

Maria Giuseppa Caso

WORK EXPERIENCE

[01/10/2025 – Current] **PhD Fellow**

PhD Fellow in Biomedical Sciences

Supervisors: Edoardo Moretto, Chiara Verpelli and Riccardo Brambilla

University of Pavia; Institute of Neuroscience - National Council of Research

City: Pavia | **Country:** Italy

[06/2024 – Current] **Research fellow**

The project I am currently working on aims to characterise defects in axonal bundles and their contribution to neurodegeneration in both neuronal cultures and in an Alzheimer's disease mouse model by using live microscopy, biochemistry and state of the art in vivo imaging techniques (two-photon microscopy).

Techniques learned: dissection of mouse embryos and culturing of primary cortical and hippocampal neurons; transfection; lentiviral particles production; live imaging for organelle transport and subsequent analysis of the videos with an ImageJ plugin; production of microfluidic devices; management of mice in facility (weaning, weighting, ear punch, mating).

Supervisors: Edoardo Moretto and Chiara Verpelli

Laboratory of Immunobiology, Department of Biomedical and Clinical Sciences, University of Milan

City: Milan | **Country:** Italy

[02/2024 – 05/2024] **Research Collaborator**

My research activity was divided between two projects: the first one was aimed at assessing the reservoir of HIV in blood and gut following switching from 3-drug retroviral regimens to 2-drug regimens in virologically suppressed patients.

Techniques learned: homogenization of anorectal biopsy samples and consequent extraction of proteins and RNA; NanoDrop quantification of RNA; back-transcription of RNA into cDNA and qPCR of specific targets. The second project was aimed at the characterization of the ERAP2 protein in the autophagic process.

Techniques learned: collection of blood samples from volunteers; automatic extraction of DNA from blood with Maxwell; genotyping by qPCR, using TaqMan probes; isolation of Peripheral Blood Mononuclear Cells (PBMCs) from blood samples, cell counts, and plating; differentiation of monocytes into macrophages using the differentiation factor M-CSF; stimulation/inhibition of autophagy with, respectively, Rapamycin and 3-Methyladenine; protein extraction, quantification using the Lowry-Folin method and consequent western-blot to evaluate the expression of ERAP2 and autophagy-bound proteins (mTor, p-mTor, p62, LC3, CHOP).

Supervisors: Daria Trabattoni and Mara Biasin

Laboratory of Synapse Biology, VIB-KU Leuven Center for Brain & Disease research

City: Leuven | **Country:** Belgium

[01/2023 - 12/2023] **Internship**

In my 1-year experience I contributed to the investigation of the effect of pore-forming family member Brinp2 on neurodevelopment.

Acquired techniques: seeding and splitting of HEK cells; maintenance of primary cultures of hippocampal neurons; production of plasmids and related mutants through cloning in E. Coli; extraction of plasmids by mini- and midi-prep; production of lentiviruses in HEK cells and consequent transduction into neuronal cultures; chemical induction of long-term potentiation; immunohistochemistry (surface staining and intracellular staining); imaging of neurons and HEK cells under the confocal microscope (Zeiss LSM 880 Airyscan and Nikon AX), consequent image analysis on ImageJ, SynD (MatLab) and statistical analysis on SPSS and R. Attendance of the course and acquisition of FELASA certification for in vivo work; manipulation of mouse models (WT, BRINP2 KO and APP KI), anesthesia with isofluorane and sacrifice by decapitation; brain dissection and freezing in OCT (fresh-frozen); production of coronal sections at the cryostat; in-situ hybridization techniques (RNAScope and BaseScope).

Supervisor: Joris de Wit

*Laboratory of Medical Genetics, Center for Advanced Studies and Technology,
University of Chieti*

City: Chieti | **Country:** Italy | **Name of unit or department:** Supervisor: Ivana Antonucci

[07/2020 - 09/2020] **Internship**

In the months spent in the laboratory I was involved in the diagnosis of cystic fibrosis, through the identification of the most frequent mutations in Italy and in Europe, and of Y microdeletions. I became competent in the application of some molecular techniques such as DNA extraction, PCR, gel and capillary electrophoresis and Sanger sequencing.

