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DELLE MARCHE

Supervisor:
Prof. Saverio Marchi



Prof. Saverio Marchi

Position: Associate Professor – BIOS-13/a - Histology and Embriology

Institution: Università Politecnica delle Marche (UNIVPM), Italy

Brief CV & Academic Track

Senior researcher with expertise in the study of cellular signalling, with special focus on the role of mitochondria in different physio-pathological conditions. Our research is focused on the study of mitochondrial dynamics at both morphological and functional levels. We are interested in clarify the role of specific mitochondrial rearrangements in different physio-pathological conditions.

Saverio Marchi obtained his PhD at the University of Ferrara (2011, Prof. R. Rizzuto). He then worked as a postdoc with Prof. G. Kroemer (INSERM, Paris) and at the University of Hawaii Cancer Center (M. Carbone's lab), and later in P. Pinton's lab. He became Associate Professor at UNIVPM in December 2021.

- Extensive experience in EU-funded research and international collaborations

ORCID: 0000-0003-2708-1843 <https://orcid.org/0000-0003-2708-1843>

Total publications: **90** (Scopus/WoS) ID: 23473694600

<https://www.scopus.com/authid/detail.uri?authorId=23473694600>

5 Selected Recent / Significant Publications

- Licini C Marchi S. Cell Death Dis., 2024 Jun 11;15(6):407
- Marchi S., et al. Nat Rev Immunol, 2022, Jul 25:1–15.
- Marchi, S., et al. Molecular Cell, 2020, 78 (6), pp. 1055-1069.
- Marchi, S., et al. EMBO Journal, 2019, 38 (2).
- Marchi, S., et al. Current Biology, 2013, 23 (1), pp. 58-63.

Funded Projects & Awards

2024: Principal Investigator, “Project GJC23065” Fondazione Telethon/Cariplo grant; 2023: Head of Operative Unit, “Progetti di Rilevante Interesse Nazionale” (PRIN_PNRR_2022) of the Italian Ministry of University and Research; 2023: Principal Investigator, “Progetti di Rilevante Interesse Nazionale” (PRIN_2022) of the Italian Ministry of University and Research; 2023: Head of Operative Unit, PNRR Grant: M6/C2_CALL 2022 of the Italian Ministry of Health; 2022: Collaborator, Grant from the European Union - NextGenerationEU through the Italian Ministry of University and Research under PNRR - M4C2-I1.3; 2018.

Mentorship & Leadership

Supervisor of **4 PhD candidates** and **3 MSc theses**

Board member of ABCD society and European Calcium Society (ECS)

Research Interests & Potential MSCA Area

LS1 (Molecular Biology and Biochemistry);

LS3 (Cellular Biology);

LS4 (Physiology in Health and Disease).

➔ Potential project domain: **Mitochondrial signaling and metabolic regulation in cancer**





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Department & Research Environment

Dept. of Clinical and Molecular Sciences (DISCLIMO) - UNIVPM



Host Department: Dept. of Clinical and Molecular Sciences (DISCLIMO)

A multidisciplinary environment supporting research in:

- ***Molecular and cellular biology***
- ***Translational and clinical research***
- ***Biomedical and precision medicine***

Research Group Description

Marchi's Team is a part of the Histology Group (MorpHis Lab), composed by one Full Professor, two Associate Professors, one Lab technician, five Post-Docs, and two PhD students.

Our research group aims 1) to understand the mechanisms regulating mitochondrial dynamics and remodelling and how they govern cell fate decisions, 2) to identify and functionally characterise new pathways regulating mitochondria-organelle contact sites, and 3) to elucidate how mitochondria react to bacterial infection. We investigate the relevance of these pathways in cell death and survival, cellular metabolism, inflammation as well as to human diseases including cancer.

Key Infrastructure & Laboratories

- BD FACS Melody, laser-capture microdissection microscopy, digital PCR, Illumina NGS, Luminex, and an Orbitrap mass spectrometer for lipidomics and metabolomics analyses
- Luminometer for Ca²⁺ measurements, Synthecon rotary cell culture system for generation of 3D culture, a Tomographic Microscope 3D Cell Explorer-FLUO (Nanolive), an inverted Nikon Ti2-E equipped with digital camera, 4 fluo channels, and a 6D software for measuring multiple mitochondrial parameters in live cells, Seahorse XF-mini and the DolpHinQ system (by Leadgene Biosolutions) for metabolic analysis.

Training & Career Development Opportunities

Access to doctoral school courses, transferable skills training

Support for Open Science, dissemination, and stakeholder engagement

Opportunities for **secondments** and **non-academic placement**





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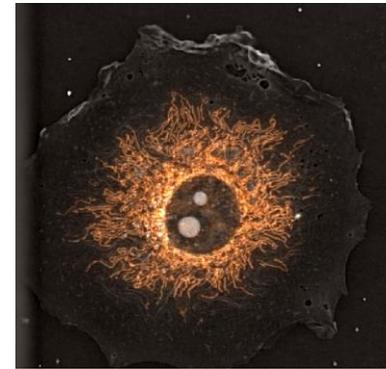
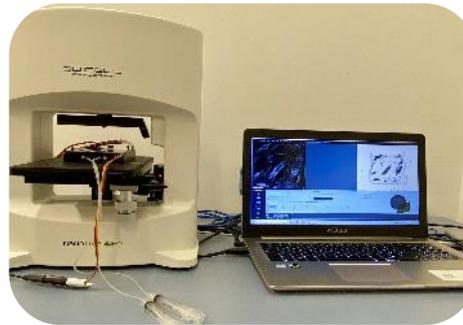
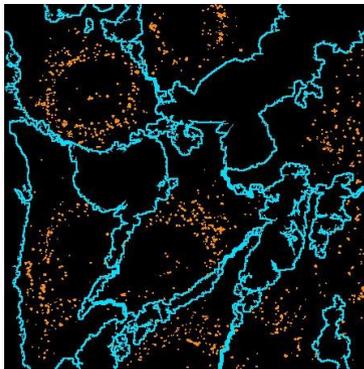
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Project idea - Lipid droplets – mitochondria contact as a key driver for cancer progression

Background: For cells to function properly, it is necessary for cell organelles to communicate with each other. In this context, mitochondria establish functionally crucial connections with virtually all other intracellular structures. These interactions not only impact mitochondrial behavior and activity but also influence a wide variety of cellular functions. In recent years, it has been showed that mitochondria interact with lipid droplets (LDs) and this association induces a drastic remodelling of the cellular bioenergetics. However, the mechanisms regulating the LDs-mitochondria contacts, or their potential role in driving some pathological conditions (i.e cancer development), are still elusive.

Main Goal: In this project, we aim to elucidate different aspects of the LDs-mitochondria tethering in the context of cancer progression, by providing fundamental clues on the molecular pathways that control contact formation, how the mitochondrial network rearranges, the metabolic changes that occur at these contact sites, and how they affect the tumorigenic potential of cancer cells.

We recently collected some interesting preliminary findings on clear cell renal cell carcinoma (ccRCC), ensuring a perfect starting point for a MRSCA post-doctoral fellowship.



HR EXCELLENCE IN RESEARCH