

# Ilaria Maria Morella, Curriculum Vitae

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## PERSONAL STATEMENT

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I am Tenure-Track Assistant Professor of Neuropharmacology at the University of Pavia since June 2024. My current research focusses on identifying novel therapeutic and diagnostic strategies for 16p11.2 copy number variants (CNVs), associated with neurodevelopmental disorders. To achieve this, I integrate human induced pluripotent stem cells (iPSCs)-derived neuronal models with the analysis of peripheral biomarkers in patients carrying the 16p11.2 CNVs.

Since my undergraduate training, I have been interested in the mechanisms of signal transduction with a particular focus on the pathophysiology of the basal ganglia. My academic training and research experience provided me with relevant expertise in cell biology and behavioural neuropharmacology, that I applied in the field of translational neuroscience. From January 2013 until December 2024, I worked as post-doctoral researcher in Prof. Brambilla's laboratory at Cardiff University (UK), where I contributed to several research projects aimed at testing innovative pharmacological approaches based on drug repurposing and the development of cell permeable peptides. As demonstrated by multiple peer-reviewed publications, these compounds showed efficacy in mouse models of cocaine addiction and neurodegenerative disorders. In particular, I demonstrated the neuroprotective and cognitive enhancing effects of a novel ERK modulator. As a complementary approach, I also employed viral vector technologies to manipulate gene expression in vivo (Indrigo and Morella et al, EMBO Mol Med, 2023).

From 2019 until 2023, I contributed to a multidisciplinary project funded by the Medical Research Council that aimed to develop new diagnostic and therapeutic strategies for 16p11.2 deletion and duplication syndromes. Within this project, I had the opportunity to complement in vivo approaches in rodent models with biomarkers studies in patients, while developing relevant expertise in human iPSC models of 16p11.2 CNVs. This project led to the identification of the first potential peripheral biomarker for 16p11.2 syndromes, correlating with autistic traits (Morella et al, BioRxiv, 2026). In parallel, we demonstrated specific alterations in striatal neurogenesis in 16p11.2 CNVs neuronal models (Fjodorova et al, BioRxiv, 2025). Since June 2024, I have been expanding these research projects at the University of Pavia, where I also serve as Co-Director of the Interdepartmental Neural Stem Cells Facility.

## EDUCATION

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- 2022    **Second Level Specialising Master's degree in Dietetics and Clinical Nutrition**  
Università di Pavia  
Thesis: "Nutrition and exercise as modulators of the "gut-muscle-brain axis": implication for cognitive aging"  
Supervisor: Dr. Massimo Negro  
Grade: **100/100 cum laude**
- 2013    **PhD in Molecular and Cellular Biology**  
Università degli studi di Milano  
Thesis: "Development of an ex-vivo system of adult brain slices to investigate the role of ERK pathway in the striatal signalling"  
Supervisor: Prof. Renata Zippel, co-supervisor: Prof. Riccardo Brambilla  
Grade: **Excellent**
- 2008    **Master's Degree in Molecular Biology**  
Università degli studi di Milano  
Thesis: "Studying the functional role of the interaction between Ras-GRF1 and Hrs"  
Supervisor: Prof. Renata Zippel, co-supervisor: Dr. Graziano Colombo  
Grade: **109/110**

2006 **Bachelor's Degree in Biological Sciences**  
Università degli studi di Milano  
Thesis: "Role of the N-terminal region of Ras-GRF1 in stress granules formation"  
Supervisor: Prof. Renata Zippel, co-supervisor: Dr. Simona Baldassa  
Grade: **110/110**

