


## PERSONAL INFORMATION

## Elisa Robotti

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Sex F | Birthday 01/12/1976 | Nationality Italian

## ACTUAL POSITION

Associate Professor of Analytical Chemistry – Department of Sciences and Technological Innovation – University of Piemonte Orientale

## PROFESSIONAL EXPERIENCE

2015 - now	<b>Associate Professor of Analytical Chemistry</b> Department of Sciences and Technological Innovation – University of Piemonte Orientale
2011 - 2015	<b>Researcher of Analytical Chemistry</b> Department of Sciences and Technological Innovation – University of Piemonte Orientale
2005 - 2011	<b>Post-doc or research grant holder</b> University of Piemonte Orientale
2001 - 2005	<b>PhD student (PhD in Chemical Sciences)</b> University of Piemonte Orientale
2018	<b>Erasmus Teaching Staff at the University of Lisbon</b>

## EDUCATION AND TRAINING

2001-2005	<b>PhD in Chemical Sciences</b> University of Piemonte Orientale – Alessandria - Italy <ul style="list-style-type: none"> <li>Analytical Chemistry</li> <li>Development of analytical methods (HPLC-MS, ICP-MS, GC-MS)</li> <li>Proteomics</li> <li>Chemometrics</li> </ul>
a.y. 1995/96 – a.y. 1999-2000	<b>Degree in Chemistry</b> University of Piemonte Orientale – Alessandria - Italy <ul style="list-style-type: none"> <li>110/110 with honors</li> <li>Thesis in the fields analytical chemistry and chemometrics</li> </ul>
1990-1995	<b>High School Diploma</b> Scientific High School G. Galilei - Alessandria - Italy <ul style="list-style-type: none"> <li>60/60</li> </ul>

## PERSONAL COMPETENCIES

Mother language Italian

## Other languages

	COMPREHENSION		SPEECH		WRITTEN PRODUCTION
	Listening	Reading	Interaction	Oral communication	
English	Excellent	Excellent	Excellent	Excellent	Excellent
French	Excellent	Excellent	Excellent	Excellent	Excellent

## Communication skills

- Excellent communication skills acquired during participation in numerous national and international conferences and during the experience as a university teacher
- Management of small research groups
- Responsible for research activities carried out by various scholarship holders and PhD students

## Organizational and managing competencies

- Ability to participate and manage research groups
- 2024- now: Member of the Quality Control board of the University of Eastern Piedmont
- 2018-2021: President of the Council of the Degree Course in Chemistry at the Department of Science and Technological Innovation, University of Eastern Piedmont
- 2018-2019: President of the Joint Council of the Degree Course in Chemistry and Master Degree in Chemical Sciences at the Department of Science and Technological Innovation, University of Eastern Piedmont, former member of the AQ Group of the same CCS.
- Currently EFSA Department contact for plant protection products and / or their residues; emerging risks
- Head of units in various national and international projects:
  - CARIPLO 2015. "Molecular linkage between translation, epigenetic changes, metabolism and the development of insulin resistance". Duration: 24 months
  - Call: H2020-MSCA-ITN-2017 (Marie Skłodowska-Curie Innovative Training Networks), Type of action: MSCA-ITN-ETN (European Training Networks), Project "AQUALity - Interdisciplinary cross-sectoral approach to effectively address the removal of contaminants of emerging concern from water", Duration: 48 months
  - Call: Horizon-MSCA-2022-DN-01 (Marie Skłodowska-Curie Doctoral Networks 2022), Type of action: TMA-MSCA-DN-JD, Project "IN2AQUAS - Human footprint on water from remote cold areas to the tropical belt. Integrated Approach TO secure water QUALity by exploiting Sustainable processes", Duration: 48 months
  - Zooprophyllactic Institute of Piedmont and Aosta Valley, Current Research 2016 - "Traceability and valorization of honey through new chemical and genetic characterization systems", Duration: 24 months
  - Health research finalized 2016, Young Researcher, "The use of Led multi-spectral imaging for fast and innovative indexing of seafood preservation", Duration 24 months
  - POR FESR 2014/2020, Operative Regional Plan of the European Fund For Regional Development, "BIOENPRO4TO - Smart Solutions for Smart Communities", duration: 30 months
  - Zooprophyllactic Institute of Piedmont and Aosta Valley, Current Research 2018 - "Peptidomics, transcriptomics and multivariate analysis in the fight against the fraudulent use of dexamethasone in beef cattle: in search of a winning strategy, duration: 24 months
- Member of units in projects:
  - PRIN 2000; Piedmont Region Call - 2008 - Project MEMIP; Finalized Research 2009; Cariplo Cultural Heritage 2012; PRIN 2003; Cariplo 2014 Project WATPAD; Current Research Announcement 2015 - Experimental Zooprophyllactic Institute Piedmont and Valle d'Aosta: "Chemometrics for the traceability of the Italian agrofood excellences"; POR FESR 2014/2020, Operative Regional Plan of the European Fund For Regional Development, "NUTRAcore"; EU PROJECT SCENARIOS.

