

Chiara Nordi

WORK EXPERIENCE

 **University of Ferrara** – Ferrara, Italy

City: Ferrara | Country: Italy

PhD Student in Advanced Therapies and Experimental Pharmacology (TAFS) – XXXVIII Cycle

[11/2022 – Current]

PhD research focused on the biology of HSV-1, its virus-host interactions, and pathogenesis. The study concentrated on immediate early genes, particularly the multifunctional ICP27 protein, to understand how these viral proteins interfere with host cellular defense mechanisms. This research aims to provide foundational knowledge for the development of novel therapeutic strategies targeting HSV-1 infection.

Another area of focus involved the investigation of natural substances with antimicrobial activity against human pathogens and phytopathogens, alongside environmental microbiology studies including sampling campaigns in healthcare and civilian environments.

Experimental procedures and technologies applied:

- General microbiology: cell cultures (primary and immortalized) in suspension and adhesion, biochemical analyses (cell differentiation, MTT, LDH assay, CAT assay);
- Virology: in vitro construction of herpes vectors using traditional methods and the BAC method, production and purification of viral maxi-stocks, viral infections, titration and staining of viruses produced, virucidal activity testing;
- Gene and protein analysis: extraction, purification, and quantification of DNA, RNA, and proteins, determination of protein concentration (Bradford or BCA), PCR and RT-qPCR, agarose and polyacrylamide gel electrophoresis (SDS-PAGE), western blotting;
- Immunology: immunofluorescence assay, purification of blood components, ELISA and ELISPOT assays (human and murine), flow cytometry (FACS);
- Preclinical studies: safety, efficacy, and immunogenicity studies of viral vectors as preventive and therapeutic vaccines in murine and guinea pig models.

Collaboration with other research groups:

1. Collaboration with the National HIV/AIDS Research Center (CNAIDS) of the Italian National Institute of Health (ISS) and the Helmholtz Center for Infection Research, for the project "Next generation antiviral agents based on Tat".
2. Collaboration on the research project coordinated by Prof. Peggy Marconi, in collaboration with Punto3 s.r.l. of Ferrara – Microbiological analysis of cleaning services in civil and healthcare environments.

Supervisor: Prof. Peggy Marconi.

 **University of Ferrara** – Ferrara, Italy

City: Ferrara | Country: Italy

Curricular internship Master's Degree

[02/2022 – 10/2022]

The training period as part of a project aimed at producing viral vectors for vaccine purposes and evaluating them through preclinical studies, included learning techniques in various fields:

- General microbiology: adherent and suspension cell cultures (primary and immortalized lines);
- Recombinant technologies: DNA extraction and purification, cloning, bacterial preparation and transformation, agarose gel electrophoresis, PCR, real-time PCR;
- Virology: in vitro production and application of herpes vectors, titration of viruses produced;
- Preclinical studies: evaluation of efficacy, safety, and immunogenicity in two animal models (mice and guinea pigs).

Supervisor: Prof. Peggy Marconi

 **University of Ferrara** – Ferrara, Italy

City: Ferrara | Country: Italy

Curricular internship Bachelor's Degree

[05/2019 – 07/2019]

The training period involved learning about Bi(III)-based therapies for the eradication of *Helicobacter Pylori*.

Potentiometric titrations were mainly carried out, followed by data processing using the Superquad and Glee programs.

Supervisor: Prof. Maurizio Remelli

EDUCATION AND TRAINING

PhD student in Advanced Therapies and Experimental Pharmacology (TAFS) – XXXVIII Cycle

University of Ferrara [11/2022 – Current]

City: Ferrara | Country: Italy

Master's Degree in Industrial Biotechnology (LM-8)

University of Ferrara [10/2020 – 10/2022]

City: Ferrara | Country: Italy | Final grade: 110/110 Cum Laude | Thesis: Herpes Simplex virus 1: in vitro and in vivo analysis of the properties of the HIV-1 Tat protein to combat herpes infection

