

SCIENTIFIC ACTIVITY

1989-2011: research activity at the Department of Animal Biology of the University of Pavia

2012-today: research activity at the Department of Biology and Biotechnology "L. Spallanzani" of the University of Pavia

2014-today: responsible, of the Cell Biology and Neurobiology Laboratory of the Department of Biology and Biotechnology (Department of Excellence 2018-2022)

1988-1992: Quantitative evaluation of chromatin fractions with different transcriptional activity. Physical and chemical methods of denaturing and renaturation, usually used on extracted DNA, have been applied in situ, for the study of chromatin in various differentiated cell models.

1992- present: Research, in the Laboratory of Cellular Biology and Neurobiology, also in collaboration with other groups, mainly through microscopic techniques, cytometric and biochemical immunocytochemistry, of pathway proliferation and cell death in "in vivo" and "in vitro", in physiological, pathological experimental conditions.

1997-2007: Development of cytochemical and cytometric methods for the quantitative study of DNA and proteins and for the identification of apoptotic cells, in particular of the early events of the cell death process, investigating the modifications of Nuclear ribonucleoproteins (RNPs), normally involved in mRNA synthesis and maturation. Both cellular systems were used in which apoptosis occurs spontaneously in vivo (as in the case of thymocytes), and experimental induction models with apoptogenic drugs. Furthermore, the apoptogenic effect of photosensitizing molecules (Rosa bengala acetate and Ipoecrellina B Acetate) on cultured cell systems and the intracellular redistribution of nuclear and nucleolar proteins (RNP, c-Myc, Ki-67, fibrillar) in the course apoptosis, spontaneous and induced by pharmacological stimuli.

2005-present: Research activity in the field of Neurobiology, using microscopic techniques (fluorescence and confocal), immunocytochemicals, flow cytometry, molecular techniques and electron microscopy, with particular attention to the involvement of organelles and cellular components: 1) study of molecular events in the context of tissue morphology (cytoarchitecture) of some areas of the Central Nervous System (CNS), in order to evaluate the changes that characterize neuronal differentiation, remodeling and reorganization after experimental interventions; 2) in vitro study on cultured neural cells of the effects of chemotherapy and hadrontherapy to study the neurocytotoxic, apoptogenic and drug resistance effects caused by cisplatin, testing in parallel new platinum compounds that may decrease the side effects of cisplatin; 3) Understanding of the mechanisms underlying the neuroinflammatory and oxidative processes and their correlation with the development of glioblastoma and metastasis processes, also evaluating the effects of integration with mycotherapies (*Herichium erinaceus* and *ganoderma lucidum*).

2016-present: Study of the effects of new nutraceutical compounds in in vitro models (nerve and tumor cell lines) on modifications induced by oxidative stress (brain aging, metabolic modifications underlying eating disorders).

Research activities include 95 scientific publications in international journals, 140 communications to national and international conferences, 5 chapters of books and 1 textbook for college students of Biological Sciences.

H-index: 23, Citations 1424 by 1065 documents (Scopus).