## Research fields

- **Development of analytical methods.** Development, optimization and validation (ISO17025) of analytical methods (HPLC-UV, HPLC-MS / MS, GC-MS, ICP-MS etc) for the determination of different types of analytes in food, biological and environmental matrices. Application of experimental design techniques.
- **Proteomics.** Development and application of biomarker identification methods based on shotgun proteomics and 2D-PAGE map comparison methods based on the use of multivariate chemometric methods, the principles of fuzzy logic and the calculation of mathematical moments of Legendre and Zernike;
- **Cultural heritage.** Development of methods for monitoring the state of conservation of cultural heritage based on the use of the principles of statistical process control coupled with surface spectroscopic techniques; provenance studies of archaeological finds; use of LED-imaging techniques.
- **Environment.** Application of multivariate statistical methods for the extraction of information

from environmental datasets for the identification of anthropogenic contributions to pollution, also based on the use of artificial neural networks; degradation studies of pesticides by HPLC-MS/MS; determination of compounds of environmental concern by HPLC-MS/MS and GC-MS; monitoring of water and air pollutants

- **Artificial neural networks.** Multivariate calibration methods also applied to industrial processes;
- **Optimization and quality control.** Optimization methods (experimental design) applied to industrial and analytical problems; monitoring methods applied to industrial quality control.

## Digital competencies

AUTOEVALUATION				
Processing of information	Communication	Content creation	Safety	Problem solving
Advanced level	Advanced level	Advanced level	Intermediate level	Intermediate level

- Excellent knowledge of software for statistical data analysis: Statistica, The Unscrambler, Matlab, R, Modde, SPSS
- Excellent ability in routine development in Matlab

Driving license B

## OTHER INFORMATION

Technological transfer	<ul style="list-style-type: none"> <li>▪ Establishment of the spin-off of the University of Piemonte Orientale, ISALIT s.r.l. in Novara (Italy), together with 5 other members (Prof. Emilio Marengo, Dr. Marco Bobba, Dr. Marcello Manfredi, Dr. Elettra Barberis, Dr. Gregory Bearman). In June 2014 ISALIT installed a new micro-LC with high resolution mass spectrometry (TripleTof5600 + ABSCIEX) for the analysis of biological, environmental and food samples. ISALIT collaborates with various universities and medical schools in Italy and with pharmaceutical companies.</li> </ul>
Prizes and honors	<ul style="list-style-type: none"> <li>▪ GRANT and scholarship from the Division of Analytical Chemistry of SCI for participation in the congresses Euroanalysis XIII, Euroanalysis XIV, Euroanalysis 2009</li> <li>▪ 2005 Young Researcher Award from the Division of Analytical Chemistry of SCI</li> <li>▪ First poster prize at the Euroanalysis 2009 Congress</li> <li>▪ Fourth poster prize at the 5th ITPA Congress, 2010</li> </ul>
Publications	Co-author of 110 works in international journals and 12 book chapters (Scopus h-index: 31, total citations: > 2600; total impact factor > 200); coeditor of a volume on 2D-PAGE maps.
Congresses	She has participated in more than 35 national and international conferences (50 oral presentations and 60 posters). She presented two Keynotes at international conferences.
Editor activity	Member of the Editorial Board of "Clinical Proteomics and Bioinformatics", OAText, Open Access, since 2017. Member of the Editorial Board of "Separations", MDPI, Open Access, since 2020.
Belonging to groups and associations	<ul style="list-style-type: none"> <li>▪ Member of the Division of Analytical Chemistry division of the Italian Chemical Society and of the Chemometrics group of the same division</li> <li>▪ Enrolled in the National Register of Chemists (Piedmont section)</li> </ul>

