

Profile:

I have graduated with a master's degree in **Molecular Biology and Genetics** at the **University of Pavia**, where I have focused on research and laboratory work since September 2022. My experience includes working in two distinct research labs.

The first, at the **Council of National Research (CNR)**, was in Dr. Sofia Francia's lab, which specializes in **DNA double-strand break studies**. Here, I developed skills in **PCR, Western blotting, immunofluorescence microscopy, and cell culturing**.

My second lab experience was under supervision of Professor Marco Biggiogera and involved working with **transmission electron microscopy**, where I contributed to two primary projects: one on the **hypoxia stress response** and its effects on **epigenetics and nuclear structure**, and the other on **prostate cell aging** and its impact on **epigenetics**. For my master's thesis, I investigated **Ultrastructural Nuclear Alterations in the Aging Prostate**, and graduated on April 2025.

Before moving to Italy, I studied **Sciences of Nature and Life**, specializing in **Fundamental and Applied Genetics**, where I gained a strong foundation in **genetics**. The research I conducted during this time enhanced my analytical abilities and also introduced me to **genetic counseling** at **Mustapha University Hospital**.

Living in multiple countries, including **Azerbaijan, Algeria, and Italy**, has helped me cultivate a deep appreciation for diverse cultures and languages. I am fluent in **French, English, Arabic**, and have a good mastery of **Italian** which has further strengthened my communication skills.

Academic Background:

- **PhD in Genetics, Molecular and cellular Biology (October 2025 - Today) | University of Pavia**

Project title: Analysis of Chromatin Reorganization during Differentiation

Supervisor: Claudio Casali

Co-supervisor: Francesca Scolari

- **Master's degree in Molecular Biology and Genetics (2022 - 2025) | University of Pavia**

Experimental thesis: Ultrastructural Analysis of Nuclear Reorganization in the Aging Prostate

- **Master's degree in Fundamental and Applied Genetics (2020 - 2022) | University of Science and Technology Houari Boumediene**

Master's thesis: Neurogenetic diseases with a founder mutation in the Algerian population.

- **Bachelor's degree in Science of Nature and Life (2017 - 2020) | University of Science and Technology Houari Boumediene**
- **French Scientific Baccalaureate | Lycée Internationale Alexandre Dumas (Algiers) - 2017**
- **Algerian Mathematics Baccalaureate | Lycée Cheikh Bouamama ex-Descartes - 2017**
- **Admission to Lycée Cheikh Bouamama ex-Descartes - 2012**
- **The International School of Azerbaijan - TISA Baku - 2008-2012**

Work experience:

- **Laboratory of Cell Biology and Neurobiology**, Department of Biology and Biotechnology "Lazzaro Spallanzani", University of Pavia
Intern (December 2023 – April 2025)
Supervised by Prof. Marco Biggiogera <marco.biggiogera@unipv.it>

- Conducted research in nuclear cell biology with a focus on chromatin organization, epigenetic modifications, and electron microscopy analysis.
- **Laboratory of DNA Damage Response**, Consiglio Nazionale delle Ricerche (CNR), Pavia
Intern (December 2022 – April 2023)
Supervised by Dr. Sofia Francia <sofia.francia@igm.cnr.it>
 - Participated in projects investigating DNA damage response to double strand breaks.

Abilities:

- Transmission electron microscopy (TEM)
- Immunocytochemistry
- Electron microscopy in situ hybridization
- Sample preparation for TEM
- Western blotting
- Immunofluorescence microscopy
- Cell culturing

Conferences/Posters:

M. Cavallo, C. Casali, L. Giulini, A. Diaf, E. Pelloni, G. Milanesi, G. Mazzini, M. Biggiogera. "Hypoxia-Induced Chromatin Decondensation and G2/M Cell Cycle Arrest". GIC - 43a Conferenza Nazionale Di Citometria. Rome, Italy (2025).

M. Cavallo, C. Casali, A. Diaf, L. Giulini, F. De Luca, G. Milanesi, M.G. Bottone, M. Biggiogera. "Tissue-Specific Epigenetic Remodelling During Prostate Aging: A Divergent Chromatin Landscape". 28th Wilhelm Bernhard Workshop on the Cell Nucleus. Tartu, Estonia (2025).

M. Cavallo, C. Casali, L. Giulini, A. Diaf, D. Tunesi, G. Milanesi, G. Mazzini, M. Biggiogera. "Nuclear Reorganization During Hypoxia". 28th Wilhelm Bernhard Workshop on the Cell Nucleus. Tartu, Estonia (2025).

M. Cavallo, C. Casali, L. Giulini, A. Diaf, D. Tunesi, G. Milanesi, G. Mazzini, M. Biggiogera. "The Role of Chromatin Reorganization in Hypoxia Adaptation". 17th International Congress of Histochemistry and Cytochemistry. Rimini, Italy (2025).

C. Casali, M. Cavallo, A. Diaf, L. Giulini, D. Tunesi, M. Furfaro, A. Tricarico, G. Milanesi, P. Perucca, O. Cazzalini, M. Biggiogera. "Epigenetic Response to UV Irradiation in HEK293 Cells Expressing DDB2PCNA-". 28th Wilhelm Bernhard Workshop on the Cell Nucleus. Tartu, Estonia (2025).

C. Casali, M. Cavallo, A. Diaf, L. Giulini, D. Tunesi, G. Milanesi, M. Biggiogera. "Nuclear Reorganization During Mammal Erythropoiesis at EM". 28th Wilhelm Bernhard Workshop on the Cell Nucleus. Tartu, Estonia (2025).

C. Casali, M. Cavallo, S. Bellei, A. Diaf, L. Giulini, D. Tunesi, G. Milanesi, M. Biggiogera. "Visualizing Nuclear Architecture During Mammal Erythropoiesis". 17th International Congress of Histochemistry and Cytochemistry. Rimini, Italy (2025).

C. Casali, M. Cavallo, A. Diaf, D. Tunesi, L. Giulini, D. Ardizzi, E. La Cascia, G. Milanesi, G. Mazzini, M. Biggiogera. "Multiparametric Assessment of Oxidative Damage in AML12 Cells". GIC - 43a Conferenza Nazionale Di Citometria. Rome, Italy (2025).