Curriculum Vitae Benedetta Avesani

Personal Information

Name and Surname: Benedetta Avesani
Date and Place of birth: 08/01/2002, Verona (VR), Italy
Nationality: Italian
Address: Via Carlo Alberto dalla Chiesa, 9A, Castel d'Azzano 37060 (VR)
Phone: 342 9500857
E-mail: avesanibenedetta@gmail.com - benedetta.avesani@univr.it

Education

- ***PhD Student in Inflammation, Immunity and Cancer*** – University of Verona, 2025 – present
  Research activity at the General Pathology section, Department of Medicine.
  Supervisor: Prof. Elena Zenaro
  Co-Supervisor: Dr. Laura Marongiu

- ***Master's Degree in Molecular and Medical Biotechnology (LM-9)*** – University of Verona, 2023 – 2025
  Thesis title: "*High-Resolution Spatial Transcriptomics for Biomedical research: in-house experimental setup of Open-ST*" – Supervisor: Prof. Elena Zenaro – Co-Supervisor: Dr. Monica Castellucci
  Final grade: 110/110 *cum laude*

- ***Bachelor's Degree in Biotechnology (L-2)*** – University of Verona, 2020 – 2023
  Thesis title: "*Studi delle funzioni di E3 ligasi nel pathway di NF-kB*" – Supervisor: Prof. Daniele Guardavaccaro – Co-Supervisor: Dr. Angela Lauriola
  Final grade: 104/110

- High School diploma – Liceo statale Galileo Galilei (VR) indirizzo linguistico, 2015 – 2020
  Final grade: 92/100

Research experiences and thesis

- ***Master's Internship*** (9 months) – Laboratory of Prof. Elena Zenaro, General Pathology Section, Department of Medicine, University of Verona. The internship focused on developing a ***High-Resolution Spatial Transcriptomics protocol*****.** The thesis aimed to optimize a sequencing-based spatial transcriptomics workflow applicable to various murine and human tissues. This method provides high-resolution data on molecular intercellular interactions, with particular relevance to neurodegenerative disease research. Specifically, the technique will be used to investigate the role of the gut–brain–microbiota axis in Alzheimer's disease pathogenesis, contributing to understanding host–microbiota communication in line with the infectious hypothesis of the disease.

  Thanks to this project I acquired skills in:

  - ✓ Extraction of organs from mice particularly the brain and hippocampus dissection;
  - ✓ Use of cryostat and sectioning of fresh-frozen tissues;
  - ✓ Hematoxylin and eosin staining;
  - ✓ RNA extraction from tissues;
  - ✓ General knowledge of cell permeabilization, reverse transcription, qPCR, library preparation, and sequencing;
  - ✓ Basic knowledge of flow cytometry.

- ***Bachelor's Internship*** (3 months) – Laboratory of Prof. Daniele Guardavaccaro under Dr. Angela Lauriola, Department of Biotechnology, University of Verona.

  Thesis title: **"*Study of E3 Ligase Functions in the NF-κB Pathway*".** The project aimed to investigate the role of the E3 ubiquitin ligase RNF32 in the NF-κB pathway. RNF32 binds the IKK complex, which is known to form condensate-like structures through NEMO binding to linear and K63 polyubiquitin chains. RNF32 is required for NF-κB activation in response to ionomycin and PMA-induced calcium levels, but not to other stimuli (TNF-α, IL-1β). The study examined RNF32 condensate formation and co-localization with NEMO in U2OS cells following ionomycin and PMA treatment.

Thanks to this project I acquired skills in:

- ✓ Molecular biology techniques and understanding of the NF-κB pathway and ubiquitination;
- ✓ Cell culture: HELA, U2OS, and HEK293T cell lines;
- ✓ U2OS cell transfection with PEI;
- ✓ Cell permeabilization and fixation on slides for fluorescence microscopy;
- ✓ Image acquisition and analysis using *Fiji* software.

Courses and Conferences

- Theoretical course: "*Introduction to the Agilent Seahorse XFe24 Analyzer: Principles, Applications, and Impact Across Biological Research*", Centro Piattaforme Tecnologiche, University of Verona – May 2025
- Theoretical and practical course: "*What is Flow Cytometry? Components, applications and tips*", Centro Piattaforme Tecnologiche, University of Verona - May 2025
- Basic theoretical course for performing functions A, B, C, and D on mouse (*Mus musculus*), rat (*Rattus norvegicus*), and zebrafish (*Danio rerio*) according to D.M. 5 August 2021
- Spoke 6 & 7 Joint Meeting «*Neuro-immune interactions in the development of neurodegenerative diseases*» - January 2025
- Charles River Seminar "*Challenges and Solutions in Maintaining Inbred Mouse Research Models*" – June 2025
- Scientific Meeting Spoke 7 PNRR MNESYS *«Neuroimmunology & Neuroinflammation»* - September 2025

Skills and Personal Competences

- Languages: Italian (native), English orale and written (B2), Spanish oral (B1) and written (A2)
- Computer skills: Proficient in Microsoft Office Suite (Word, Excel, PowerPoint) and EndNote.

Organizational skills

I am organized and reliable both in academic and personal contexts. Punctuality, precision, and attention to detail characterize my work. I am able to work independently and as part of a team, actively contributing ideas to achieve objectives and solve problems effectively.

Other Work Experience

During summer 2024, I worked for the Fondazione Arena di Verona as an extra performer in several opera productions. This experience allowed me to combine my passion for dance and theatre with the opportunity to gain financial independence without burdening my family for personal expenses.

I authorize the processing of my personal data pursuant to EU Regulation 2016/679 (GDPR) for selection purposes.

SIGNATURE

Benedetta Avesani