Personal data I authorize the use of my personal data pursuant to Legislative Decree 30 June 2003, n. 196 "Code regarding the protection of personal data".



**Publications of the last 5 years**

- 1) Belay M.H., Robotti E., Ghignone A., Fabbris A., Brandi J., Cecconi D., Masini M.A., Dondero F., Marengo E., Sensitive and accurate determination of 32 PFAS in human serum using online SPE-UHPLC-HRMS, (2025) *Journal of Hazardous Materials*, 485, art. no. 136780, DOI: 10.1016/j.jhazmat.2024.136780
- 2) Clavenna M.G., La Vecchia M., Sculco M., Joseph S., Barberis E., Amede E., Mellai M., Brossa S., Borgonovi G., Occhipinti P., Boldorini R., Robotti E., Azzimonti B., Bona E., Pasolli E., Ferrante D., Manfredi M., Aspesi A., Dianzani I., Distinct Signatures of Tumor-Associated Microbiota and Metabolome in Low-Grade vs. High-Grade Dysplastic Colon Polyps: Inference of Their Role in Tumor Initiation and Progression, (2023) *Cancers*, 15 (12), art. no. 3065, DOI: 10.3390/cancers15123065
- 3) Benedetto A., Pezzolato M., Robotti E., Biasibetti E., Poirier A., Dervilly G., Le Bizec B., Marengo E., Bozzetta E., Profiling of transcriptional biomarkers in FFPE liver samples: PLS-DA applications for detection of illicit administration of sex steroids and clenbuterol in veal calves, (2021) *Food Control*, 128, art. no. 108149, DOI: 10.1016/j.foodcont.2021.108149
- 4) Brandi J., Robotti E., Manfredi M., Barberis E., Marengo E., Novelli E., Cecconi D., Kohonen Artificial Neural Network and Multivariate Analysis in the Identification of Proteome Changes during Early and Long Aging of Bovine Longissimus dorsi Muscle Using SWATH Mass Spectrometry, (2021) *Journal of Agricultural and Food Chemistry*, 69 (38), pp. 11512 – 11522, DOI: 10.1021/acs.jafc.1c03578
- 5) Barberis E., Joseph S., Amede E., Clavenna M.G., 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, (2021) *Analytica Chimica Acta*, 1179, art. no. 338841, DOI: 10.1016/j.aca.2021.338841
- 6) Riboni N., Piergiovanni M., Mattarozzi M., Robotti E., Stocco G., Ablondi M., Cipolat-Gotet C., Summer A., Bianchi F., Careri M., Ultra-high performance liquid chromatography ion mobility-high-resolution mass spectrometry for the assessment of raw milk traceability, (2025) *Food Chemistry*, 471, art. no. 142796, DOI: 10.1016/j.foodchem.2025.142796
- 7) Benedetto A., Biasibetti E., Robotti E., Marengo E., Audino V., Bozzetta E., Pezzolato M., Transcriptional Biomarkers and Immunohistochemistry for Detection of Illicit Dexamethasone Administration in Veal Calves, (2022) *Foods*, 11 (12), art. no. 1810, DOI: 10.3390/foods11121810
- 8) Boarino A., Demichelis F., Vindrola D., Robotti E., Marengo E., Martin M., Deorsola F., Padoan E., Celi L., Bio-physical pre-treatments in anaerobic digestion of organic fraction of municipal solid waste to optimize biogas production and digestate quality for agricultural use, (2024) *Waste Management*, 189, pp. 114 – 126, DOI: 10.1016/j.wasman.2024.08.023
- 9) Calà E., Fracchia A., Robotti E., Gulino F., Gullo F., Oddone M., Massacane M., Cordone G., Aceto M., On the Traceability of the Hazelnut Production Chain by Means of Trace Elements, (2022) *Molecules*, 27 (12), art. no. 3854, DOI: 10.3390/molecules27123854