Supervisor: Peggy Marconi

Bachelor's Degree in Biotechnology (L-2)

University of Ferrara [10/2017 – 07/2020]

City: Ferrara | Country: Italy | Final grade: 105/110 | Thesis: Bi(III)-based therapies for the eradication of Helicobacter Pylori: a "molecular" perspective

Supervisor: Maurizio Remelli

High School Diploma

Istituto Tecnico Industriale Statale "Nullo Baldini" [09/2012 – 07/2017]

City: Ravenna | Country: Italy | Final grade: 96/100

Fields of study: chemistry, materials and biotechnology

LANGUAGE SKILLS

Mother tongue(s): Italian

Other language(s):

English

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

SPOKEN PRODUCTION B2 **SPOKEN INTERACTION** B2

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

TECHNICAL SKILLS & COMPETENCES

Cell cultures

Adherent and suspension cell cultures (primary and immortalized cell lines); cell differentiation protocols; culture, maintenance and differentiation of iPSCs.

Biochemical assay

NRU, MTT, LDH, CAT assays

Molecular biology techniques

Extraction, purification and quantification of DNA, RNA and proteins; cloning; bacterial transformation; agarose and polyacrylamide gel electrophoresis; PCR and real-time PCR; protein quantification (Bradford or BCA); western blot; co-immunoprecipitation assay.

Blood separation techniques

Separation of blood components and isolation of mononuclear cells from whole blood by Ficoll density gradient centrifugation for downstream immunological assays.

Immunological assays

Immunofluorescence assay; antibody titration (ELISA for IgA, IgG and IgM); cytokine release detection (Elispot, ICS); immunophenotyping; evaluation of epitope-specific CD8⁺ T cells and cellular metabolism; cell proliferation assessment; in vitro activation of naive T cells; stimulation of memory T and B cells.

Virology

Design, production and in vitro application of HSV-based vectors (BAC technology); virus transfection; large-scale viral stock production and purification (opti-prep); in vitro and in vivo viral infections; viral titration and staining; virucidal activity assays.

Flow cytometry

Surface, intracellular and intranuclear staining.

Preclinical studies

Safety; efficacy and immunogenicity assessment of viral vectors as prophylactic and therapeutic vaccine candidates in murine models (C57/BL6 and Balb/C) and guinea pigs, in compliance with Italian Decree DM 05/08/2021; procedures include anesthesia, intradermal, subcutaneous, intravaginal, and intraperitoneal administration, blood sampling, organ collection, necroscopy.

Bioactive compounds

Extraction and analysis of bioactive compounds; functionalization of antimicrobial molecules; analytical profiling of plant extracts; principles, procedures and technologies of extraction methods.

Data Analysis

Statistical comparison of groups using parametric and non-parametric tests; linear regression analysis.

Software Proficiency

Microsoft Excel, GraphPad Prism, BioRender, ImageJ, FlowJo, STRING.

Safety training

Advanced level (chemical, biological and physical hazards); specific training within the BSL-3 laboratory.

PUBLICATIONS

[2025]

Eco-Friendly vs. Traditional Cleaning in Healthcare Settings: Microbial Safety and Environmental Footprint

Authors: R. Fontana, M. Buratto, A. Caproni, C. Nordi, M. Pappadà, M. Facchini, C. Buffone, B. Bandera, L. Vogli, P. Marconi | Journal Name: Hygiene | Volume, Issue and Pages: 5(3), 37

DOI: 10.3390/hygiene5030037

[2025]

Environmental Microbiological Sampling in Civil Settings: Comparative LCA Analysis of Green Cleaning Techniques vs. Traditional Methods in Accordance with New Italian CAM Guidelines

Authors: R. Fontana, L. Vogli, M. Buratto, A. Caproni, C. Nordin, M. Pappadà, M. Facchini, C. Buffone, B. Bandera, P. Marconi | Journal Name: Sustainability | Volume, Issue and Pages: 17(10), 4546

DOI: 10.3390/su17104546. [IF2024= 3.3].

