

CURRICULUM VITAE

Jessika Bertacchini

Personal Statistics

Date of Birth: April 3rd, 1980

Place of Birth: Pavullo (MO)

Nationality: Italian Citizen

Education

2008: PhD Human Morphological and Molecular Sciences, University of Bologna, Italy.

2004: MS in Pharmaceutical Biotechnology (University of Modena, Italy).

Position Held

2019 - Associate Professor BIO/16-Anatomy, University of Modena and Reggio Emilia, Italy.

2016 - 2019: fixed-term researcher (RTD/B) BIO/16-Anatomy, University of Modena and Reggio Emilia, Italy.

2008 - 2016: post-Doc researcher Signal Transduction Laboratory, Section of Histology, University of Modena and Reggio Emilia, Italy.

2009: visiting scientist Signal Transduction Unit, Beth Israel Deaconess Medical Center, Department of Pathology, (Boston, MA, U.S.A).

2008: visiting scientist George Mason University, Center for Applied proteomics and molecular medicine (Manassas, VA, U.S.A).

2007: research Fellowship from the Italian Ministry of University and Research (FIRB), (Research Project: Nuclear Signaling: Functional Proteomics Analysis of Specific Inositide-dependent Substrates).

2005 - 2008: PhD Human Morphological and Molecular Sciences, Department of Human Anatomical Sciences, University of Bologna, Italy (PhD Thesis Research Project: Lamin A Ser404 Is a Nuclear Target of Akt Phosphorylation in C2C12 Cells).

Societies

SIAI - Italian Society of Anatomy and Histology Italian

ABCD - Italian Association of Cell Biology and Differentiation

Award

2011 - AACR'S San Francisco meeting: Targeting PI3K/mTOR Signaling in Cancer conference - Scholar-in-Training Award.

Professional affiliations

CNR Institute of Molecular Genetics "Luigi Luca Cavalli-Sforza", Unit of Bologna, 40136 Bologna, Ital

Academic service

2026- Director of the Graduate School of Sport Medicine and Exercise, University of Modena and Reggio Emilia
2025 - External Reviewer ANVUR VQR 2020-2024

2022-2024 - President of the Technical Scientific Committee (CTS), in charge of reviewing the technical scientific reports of the PRIN 2022 PNRR SH sector projects. Directorial Decree No. 1409 of September 14, 2022.

2022-2025 - University of Modena and Reggio Emilia

Member in the Dental Hygiene Course Internationalization Committee

2021- Member of the Council of the Department of Surgery Medicine Dentistry and Morphological Sciences with interest in Transplantation, Oncology and Regenerative Medicine – University of Modena and Reggio Emilia.

2021- Member of the Scientific Research Committee of the Department of Surgery Medicine Dentistry and Morphological Sciences with interest in Transplantation, Oncology and Regenerative Medicine – University of Modena and Reggio Emilia.

2022- Vice-president of the degree course in Dental Hygienist, University of Modena, and Reggio Emilia.

Academic teaching activity

2018-

Holder of Human Anatomy teaching for:

- ✓ Obstetrician (3CFU)
- ✓ Dental Hygiene Degree (3CFU)
- ✓ Cardiovascular perfusion Degree (3CFU)
- ✓ Nursing (4CFU)

Public Engagement activity

2026- Interaction activity with the school. Project: meeting with the expert “Nanomedicine and Nanotechnology”. Scientific High School

2026- Interaction activity with the school. Project: Health Prevention Education project Secondary School.

2025- Interaction activity with the school. Project: meeting with the expert “Journey into the Human Body”. Secondary School.

2024- Interaction activity with the school. Project: meeting with the expert “Journey into the Human Body”. Secondary School.

2023- Interaction activity with the school. Project: meeting with the expert “Journey into the Human Body”. Secondary School.

2021- Interaction activity with the school. Anatomy laboratory for Summer Camp 2021

2022- Health Protection Programme. Anatomy Bases and Clinical Contexts. Volunteer Ambulance Association. ANPAS

Advisor activity

2017-2026: 8 BSc in Biotechnology, University of Modena and Reggio Emilia.

2022-2026: 8 BSc in Nursing Degree Course, University of Modena and Reggio Emilia.

2017-2022: 3 PhD Students in Molecular and Regenerative Medicine program - University of Modena and Reggio Emilia.

2019-2026: 4 Postdoctoral Fellow, Department of Surgery Medicine Dentistry and Morphological Sciences with interest in Transplantation, Oncology and Regenerative Medicine – University of Modena and Reggio Emilia.

2019-2021: 1 MSc in Pharmaceutical chemistry and technology, University of Modena and Reggio Emilia.

PhD faculty

Component of the Faculty of the PhD School in Molecular Biology and Regenerative Medicine. PhD student's supervisor. University of Modena and Reggio Emilia, Italy.

Editorial activity

2018: Special Issue Lead Guest Editor “Bone Cells and Related Interactions”, Biomedicines.