Supervisor: Ivana Antonucci

**EDUCATION AND TRAIN-
ING**

[22/10/2025 - 24/10/2025] **Training course**

Scuola di microscopia - Precision Microscopy

City: Bologna | **Country:** Italy |

[30/09/2024 - 03/10/2024] **Training course**

Advanced Imaging Techniques

City: Cagliari | **Country:** Italy |

Organized by IN - CNR

[26/09/2024] **Training course**

Risk assessment of GMMs in the Laboratory, biological and regulatory aspects

Organized by University of Milan-Bicocca

[10/2023 - 11/2023] **FELASA B certificate**

KU Leuven

Course on Laboratory Animal Science organized by KU–Leuven. The course includes 30 hours of theory about legislation, housing and transport of laboratory animals, zootechnics, anatomy and physiology, genetic standardisation and transgenesis, anaesthesia, analgesia and euthanasia, hygiene and microbiological standardisation, pathology, use of alternatives, behaviour and wellbeing, experimental techniques, ethics, working safely with laboratory animals and feeding of laboratory animals and 10 hours of practical course (small laboratory animals, case studies).

[10/2021 – 02/2024] **Master Degree**

Università degli Studi di Milano

City: Milano | **Country:** Italy | **Field(s) of study:** Medical biotechnology and molecular medicine | **Final grade:** 110/110 cum laude | **Thesis:** The role of pore-forming family member BRINP2 in neuronal function

[2018 – 2021] **Bachelor Degree**

Università degli Studi di Urbino "Carlo Bo"

City: Fano (PU) | **Country:** Italy | **Field(s) of study:** Biotechnology | **Final grade:** 110/110 cum laude | **Thesis:** The epitranscriptome and its implications in neuronal development

[2013 – 2018] **High school diploma**

Liceo scientifico statale "Filippo Masci"

City: Chieti | **Country:** Italy | | **Final grade:** 100/100

PUBLICATIONS

[2026] **Aberrant tau accumulation caused by MAPT mutations induces early pathological changes 1 in axonal transport that are rescued by p38 α inhibition**

Authors: Moretto E, Masato A., Panzi C, Stuart S, De La-Rocque S, White IJ, Caso MG, Harris S, Busche MA, and Schiavo G. | **Journal Name:** Nature Neuroscience

[2026] **NMDAR-mediated nuclear traslocation of PCDH9 C-terminal tail regulates neuronal function**

Authors: Miozzo F, Zambrano Avendano A, Caso MG, Valentino B, Hirano S, Moretto E, Murru L, Passafaro M | **Journal Name:** Frontiers in Cellular Neuroscience

[2025] **Social isolation: an integrated molecular web that disrupts cellular homeostasis**

Authors: Qaisiya M, Moretto E, Battocchio E, Pistella A, Caso MG, Bellani M, Guarnieri FC | **Journal Name:** Frontiers in Neuroscience

CONFERENCES AND SEMINARS

[10/09/2025 – 13/09/2025] **21st National Congress of the Italian Society of Neuroscience**

Abstract accepted for poster presentation: **Caso MG** and Moretto E. Investigating A β -tau mediated axonal dysfunction in Alzheimer's disease

[24/04/2025 – 25/04/2025] **Tau Global Conference** London, UK

Poster presentation: **Caso MG** and Moretto E. *Investigating A β -tau mediated axonal dysfunction in Alzheimer's disease*

Organized by Alzheimer's Association, CurePSP and the Rainwater Charitable Foundation.

[03/03/2025 – 04/03/2025] **Microscopia avanzata e multimediale** Milan

Organized by University of Milan–Bicocca

[30/09/2024 – 03/10/2024] **IN - CNR Retreat 2024** Cagliari

Organized by IN – CNR

Organized by VIB

NETWORKS AND MEMBERSHIPS

Italian Society of Neuroscience

Member – under 35

LANGUAGE SKILLS

Mother tongue(s): Italian

Other language(s):

English

LISTENING C1 **READING** C1 **WRITING** C1

SPOKEN PRODUCTION C1 **SPOKEN INTERACTION** C1

French

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

SPOKEN PRODUCTION A1 **SPOKEN INTERACTION** A1

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

SKILLS

Microsoft Office: proficient user of Word, Excel and Powerpoint | ImageJ | GraphPad | PRISM

COMMUNICATION AND INTERPERSONAL SKILLS

Personal abilities

- Able to work both in team and individually
- Great attitude towards organization and planning