## RESEARCH POSITIONS

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|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 01/06/2024-ongoing    | <b>Tenure-track Assistant Professor</b> at Università di Pavia, Department of Biology and Biotechnology "Lazzaro Spallanzani"                                                                                 |
| 01/03/2024-ongoing    | <b>Honorary Research Fellow</b> at Cardiff University, School of Medicine, Division of Psychological Medicine and Clinical Neuroscience, Cardiff, UK                                                          |
| 1/11/2019-31/12/2023  | <b>Post-doctoral researcher</b> at Cardiff University, School of Biosciences, Neuroscience and Mental Health Innovation Institute, Cardiff, UK                                                                |
| 1/12/2017-31/10/2019  | <b>Early Career Research fellow</b> at Cardiff University, School of Medicine, Neuroscience and Mental Health Innovation Institute, Cardiff, UK                                                               |
| 1/11/2018-31/01/2019  | <b>Visiting scientist</b> at the Central Institute for Mental Health, Institute of Psychopharmacology, Mannheim, Germany                                                                                      |
| 18/04/2015-30/11/2017 | <b>Post-doctoral researcher</b> at Cardiff University, School of Biosciences, Neuroscience and Mental Health Innovation Institute, Cardiff, UK                                                                |
| 31/01/2013-17/04/2015 | <b>Post-doctoral researcher</b> at Cardiff University, School of Biosciences, Neuroscience and Mental Health Innovation Institute, Cardiff, UK, in collaboration with San Raffaele Research Institute, Milano |

## TEACHING

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| 2026-ongoing | <b>Lecturer</b> on "Integrated Laboratory of Pharmaceutical Biotechnologies" (Bachelor's degree in Biotechnology, Università di Pavia)                                                                                                                                |
| 2024-ongoing | <b>Lecturer</b> on "Neurochemistry, Neuropharmacology and Neurogenetics" class (Master's Degree in Neurobiology, Università di Pavia) and on "Pharmacology and Experimental Therapy" class (Master's degree in Experimental and Applied Biology, Università di Pavia) |
| 2024-ongoing | <b>Lecturer</b> on "Comparative Neurodevelopment and Neural Stem Cells" class (Master's Degree in Neurobiology, Università di Pavia)                                                                                                                                  |
| 2020-ongoing | <b>Thesis main supervisor</b> and <b>co-supervisor</b> for MSc and BSc students (MSc in Neurobiology, BSc in Biological Sciences, BSc in Biotechnology)                                                                                                               |
| 2023-2024    | <b>Contract professor</b> on "Molecular and Cellular Pharmacology" (Bachelor's Degree in Biotechnology, Università di Pavia)                                                                                                                                          |
| 05/2023      | <b>Instructor</b> on the "Integrated Laboratory of Pharmaceutical Biotechnologies, Pharmacology module" (3 hours) for the Bachelor's Degree in Biotechnology (curriculum Chem-Pharma-Tech), Università di Pavia                                                       |
| 2022-2024    | <b>Contract professor</b> on "Comparative Neurodevelopment and Neural Stem Cells (3 CFU) for the Master's Degree in Neurobiology, Università di Pavia                                                                                                                 |

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| 05/2022   | Delivered <b>seminars</b> (2 hours) for the Neuropharmacology class, Master's Degree in Neurobiology, Università di Pavia                                     |
| 2019-2020 | <b>Instructor</b> on the "Quantitative analysis practical" for the Fundamental Neuroscience module, Bachelor's Degree in Neuroscience, Cardiff University, UK |

## EDITORIAL, PEER-REVIEW AND EVALUTATION ACTIVITIES

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| 03/2026         | <b>Member of the Evaluation Panel</b> for the "Scholarships-Master's Degree Programmes for All Disciplines 2026-2027", invited by the German Academic Exchange Service (DAAD), to assess and select international candidates for postgraduate study programmes in biological disciplines at German Universities |
| 06/2024-09/2026 | <b>Guest Associate Editor</b> , invited by Frontiers in Pharmacology to manage the article collection: "Potential therapeutic targets in alcohol use disorder: insights from recent preclinical studies"                                                                                                        |
| 2024            | <b>Grant reviewer</b> for UK Research and Innovation                                                                                                                                                                                                                                                            |
| 01/2023-05/2024 | <b>Guest Associate Editor</b> , invited by Frontiers in Cellular Neuroscience to manage the article collection: "Cellular and Molecular Mechanisms in Social and Repetitive Behaviour: A focus on Cortico-Striatal circuitry"                                                                                   |
| 2023-present    | <b>Reviewer</b> for Translational Psychiatry, iScience, Neuropharmacology, Frontiers in Neuroscience, Frontiers in Aging Neuroscience, Cellular and Molecular Neurobiology, Molecular Metabolism                                                                                                                |

