Mara Martino

PROFESSIONAL PROFILE

PhD | Postdoctoral Researcher – Translational R&D

PhD and postdoctoral experience in Advanced Therapies and Experimental Pharmacology, with expertise in HIV virology, immunology, and preclinical studies. Strong hands-on skills in cell culture, cytotoxicity assays, flow cytometry, confocal microscopy, and data analysis. Proven ability to manage complex experimental projects in regulated BSL-3 environments and collaborate in multidisciplinary teams. Interested in translational research and industrial R&D settings.

EXPERIENCE, TRAINING AND EDUCATION

[07/2017] **Diploma**

High school diploma of maturity in chemistry, materials and biotechnology health at Institute of Higher Secondary Education "Nicolucci- Reggio" with 100/100

[10/2022] **Degree**

University of Ferrara

Specialistic 5-years degree in Pharmaceutical chemistry and technology at the University of Ferrara with 109. Title of the thesis "Analysis of cell cytotoxicity mediated by hiv-specific antibodies: standardisation of a Rapid Fluorometric Antibody-Dependent Cell-mediated Cytotoxicity protocol in vitro".

Supervisor: Prof. Riccardo

[11/2023] **Licenses**

University of Ferrara

Pharmacist Professional License

[11/2025] **PhD**

University of Ferrara

PhD student in Advanced Therapies and Experimental Pharmacology at the Department of Chemical, Pharmaceutical and Agricultural Sciences (DOCPAS), University of Ferrara, Italy, with a fellowship funded by the Istituto Superiore di Sanità (ISS), Rome.

Supervisor: Prof. Riccardo

[06/2025 – 10/2025] **Training in BLS-3 laboratory**

Istituto Superiore di Sanità (ISS)

Completed advanced training in BSL-3 (P3) laboratory practices at the Istituto Superiore d Sanità (ISS), Rome, with hands-on experience in HIV experimental virology, including transfection, titration, and infection assays using both pseudoviruses and replication-competent HIV strains.

[11/2025 – 07/2026] **Postdoctoral research fellowship**

University of Ferrara

Research fellowship focused on studying antibody functionality against HIV Tat and Env proteins through ADCC assays. Activities include evaluating human/animal sera and monoclonal antibodies in experimental settings funded by the Gates Foundation CAVD project. Hosted at University of Ferrara's DISAP Department for 6 months under Prof. Francesco Nicoli.

[08/2026 – Current] **Postdoctoral research fellowship**

Istituto Superiore della Sanità (ISS)

Research fellowship titled "Study of specific responses against TAT and ENV in HIV infection". Focuses on characterizing humoral and cellular immune responses against HIV Tat and Env proteins. Key responsibilities include evaluating antibody effector functions through ADCC and complementary functional assays, alongside further mechanistical studies on the Tat protein beyond ADCC. Tasks involve testing human/animal sera and monoclonal antibodies within the Bill & Melinda Gates Foundation CAVD project, performing experimental work in BSL-3 facilities at CNAIDS (ISS, Rome).

PROFESSIONAL SKILLS

Cell Culture

Cell culture expertise encompassing adherent and suspension cultures of primary cells and immortalized lines (e.g., Jurkat, HEK293T, PBMCs, TZMBL). Proficient in assessing cell proliferation (e.g.,MTT), in vitro priming/expansion of naïve/memory T and B cells, and routine maintenance/propagation. Experienced with FACS analysis for viability, phenotyping, and functional readouts.

Molecular Biology

- Cloning,
- Bacterial transformation

Flow cytometry

- Surface, intracellular, intranuclear and phosphoflow staining
- Immunological assays:
  - evaluation of antibody titers (IgA, IgG, IgM)
  - ELISA assays
  - detection of cytokine release (ELISpot, intracellular cytokines staining),
  - immunophenotyping
  - analysis of epitope- specific CD8 +T cells
  - assessment of cellular metabolism

Fluorescence Microscopy

for cellular imaging and analysis

Confocal Microscopy

- for cellular imaging and analysis
- for live-cell time-lapse

Animal Handling

Mice immunization, necropsy, collection of sera (according to DM 05/08/2021)

Virology

- Experience working in Biosafety Level 3 (BSL-3) laboratories
- Experienced in performing transfections with both HIV pseudoviruses and replication-competent viruses
- Skilled in virus titration using pseudoviruses and replication-competent HIV strains.
- Proficient in conducting infection assays with pseudoviruses and replication-competent HIV.

