999 and 2000: involved in University of Bologna project (ex 60%) " Interleukin 1 signal transduction mechanisms from receptor to nucleus in human osteosarcoma cells" .

From 1998 to 2000: involved in CNR project:"Morpho-functional appearance of DNA replication and chromosome organization".

From 1998 to 2002: coordinator of CNR scientific project " Intracellular location of regulatory factors."

In 1999: involved in IOR annual project " Molecular and biohumoral indicators useful for diagnosis and prognosis of tumor."

In 2000: involved in IOR annual project "Rheumatology"

From 2001 to 2003: coordinator of CNR project " Intracellular localization of regulatory factors."

In 2003:involved in CNR project " Cellular modulation and localization of regulatory factors", "Pathogenetic mechanisms of tumoral and degenerative diseases" in "Study of immunogenetic, immunological, cytological, regolative mechanisms of transplant physiopathology, neural, degenerative, musculoskeletal, neoplastic disorders".

In 2004: invoved in CNR project " Cellular modulation and localization of regulatory factors", "Pathogenetic mechanisms of neoplastic diseases" in "Study of immunogenetic, immunological,

cytological, regenerative mechanisms of transplant physiopathology, neural, degenerative, musculoskeletal, neoplastic disorders" scientific research.

In 2005: coordinator of CNR scientific work-package " Cellular modulation and localization of regulatory factors" in CNR project "Pathogenesis of degenerative musculoskeletal diseases, and HLA-related".

In 2006: coordinator of CNR scientific research " Cellular modulation and localization of regulatory factors" in CNR project "Pathogenesis of degenerative musculoskeletal diseases, and HLA-related".

From 2006 to 2008: involved in the Finalized project of IOR "Use of Adult mesenchymal Stem Cell (MSC) for tissue therapy in musculoskeletal disorders."

From 2007 to 2012: involved in Ministry of Education FIRB project " New applications of Biomedical Industry- Innovative materials for the development of Articular Bioprosthesis".

From 2007 to 2014: coordinator of CNR scientific research "Regulatory factor expression and morphofunctional studies of cell and biomaterial interactions" part of CNR project "Pathogenesis of degenerative musculoskeletal diseases"; involved in CNR scientific research "Molecular targets for the control of tumor progression".

From 2008 to 2011: involved in research program Region University 2007/2009 project " Regenerative medicine in osteo-articular diseases".

From 2010 to 2012: coordinator of PRIN 2008 (MIUR) project Research Unit (2008ZCCJX4_005) "Transmission electron microscopy (TEM) of vascular differentiation of human endothelial progenitor cells grown onto a tridimensional biocompatible, organomorphic scaffold".

From 2011 to 2014: involved in FIRB (MIUR) project (RBAP10MLK7_004) "Scaffold for skeletal tissue regeneration: preclinical evaluation of their compatibility and efficiency".

From 2013 to 2017: coordinator in IOR project "Morphofunctional analysis of progenitor cell differentiation for tissue regeneration".

From 2013 to 2017: coordinator in IOR project " Ultrastructural analysis of cell and implant material interaction, including decellularized organomorphic scaffold".

From 2014 to 2016: involved in Monte di Bologna and Ravenna Foundation project "Combination of autologous and allogeneic acellular composite grafts for nervous regeneration and an original decellularization technique".

From 2019 to present: involved in Ministry of Health and INAIL for co-funding project (RF 2009-1504427) "ELF induced maturation and differentiation of human cardiac stem cells and their implantation in to nude mice: a preclinical study for treating heart attacks".

From 2019 to present involved in European project, Horizon 2020-SCREENED EU, grant N° 825745, "A multistage model of thyroid gland function for screening endocrine-disrupting chemicals in a biologically sex-specific manner". Responsible at IGM-CNR: Dr. Nicoletta Zini, member of SCREENED Research Unit coordinated by Prof. Dr. Roberto Toni, University of Parma, Italy. Coordination: Universiteit Maastricht, Netherlands.

Scientific activity:

The scientific activity has concerned the study of ultrastructure and function of interphasic nucleus, and functional analysis of intranuclear distribution of inositide-dependent signal transduction system elements.

More recently, osteogenic and chondrogenic differentiation of cell progenitors grown on biocompatible materials have been investigated by electron microscopy, in order to clarify some aspects of the interactions cells/extracellular matrix and biomaterials used in bone and cartilage reparative processes.

Further studies have been conducted to study the behavior of cells grown on 3-D biocompatible scaffolds which reproduce part of the adult organ morphology.

Moreover, exosome characterization has been evaluated in different cellular models in order to demonstrate their role in cell communication.

Skills: transmission electron microscopy and related preparation methods, ultrastructural immunocytochemistry, immunofluorescence, light microscopy.

Author of 111 publications in scientific journals with Impact Factor, as obtained from the international website <http://www.ncbi.nlm.nih.gov/pubmed/>