## ACADEMIC QUALIFICATIONS AND CERTIFICATIONS

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| 06/2026 | <b>Italian National Qualification (ASN) for Associate Professor</b> (disciplinary field 05/G1-Pharmacology, Clinical Pharmacology and Pharmacognosy)                            |
| 2023    | <b>Certificate in Non-Clinical Psychopharmacology</b> , issued by the British Association of Psychopharmacology after a residential course in Cambridge, UK (March 13-16, 2023) |

## FELLOWSHIPS

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| 1/12/2018-31/10-2019 | Recipient of an <b>Early Career Research Fellowship</b> , awarded by the Wellcome Trust (30867 GBP), to work on the project: "Dissecting the role of Ras-ERK signalling in 16p11.2 deletion and duplication mouse models"                                                                                                                                                                                                                                                     |
| 1/12/2017-30/11/2018 | Recipient of an <b>Early Career Research Fellowship</b> , awarded by The Waterloo Foundation (35098 GBP), to work on the project: "Dissecting the role of Ras-ERK signalling in neurodevelopmental disorders"                                                                                                                                                                                                                                                                 |
| 1/11/2018-31/1/2019  | Recipient of the <b>short-term fellowship</b> "Research stays for University Academics and Scientists", awarded by the German Academic Exchange Service (DAAD) (6200 EUR).<br>This fellowship funded a 3 months-research visit at the Central Institute for Mental Health, Institute of Psychopharmacology (Prof. Rainer Spanagel's lab), Mannheim, to work on the project: "Evaluation of the pro-rewarding and antidepressant properties of a novel cell permeable peptide" |

## OTHER AWARDS

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| 2024    | Recipient of the <b>intramural new faculty award BOOST</b> (€5000)                                                                                                                                                                                                                                       |
| 10/2023 | Recipient of a <b>travel grant</b> awarded by The Guarantors of Brain to attend SfN conference 2023, in Washington DC (1000 GBP)                                                                                                                                                                         |
| 04/2018 | Recipient of 3 <b>travel grants</b> awarded by the British Neuroscience Association (400 GBP), FENS (600 EUR) and The Guarantors of Brain (600 GBP) to attend FENS meeting 2018, in Berlin                                                                                                               |
| 09/2018 | Recipient of a <b>travel grant</b> (600 EUR), awarded by the European COST Association (eCOST), to attend the training school/hand-on workshop “Convergence Neuroscience. Phenotyping animal models of neurodevelopmental disorders” at the Italian Institute of Technology, Genova (October 8-12, 2018) |

## PATENTS

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- A. Papale, **I. Morella**, S. Fasano and R. Brambilla. Therapeutic for treating neuropsychiatric disorders or conditions (GB1606811.6, 19th Apr 2016)

## SCIENTIFIC SOCIETIES MEMBERSHIPS

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Member of FENS, Society for Neuroscience, Società Italiana di Neuroscienze, Società Italiana di Farmacologia, British Association for Psychopharmacology, European Molecular and Cellular Cognition Society (EMCCS).