[2025]

A multi-technique approach to enlighten the role of metal coordination in calcitermin antiviral properties

Authors: A. Caproni, S. Leveraro, K. Szarszon, C. Nordin, R. Fontana, M. Buratto, P. Marconi, M. Remelli, M. Sicurella, D. Bellotti | Journal Name: Analytical Biochemistry | Volume, Issue and Pages: 700, 115784

DOI: 10.1016/j.ab.2025.115784. [IF2024= 2.5].

[2025]

Sustainable vs. Conventional Cleaning in Healthcare: Microbiological and Life Cycle Insights

Authors: R. Fontana, L. Vogli, M. Buratto, A. Caproni, C. Nordin, M. Pappadà, M. Facchini, C. Buffone, B. Bandera, P. Marconi | Journal Name: Sustainability | Volume, Issue and Pages: 17(3), 1114

DOI: 10.3390/su17031114. [IF2024= 3.3].

[2024]

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

Authors: M. Pappadà, S. Melija, M. Facchini, M. Martino, S. Minarini, A. Caproni, C. Nordin, P. Rimessi, R. Selvatici, P. Marconi | Journal Name: Stem Cell Research | Volume, Issue and Pages: 83(15), 103637

DOI: 10.1016/j.src.2024.103637. [IF2024= 0.7].

[2024]

Herpes Simplex Virus ICP27 Protein Inhibits AIM 2-Dependent Inflammasome Influencing Pro-Inflammatory Cytokines Release in Human Pigment Epithelial Cells (hTert-RPE 1)

Authors: A. Caproni, C. Nordin, R. Fontana, M. Facchini, S. Melija, M. Pappadà, M. Buratto, P. Marconi | Journal Name: International Journal of Molecular Sciences | Volume, Issue and Pages: 25(9), 4608

DOI: 10.3390/ijms25094608. [IF2024= 4.9].

[2024]

Evaluating Cleaning Services in Civil Environments: Microbiological and Life Cycle Analysis Comparing Conventional and Sustainable Methods

Authors: R. Fontana, M. Buratto, A. Caproni, C. Nordin, M. Pappadà, B. Bandera, L. Vogli, C. Buffone, P. Marconi | Journal Name: Sustainability | Volume, Issue and Pages: 16(2), 487

DOI: 10.3390/su16020487. [IF2024= 3.3].

[2022]

Analysis of Civil Environments Cleaning Services—Microbiological and LCA Analysis after Traditional and Sustainable Procedures

Authors: R. Fontana, M. Marzola, M. Buratto, G. Trioschi, A. Caproni, C. Nordin, C. Buffone, B. Bandera, L. Vogli, P. Marconi | Journal Name: Sustainability | Volume, Issue and Pages: 15, 696

DOI: 10.3390/su15010696. [IF2024= 3.3].

CONFERENCES AND SEMINARS

[26/07/2025 – 30/07/2025] Berlin, Germany

49th Annual International Herpesvirus Workshop Poster: ICP27-driven suppression of host-immunity: effects on inflammasome activation and macrophage polarization in HSV-1 infection; A. Caproni, Chiara Nordin, B. Dallan, R. Fontana, M. Facchini, M. Pappadà, M. Buratto, P. Marconi.

Poster: Viral strategy meets cellular context: ICP27 tunes HSP expression in HSV-1 infection; [Chiara Nordin](#), A. Caproni, V. Boaretto, R. Fontana, M. Buratto, M. Facchini, M. Pappadà, P. Marconi.

[22/06/2025 – 24/06/2025] Torino, Italy

9th National Congress of the Italian Society for Virology. One Virology One Health Poster: ICP27-driven immune evasion in HSV-1 infection: implications for macrophage polarization; A. Caproni, [Chiara Nordin](#), B. Dallan, R. Fontana, M. Facchini, M. Pappadà, D. Ianni, M. Buratto, P. Marconi.