Safety training

High level (chemical, biological and physical risk) 29/05/2024

Performing statistical analysis of results

groups comparison with parametrical and non-parametrical statistic test and linear regression

Designing in vitro and in vivo experimental protocols

Software

- BD FACSDiva
- FlowJo software
- GraphPrism
- BioRender
- Fiji

LANGUAGE SKILLS

Mother tongue(s): Italian

Other language(s):

English

LISTENING B2 **READING** B2 **WRITING** B2

SPOKEN PRODUCTION B2 **SPOKEN INTERACTION** B2

French

LISTENING A2 **READING** A2 **WRITING** A1

SPOKEN PRODUCTION A2 **SPOKEN INTERACTION** B1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

PUBLICATIONS

[2024] **Age differentially impacts adaptive immune responses induced by adenoviral versus mRNA vaccines against COVID-19.**

Reference: Nature Aging. 2024 Aug. PMID: 38918602
Authors: Dallan B, P. D., D. L. M., G. E., Martino M, G. S., Z. A., V. S., G. B., B. M., A. V., A. V., B. S., L.-L. S., P. S., G. L., B. M., S. S., S. V., L. K., P. H. M., M. P. A. H., P. D., C. A., G. R., Nicoli F
Journal Name: Nature Aging

[2025] **Generation of a human induced pluripotent stem cell line (UNIFEi001-A) from a patient with Spinocerebellar ataxia type 1 (SCA1)**

Reference: Stem Cell Res. 2025 Mar PMID: 39892158.

Authors: Pappadà M, Melija S, Facchini M, Martino M, Minarini S, Caproni A, Nordi C, Rimessi P, Selvatici R, Marconi P. **Journal Name**: Stem Cell Res

CONFERENCES AND SEMINARS

[03/2023] **The Virtual School of Immunology 2023, SIICA Junior Faculty** Webinar

[05/2023] **14th National Congress of Immunology (SIICA)** Verona, Italy

[04/2024] **Flow Cytometry course** Urbino, Italy

Technical and methodological aspects in flow cytometry by BIOMEDIA

[07/2024] **8th National Congress of the Italian Society for Virology (SIV)** Bologna, Italy

[poster]

[07/2024] **16th Italian Conference on AIDS and Antiviral Research (ICAR)** Rome, Italy

[poster]

[07/2024] **25th International AIDS conference** Monaco, Germany

[poster]

[05/2025] **17th Italian Conference on AIDS and Antiviral Research (ICAR)** Padova, Italy

[poster]

[06/2025] **15th National Congress of Immunology (SIICA)** Perugia, Italy

[oral]

[06/2025] **9th National Congress of the Italian Society for Virology (SIV)** Torino, Italy

[poster]

KEY RESEARCH PROJECTS

[2019 – 2024] **T cell lipid metabolism as marker of HIV disease progression (MET-HIV)**

Funding: GILEAD-Fellowship Program

PI: Professor Antonella Caputo (University of Ferrara)

[2019 – 2024] **Evaluation of protective cellular immune responses against West Nile Virus (RICEPROWNV)**

Funding: AVIS

PI: Prof. Riccardo Gavioli (University of Ferrara)

SARS-CoV-2-specific immune responses induced by Pfizer and AstraZeneca vaccines in subjects of different age groups (RIV)

Funding: University of Ferrara

PI: Prof. Riccardo Gavioli (University of Ferrara)

[2022 – 2024] **Evaluation of Tat and Tat-Env as targets for HIV interventions**

Funding: Bill and Melinda Gates Foundation

PI: Prof. Riccardo Gavioli (University of Ferrara) and MD Ensoli Barbara (Istituto Superiore di Sanità)

[2024 – 2025] **Effect of physical activity on accelerated ageing trajectories: impact on cardiovascular diseases and ageing biomarkers**

Funding: PNRR- Italian Ministry of University and research

PI: Prof. Francesco Nicoli (University of Ferrara)

[2025 – 2026] **Arboviral diseases in Brazil, Italy and Tanzania: towards a comprehensive One Health strategy for the virological, epidemiological, entomological and immunological profiling**

Funding: CIHLMU One Health Network Funds

PI: Mkunde Chachage, CIH-Alumna (1University of Dar es Salaam-Mbeya College of Health and Allied Sciences; 2NIMR-Mbeya Medical Research Center, Tanzania)

[2025 – 2028] **Tat immunogens for HIV vaccines in Africa**

Funding: Bill and Melinda Gates Foundation

PI: Prof. Riccardo Gavioli (University of Ferrara) Dr.ssa Ensoli Barbara (Istituto Superiore di Sanità)

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sola del Liri, 09/10/2026