MARZIA FERRETTI - CV 1990-2026

Degree in Biological Sciences (July 17, 1990), University of Modena, with grades 110/110 cum laude, discussing the thesis "Ultrastructural study of endosteal cells."
Qualification as biologist (November 1991).
In 1995, University Researcher, SSD BIO/16-Human Anatomy in the Faculty of Medicine and Surgery of the University of Modena.
Since 2006 up to now, Associate Professor of Human Anatomy in the Faculty of Medicine and Surgery of the University of Modena and Reggio Emilia; since 2012 afferent to the Department of Biomedical, Metabolic and Neural Sciences -Section of Human Morphology - University of Modena and Reggio Emilia.

Didactic activity

The didactic activity, as holder, is all performed in the various Degree Courses of the Faculty of Medicine and Surgery of Modena and Reggio Emilia University: Human Anatomy I and Human Anatomy II for the Course in Medicine and Surgery; Human Anatomy in various Postgraduate Schools of the Medical Faculty; Human Anatomy for the Courses of the Health Professions in "Dietetics" and "Medical Imaging and Radiotherapy Techniques".
Professor of Human Anatomy at the Military Academy of Modena (Medicine and Surgery).

Scientific research

The research activity, mostly concerning the histophysiopathology of bone tissue, is particularly focused on the following topics: Quantitative evaluation of osteoblast-osteocyte relationships; The process of osteoid maturation; Histomorphometric analysis on the osteocyte lacuno-canalicular network in various types of bone tissue in animals of different species; Osteocyte metabolic activity in different regions of the skeleton and quantitative evaluations on osteocyte canalicular density; The osteocyte as mechanosensor and chemoreceptor of bone and Osteocyte-bone lining cell system at the origin of steady ionic currents in loaded bone and transducer of mechanical signals into biological signals; Osteocyte-osteoclast morphological relationships and the putative role of osteocyte in bone remodeling; Static osteogenesis and dynamic osteogenesis under normal and pathological conditions, during bone histogenesis and repair of bone injuries; Leptin expression on osteogenic lineage cells of growing rats and adult humans and Leptin effect on mice fetal primary ossification centers during the early phases of bone histogenesis; Ferutinin effect on bone metabolism in preventing and recovering osteoporosis due to estrogen deficiency in ovariectomized rats and concomitant effects on the uterus and mammary gland; Methods and timing of recovery of biochemical osteoporosis experimentally induced in adult rats with/without administration of drugs-PTH(1-34); Methods and timing of bone lesion healing with/without administration of drugs-PTH(1-34) in animal models (adult rats); Osteocyte death in multiple myeloma patients (the proposal of anti-sclerostin antibody as new therapeutic strategy); Alterations in muscle fibers (apoptosis) and tendon (degeneration) following experimentally induced tendon injury in rat model; Ultrastructural aspects of articular cartilage and subchondral bone in patients affected by post-traumatic shoulder instability; Comparison of the proteomic profile of *Xenopus Laevis* skeleton under normal and mechanical overload conditions; Structural and ultrastructural analyses of bone regeneration in rabbit cranial osteotomy: piezosurgery *versus* traditional osteotomes; Optimisation of post-surgical bone regeneration: study of the performance of piezoelectric *versus* conventional osteotomes in human fibula; Study of scleral ossicles of lower vertebrates to be used as natural scaffolds in regenerative medicine.
Lately: Animal models of different species are used for the evaluation of two issues in skeletal and mineral homeostasis. In particular, the following are investigated: *i)* the effects of magnesium deficiency crucial for bone metabolism by means of structural and histomorphometric analyses and *ii)* the regenerative potential of different formulations of new-generation bioactive glasses (granules, scaffolds, etc.) to assess their possible use in regenerative medicine, both in orthopaedic and dental

medicine. Also, the same bioglasses are investigated for their angiogenic potential by means of the Chorio-Allantoic Membrane (CAM) assay, a simple, rapid and ethical *in ovo* model to simulate the *in vivo* conditions.

- Executive Manager for the VII International Congress of ISBM (International Society "Bone Morphometry"), Alghero, October 1996.

- Research Projects Scientific manager/PI/coPI:

- "UHRF1 as a Key Driver of Ewing Sarcoma Aggressiveness: Exploring Epigenetic Mechanisms for Prognosis and Therapy" financed with departmental FAR 2025 funds.
- "Bone regenerative potential of new-generation bioactive scaffolds: histological evaluations in rabbit long bones" financed with departmental FAR 2024 funds.
- "U-73122 effects on phosphoinositide signal transduction in human osteosarcoma cell cultures" financed with departmental FAR 2023 funds.
- "Localization of phosphoinositide-specific phospholipase C enzymes in osteoblasts and human osteosarcoma cell lines" financed with departmental FAR 2022 funds.
- "Optimization of post-surgical bone regeneration: a study of the performance of enhanced piezoelectric osteotomes *vs* standard piezoelectric osteotomes and traditional rotating osteotomes in human fibula osteotomies" financed with departmental FAR 2021 funds.
- "Study of structural changes and skeletal signaling following diet alterations and different methods of drug administration (PTH_1-34): experimental model of rats fed calcium-free diet and subsequent restoration of the normo-calcium diet" financed with departmental FAR 2017 funds.
- "Time and manner of repair of experimentally induced bone lesions (trans-cortical holes) in adult rats with/without drug therapy: structural, ultrastructural and histomorphometric study" funded by Lilly-USA and authorized by the Ministry of Labor, Health and Social Policies (2013-2015).
- "Time and manner of recovery of both biochemical and disuse osteoporosis, experimentally induced in adult rats" funded by Banca Popolare dell'Emilia Romagna (2011).
- "Time and manner of recovery of biochemical and disuse osteoporosis, experimentally induced in adult rats: structural and histomorphometric study" authorized by the Ministry of Labor, Health and Social Policies (2010).
- "Influence of phytoestrogens on bone metabolism: an alternative to hormone replacement therapy?" funded by the Fondazione di Vignola (2008).

-Partecipation to PRIN co-financing in 1997, 1999, 2001, 2004, 2009.

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