

Elettra Barberis PhD

Curriculum vitae

PERSONAL DATA

Born in Turin (TO), 20/05/1989. ORCID: 0000-0002-2296-9766 · Scopus Author ID: 56556261500.

BIO AND EDUCATION

Elettra Barberis is Associate Professor of Analytical Chemistry and Omics Techniques (CHEM-01) at the Department of Science and Technological Innovation of the University of Piemonte Orientale (UPO), Italy. She graduated in Conservation and Restoration of Cultural Heritage at the University of Turin in 2015 and obtained a PhD in Chemistry and Biology at UPO in 2019. This interdisciplinary background shaped her interest in analyzing complex and precious samples with minimal or no damage. She obtained the National Scientific Qualification as Associate Professor in 2022 and co-founded ISALIT, an academic spin-off of UPO active in advanced analytical chemistry.

She coordinates metabolomics activities within the mass spectrometry facility of the Interdepartmental Centre for Translational Research on Autoimmune and Allergic Diseases (CAAD) in Novara. She has led and taken part in competitive national and European research projects, has completed research secondments with industrial partners abroad, has served on the committees of international conferences, and acts as Guest Editor and reviewer for international journals. She is a member of the PhD Board in Chemistry and Biology at UPO. She is the author of over 60 peer-reviewed publications (Scopus H-index 19, more than 1,300 citations).

UNIVERSITY CAREER

2026 – to date	Associate Professor of Analytical Chemistry at the Department of Science and Technological Innovation (UPO). Teaching in Analytical Chemistry, Clinical Analytical Chemistry, Bioanalytical and Omics Techniques and mass spectrometry-based omics techniques (BSc, MSc and PhD level).
2023 – 2026	Tenure-Track Assistant Professor (RTD-B) in Analytical Chemistry at the Department of Science and Technological Innovation (UPO)
2016 – 2023	Research fellow and post-doc at UPO (Department of Science and Technological Innovation; Department of Translational Medicine; Department of Drug Sciences; Department of Health Sciences)
2016 – 2019	PhD student in Chemistry and Biology at the Department of Science and Technological Innovation (UPO)

MAIN FIELDS OF INTEREST

Development of new analytical and sampling methods: design, optimization and validation of innovative analytical workflows, from sample collection to data interpretation, with particular focus on non-invasive and minimally invasive sampling strategies that allow proteins, lipids, metabolites and small molecules to be collected directly from surfaces, biological fluids and delicate matrices without altering or consuming the sample.

Mass spectrometry and chemometrics: high-resolution LC-MS/MS, comprehensive two-dimensional gas chromatography (GC×GC-MS), ambient mass spectrometry, spectroscopic and imaging techniques combined with multivariate data analysis and machine learning, aimed at robust, sensitive and transferable methods.

Multi-omics approaches and biomarker discovery: metabolomics, proteomics and lipidomics and their integration for molecular phenotyping and biomarker discovery, mainly in neurodegenerative diseases, as well as in cancer, infectious and autoimmune diseases; development of diagnostic methods.

Food, environment and cultural heritage: food quality and authenticity, environmental contaminants and the exposome, and the non-invasive investigation of cultural heritage objects.

AWARDS

- **Best Spin-off 2013** of the University of Piemonte Orientale with the company ISALIT.
- **Top four best Italian spin-off** with ISALIT (industrial sector), PNI 2013 National Innovation Prize, Genova, November 2013.
- **Third classified** with ISALIT at Start Cup Piemonte e Valle d'Aosta, business plan competition, 2013.
- **First classified** with ISALIT, "Premio START UP AL DECOLLO", Camera di Commercio di Novara, February 2015.
- **Industrial patent** on a method for the analytical monitoring of surfaces based on imaging and chemometrics (2021).

SELECTED 5 PAPERS

- 1) Bleve A, Incerti M, Consonni FM, Garlatti V, Ballerini G, Pandolfo C, Monari MN, Serio S, Pistillo D, Sironi M, Ali C, Manfredi M, **Barberis E**, Finocchiaro G, Cassatella MA, Panico C, Condorelli G, Sica A. *RORy Bridges Cancer-Driven Lipid Dysmetabolism and Myeloid Immunosuppression*. *Cancer Discov.* 2025;15(7):1505-1525. doi: 10.1158/2159-8290.CD-24-0199.
- 2) Bordiga M, Disca V, Manfredi M, **Barberis E**, Carrà F, Navarini L, Lonzarich V, Arlorio M. *Fingerprinting of Green Arabica Coffee Volatile Organic Compounds (VOCs): HS-GC-IMS Versus GC × GC-MS*. *Int J Food Sci.* 2025;2025:1302823. doi: 10.1155/ijfo/1302823.
- 3) Carrillo F, Ghirimoldi M, Fortunato G, Palomba NP, Ianaro L, De Giorgis V, Khoso S, Giloni T, Pietracupa S, Modugno N, **Barberis E**, Manfredi M, Esposito T. *Multiomics approach identifies dysregulated lipidomic and proteomic networks in Parkinson's disease patients mutated in TMEM175*. *NPJ Parkinsons Dis.* 2025;11(1):23. doi: 10.1038/s41531-024-00853-5.
- 4) Scirgolea C, Sottile R, De Luca M, et al., **Barberis E**, Manfredi M, Rescigno M, Jaillon S, Lugli E. *NaCl enhances CD8+ T cell effector functions in cancer immunotherapy*. *Nat Immunol.* 2024;25(10):1845-1857. doi: 10.1038/s41590-024-01923-9.
- 5) **Barberis E**, Joseph S, Amede E, Clavenna MG, La Vecchia M, Sculco M, Aspesi A, Occhipinti P, Robotti E, Boldorini R, Marengo E, Dianzani I, Manfredi M. *A new method for investigating microbiota-produced small molecules in adenomatous polyps*. *Anal Chim Acta.* 2021;1179:338841. doi: 10.1016/j.aca.2021.338841.