Poster: Stress response under viral command: ICP27 as a central regulator driving HSP dynamics during HSV-1 infection; [Chiara Nordin](#), A. Caproni, V. Boaretto, R. Fontana, M. Buratto, M. Facchini, M. Pappadà, P. Marconi.

[13/06/2025 – 14/06/2025] Messina, Italy

Congresso Nazionale della nuova Società Italiana di Microbiologia Farmaceutica ETS "SIMIF ETS" – 15° Incontro della Microbiologia Farmaceutica Oral presentation: Heat shock protein expression in HSV-1-infected neuron-like cells: the role of ICP27; [Chiara Nordin](#), A. Caproni, V. Boaretto, R. Fontana, M. Buratto, M. Facchini, M. Pappadà, P. Marconi.

[24/01/2025] Ferrara, Italy

Enterovirus, arbovirus e altri virus emergenti: un approccio one-health dalla prevenzione alla cura

[21/10/2024 – 23/10/2024] Bertinoro, Italy

11th European Seminar in Virology (EuSeV), Viral Vectors – from Basic Research to Clinical Application Poster: Preventive vaccines against Herpes Simplex 1: in vivo evaluation of efficacy and immunogenicity induced by the non-replicative herpes vector T0TatGFP; A. Caproni, [Chiara Nordin](#), B. Dallan, D. Proietto, E. Tassani, E. Torreggiani, A. Cafaro, O. Picconi, B. Ensoli, A. Caputo, R. Gavioli, F. Nicoli, P. Marconi.

[07/07/2024 – 09/07/2024] Bologna, Italy

8th National Congress of the Italian Society for Virology. One Virology One Health Poster: Heat shock protein expression: role and influence of HSV-1 ICP27 protein in SH-SY5Y cells; [Chiara Nordin](#), A. Caproni, V. Boaretto, R. Fontana, Nordin C., M. Buratto, M. Facchini, S. Melija, M. Pappadà, P. Marconi.

Poster: Modulation of innate immune response: HSV-1 ICP27 protein inhibits Aim 2 inflammasome pathway during HSV-1 infection; A. Caproni, [Chiara Nordin](#), R. Fontana, V. Boaretto, M. Buratto, M. Facchini, S. Melija, M. Pappadà, P. Marconi.

[25/03/2024 – 28/03/2024] Vienna, Austria

33rd Annual Meeting of the Society for Virology

[25/06/2023 – 27/06/2023] Brescia, Italy

7th National Congress of the Italian Society for Virology Poster: The role of the ICP27 protein of HSV-1 on inflammasome activation; A. Caproni, [Chiara Nordin](#), C. Coccomini, R. Fontana, M. Buratto, M. Pappadà, P. Marconi.

[23/06/2023 – 24/06/2023] Roma, Italy

Congresso Nazionale della nuova Società Italiana di Microbiologia Farmaceutica ETS "SIMIF ETS" – 14° Incontro della Microbiologia Farmaceutica, Prevenzione e terapia delle malattie infettive in un'ottica One-Health Poster: Herpes simplex virus ICP27 may act as immunoevasor by interfering with the inflammasome activation in HRPE cells and macrophages; A. Caproni, [Chiara Nordin](#), C. Coccomini, R. Fontana, M. Buratto, M. Pappadà, P. Marconi.

Poster: Antimicrobial effects of wheat fermented extracts against Staphylococcus aureus, cytotoxicity and biochemical aspects; A. Caproni, R. Fontana, [Chiara Nordin](#), M. Marzola, M. Buratto, M. Pappadà, S. Manfredini, P. Marconi.

Poster: Antibiofilm effects of moringa oleifera extracts against Staphylococcus aureus and Pseudomonas aeruginosa; cytotoxicity, biochemical aspects and anti-inflammation properties; R. Fontana, A. Caproni, [Chiara Nordin](#), M. Buratto, M. Pappadà, S. Manfredini, P. Marconi.