2020: Special Issue Lead Guest Editor “Bone Tissue Regeneration: Biology and Strategies”, Biomedicines.

2022: Craniofacial Biology and Dental Research, Frontiers in Physiology.

2023: Associate Editor, Cellular Biochemistry, Frontiers Molecular Biosciences.

Scientific Collaboration Agreements

2023 -: Research activities agreement: RIZZOLI ORTHOPAEDIC INSTITUTES (Bologna). Subject: "Analysis of study models of degenerative musculoskeletal diseases."

2022 -: Scientific collaboration as co-proponent with the CIBIO Institute (Trento). research activity Project title: “study of the biomolecular mechanisms underlying skeletal muscle cross-talk in physiopathological conditions”.

Grants

2015: PI of the Project “Targeting PI3K/Akt/mTor signaling pathway in Acute Leukemia” in collaborazione con Najmaldin Saki, Ph.D. -Assistant Professor of Hematology & Blood Banking, Head Of Clinical Laboratory Department, Allied Health Sciences School, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.

2016: Co-PI NETFOLD PROJECT; ITALIA-ISRAELE.

2017: PI of the FAR2017 (Local Department Project); University of Modena and Reggio Emilia. Title: Functionalization of 3D-printed constructs engineered for double-use: i) recovering “critical-size” bone defects, ii) studying cell signaling modifications involved in bone regeneration.

2018: Unit PI of the project MIUR-PRIN 2017. Title: “Epigenetic Regulation of Nuclear Inositides in Bone Marrow Microenvironment and MDS/AML Progression: New Targets, Therapy and Drugs”.

2019: Co-PI of the FAR 2019, (Local Department Project); University of Modena and Reggio Emilia. Title: Microfluidics-based 3D cell culture models for bone regeneration.

2021: Co-PI of the Project CARISBO (Local Foundation) Title: “New strategies in Osteosarcoma research”.

2023: Researcher staff member in the Cure-CMD 2022 Research Grant. Title: Targeting Primary Cilium-Related Molecular Pathways to Correct Tendon Cell Defects in Collagen VI Congenital Muscular Dystrophies; Congenital Muscular Dystrophy Association”.

2024: Seed Grant - Department internal funds (FAR 2024) for a Pilot study. Dynamic culture system for periodontal stem cells: a preliminary study.

2024: Unit PI of the project MIUR-PRIN 2022: ENHANCE, (Prot. 20229LR9NM), “Engineering of nanoparticles by harnessing the biomolecular corona for cancer therapy”.

Research activity

The overall research activity over a 10-year period (2015-2025) has involved several fields of study. Initially, the research activity was focused on the RAS - PI3K/Akt/mTOR MAPK and Wnt signaling pathways in various diseases. Cell signaling is a complex of molecules that interact and stimulate surrounding proteins, lipids, and ions, leading to cytoskeletal reorganization, modulation of differentiation, and induction of gene expression. The expertise in cell signaling was then directed towards the field of cancer, mainly focusing on hematological malignancies, colon and prostate cancers. In particular, the focus was on analyzing the downstream mechanisms of the development of resistance to chemotherapy drugs and to RTK and PI3K inhibitors (CMLS 2015; JCP 2019). In the following years, thanks to an interdisciplinary scientific approach, research progressively shifted to the study of molecular signaling events on cell proliferation and differentiation associated with medical applications, including medical devices, tissue engineering, and regenerative medicine. In particular, research has shifted to the interface of the bone-muscle biomechanical system. In addition to its well-known biomechanical role, skeletal muscle represents a fundamental "organ" for the metabolic control of the entire organism. Work has focused on identifying new molecular regulators that act in the cross-talk between muscle and bone, two of the tissues primarily involved in regeneration processes affecting the musculoskeletal system (Biomedicines 2021, Biomolecules 2024). Within the field of regenerative medicine, numerous studies involve the use of scaffolds for bone tissue restoration. (Biomaterial Sciences 2019; Materials Science and Engineering, 2019; Regenerative Biomaterials 2023; ACS Nano 2024). Scaffolds are three-dimensional shapes made of various materials, both natural and synthetic, that serve as a support for the formation of new tissue. The goal is to recreate a context that favors osseointegration and allows the regeneration of damaged tissue under static and dynamic conditions. In particular, the dynamic condition, understood as an alteration of the shear force (at the interstitial level) induced by mechanical compression, is the subject of recent studies. Obtaining good responses from this model requires fine orchestration of the three fundamental elements of tissue engineering: cells, scaffolds, and cell signaling. The union of these three classical characteristics in a dynamic situation of interstitial flow helps make the microenvironment recreated in vitro even more physiological. (Stem Cell Research and Therapy, 2023; Regenerative Biomaterials, 2022)

Bibliometric indexes (Scopus Source)

- 1,611 Citations by **1,437** documents
- 55 Documents
- 21 *h*-index.

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