## ATTENDANCE TO SCIENTIFIC MEETINGS

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- June 16-17, 2026, Biomedical Campus Retreat, Pavia. **Session chair** (Session title: “Hematopoiesis in health and pathology”).
- June 16-17, 2026, Biomedical Campus Retreat, Pavia. Morella et al “p70 ribosomal protein S6 kinase (p70S6K) as a potential peripheral biomarker for autistic symptoms in 16p11.2 deletion and duplication syndromes”. **Poster presenter.**
- September 4-5, 2025, “NEUROFRONT: Frontiers of Research in Neuroscience and Nervous system disorders”, Bari. Morella et al “p70S6 kinase as a peripheral biomarker for neurodevelopmental disorders associated with 16p11.2 copy number variants”. **Speaker.**
- June 8-11, 2025, “Meeting of the Polish Pharmacological Society”, Jaszowiec. Morella et al “Cortico-striatal dysfunctions in neurodevelopmental disorders associated with 16p11.2. Copy number variants: insights from mouse models and human iPSC-derived medium spiny neurons”. **Speaker.**
- November 13-16, 2024, 42th SIF National Congress, Sorrento. Morella et al “ERK signalling in the neurodevelopmental disorders associated with 16p11.2 copy number variants”. **Poster presenter.**
- September 27, 2024, “MNESYS-Stem Cells Workshop”, Pavia. Morella et al “Characterisation of human iPSC-derived neurons to understand the pathological mechanisms underlying 16p11.2 deletion and duplication syndromes”. **Organiser and speaker.**
- September 14-17, 2023, 20th National Congress of the Italian Society for Neuroscience, Turin. Morella et al “Cell signalling modulation of cortical and subcortical development in human and mouse models of 16p11.2 copy number variants”. **Speaker.**
- May 18-20, 2023, Workshop of the European Molecular and Cellular Cognition society, Nora. “ERK signalling in the neurodevelopmental disorders associated with 16p11.2 copy number variations”. **Speaker.**
- November 16-19, 2022, 41th SIF National Congress, Rome. Morella et al “Importin $\alpha$ 1/KPNA2-mediated nuclear ERK1/2 signaling potentiation prevents neurodegeneration and facilitates cognitive enhancement”. **Speaker.**

- July 11-15, 2020, FENS Virtual Forum. Morella et al “Pharmacogenetic potentiation of ERK signalling enhances cognition in mouse models of Huntington’s disease”. **Poster presenter.**
- July 7-11, 2018, FENS Forum, Berlin. Morella et al “Validation in rodent models of a novel approach to treat mood disorders based on ERK stimulation”. **Poster presenter.**
- July 6th, 2018, 8th meeting of the European Molecular and Cellular Cognition Society, Berlin. Morella et al “Validation in rodent models of a novel approach to treat mood disorders based on ERK stimulation”. **Poster presenter.**
- May 24th, 2018, Waterloo Foundation Annual Conference, Cardiff. Morella et al: “Pharmacological inhibition of ERK signalling rescues pathophysiology and behavioural phenotype associated with 16p11.2 chromosomal deletion in mice”. **Poster presenter**
- November 29-30, 2017, 4th Annual Drug Discovery Congress, Life Science Research Network Wales, Cardiff. Morella et al “Validation in rodent models of a novel approach to treat mood disorders based on ERK stimulation”. **Speaker.**
- April 10-13, 2017, BNA2017 Festival of Neuroscience, Birmingham. Morella et al “Impairment of cocaine-mediated behavioural responses by clinically relevant Ras-ERK inhibitors”. **Poster presenter.**
- July 5-9, 2014, FENS Forum, Milan. Morella et al “Validating two novel cell penetrating peptides for the treatment of dopamine-dependent disorders of the basal ganglia”. **Poster presenter.**
- July 3-4, 2014, 6th meeting of the European Molecular and Cellular Cognition Society, Milan. Morella et al “Validating two novel cell penetrating peptides for the treatment of dopamine-dependent disorders of the basal ganglia”. **Poster presenter.**
- July 14-18, 2011, 8th IBRO World Congress of Neuroscience, Florence. Morella et al “Studying the Ras-ERK pathway through single cell analysis in acute brain slices”. **Poster presenter.**
- October 29-31, 2009, EMBL International PhD symposium “Puzzles in biology. Putting the pieces together”, Heidelberg. Morella et al “Ras-GRF1 interacts with Hrs and modulates Hrs-mediated signalling”. **Poster presenter.**