[18/09/2022 – 22/09/2022] Napoli, Italy

50° Congresso Nazionale della Società Italiana di Microbiologia Poster: Profile of antibacterial activity of Moringa oleifera Lam. single phenols against the phytopathogen Xanthomonas campestris pv. Campestris; A. Caproni, R. Fontana, [Chiara Nordin](#), M. Marzola, G. Trioschi, O. Bonucelli, M. Sicurella, S. Manfredini, A. Baldisserotto, P. Marconi.

Poster: Effects on Xanthomonas campestris pv. campestris by Moringa oleifera Lam. leaf fermented extracts; A. Caproni, R. Fontana, [Chiara Nordin](#), M. Marzola, M. Buratto, F. Salvatori, M. Pappadà, A. Baldisserotto, S. Manfredini, R. Buzzi, P. Marconi.

Poster: Antibiofilm activity of Moringa oleifera Lam. leaf extracts by Scanned Electron Microscopy visualization against Xanthomonas campestris pv. Campestris; A. Caproni, R. Fontana, [Chiara Nordin](#), M. Marzola, M. Buratto, F. Salvatori, M. Pappadà, A. Baldisserotto, S. Manfredini, R. Buzzi, P. Marconi.

TUTORING, EDUCATIONAL ACTIVITIES

[07/02/2025]

Teaching tutor during the information day on sexually transmitted diseases (STM)

Teaching tutor in "Microbiology" for the Bachelor's Degrees in Biotechnology and Biological Sciences

Department of Environmental Science and Prevention (40 hours). SSD: Med 07

Academic Year: 2024/2025

Teaching tutor in "Microbiology and Applied Microbiology" for the Master's Degree in Pharmaceutical Chemistry and Technology

Department of Chemical, Pharmaceutical, and Agricultural Sciences (48 hours). SSD: Med 07

Academic Year: 2024/2025

Teaching tutor in "Microbiology and Applied Microbiology" for the Master's Degree in Pharmaceutical Chemistry and Technology

Department of Chemical, Pharmaceutical, and Agricultural Sciences (48 hours). SSD: Med 07

Academic Year: 2023/2024

[2022 – 2025]

Supervisor for the following students at the University of Ferrara

Master's Degree in Chemical, Pharmaceutical, and Agricultural Sciences: 1 student

Master's Degree in Biotechnology: 1 student

Bachelor's Degrees in Biotechnology, Biological Sciences and Medical Biotechnology: 4 students

RESEARCH ACTIVITIES - AREAS OF INTEREST

HSV-1 Biology and Host-Pathogen Interaction

Study of the biology of HSV-1 and its interactions with the host, with a particular focus on the regulatory functions of immediate early genes, especially the multifunctional ICP27 protein encoded by the UL54 gene.

Molecular Virology and Stress Response Pathways

Analysis of the role of heat shock proteins (HSPs) during HSV-1 infection and their correlation with the maintenance of homeostasis across different cellular contexts, including epithelial and neuronal cells.

Host Cellular Survival during HSV-1 infection

Study of the apoptosis' mechanisms to which host epithelial and neuronal cells are subjected following HSV-1 infection.

HSV-1 Infection and Tau Protein in Alzheimer's Disease Pathogenesis

Study of the relationship between HSV-1 infection and the pathogenesis of Alzheimer's disease, with particular focus on the Tau protein.

Sustainability

Investigation of natural antimicrobial compounds targeting both human and plant pathogens. This includes the evaluation of phytopathogens and the potential reuse of natural waste materials within a circular economy framework. Additionally, environmental microbiology research has been conducted, involving systematic sampling of microbial contamination in healthcare and community settings.

La sottoscritta autorizza il trattamento dei propri dati personali ai sensi del GDPR 679/16 "Regolamento europeo sulla protezione dei dati personali". La sottoscritta acconsente alla pubblicazione del presente curriculum vitae sul sito dell'Università degli Studi di Ferrara.

Ferrara, 08/10/2025