- 10) Demichelis F., Robotti E., Deorsola F.A., Cerruti S., Marengo E., Tommasi T., Fino D., Technical feasibility and modeling of enzymatic pre-treatments of organic fraction of municipal solid waste to improve anaerobic digestion, (2024) *Journal of Cleaner Production*, 476, art. no. 143760, DOI: 10.1016/j.jclepro.2024.143760
- 11) Benedetto A., Robotti E., Belay M.H., Ghignone A., Fabbris A., Goggi E., Cerruti S., Manfredi M., Barberis E., Peletto S., Arillo A., Giaccio N., Masini M.A., Brandi J., Cecconi D., Marengo E., Brizio P., Multi-Omics Approaches for Freshness Estimation and Detection of Illicit Conservation Treatments in Sea Bass (*Dicentrarchus Labrax*): Data Fusion Applications, (2024) *International Journal of Molecular Sciences*, 25 (3), art. no. 1509, DOI: 10.3390/ijms25031509
- 12) Gosetti F., Belay M.H., Marengo E., Robotti E., Development and validation of a UHPLC-MS/MS method for the identification of irinotecan photodegradation products in water samples, (2020) *Environmental Pollution*, 256, art. no. 113370, DOI: 10.1016/j.envpol.2019.113370
- 13) Robotti E., Calà E., Marengo E., Chemometric Tools for 2D-PAGE Data Analysis, (2021) *Methods in Molecular Biology*, 2361, pp. 15 – 31, DOI: 10.1007/978-1-0716-1641-3\_2
- 14) Demichelis F., Deorsola F.A., Robotti E., Cravotto G., Marengo E., Tommasi T., Grillo G., Fino D., Experimental and modelling optimisation of sustainable techniques for the pre-treatment of the organic fraction municipal solid waste to improve anaerobic digestion, (2023) *Journal of Cleaner Production*, 399, art. no. 136594, DOI: 10.1016/j.jclepro.2023.136594
- 15) Robotti E., Quasso F., Manfredi M., Gosetti F., Mazzucco E., Isidoro C., Marengo E., Determination by ICP-MS and multivariate data analysis of elemental urine excretion profile during the EDTA chelation therapy: A case study, (2020) *Journal of Trace Elements in Medicine and Biology*, 62, art. no. 126608, DOI: 10.1016/j.jtemb.2020.126608
- 16) Esposito G., Benedetto A., Robotti E., Belay M.H., Goggi E., Cerruti S., Giaccio N., Mugetti D., Marengo E., Piscopo L., Pezzolato M., Bozzetta E., Abete M.C., Brizio P., Detection of Illicit Conservation Treatments in Sea Bass (*Dicentrarchus labrax*): Application and Data Integration of NIR Spectrometers, (2024) *Foods*, 13 (21), art. no. 3443, DOI: 10.3390/foods13213443
- 17) Masini M.A., Bonetto V., Manfredi M., Pastò A., Barberis E., Timo S., Vanella V.V., Robotti E., Masetto F., Andreoli F., Fiore A., Tavella S., Sica A., Donadelli M., Marengo E., Prolonged exposure to simulated microgravity promotes stemness impairing morphological, metabolic and migratory profile of pancreatic cancer cells: a comprehensive proteomic, lipidomic and transcriptomic analysis, (2022) *Cellular and Molecular Life Sciences*, 79 (5), art. no. 226, DOI: 10.1007/s00018-022-04243-z
- 18) Belay M.H., Dal Bello F., Marengo E., Fabbris D., Medana C., Robotti E., Solar photodegradation of irinotecan in water: optimization and robustness studies by experimental design, (2023) *Photochemical and Photobiological Sciences*, 22 (4), pp. 761 – 772, DOI: 10.1007/s43630-022-00350-9
- 19) Belay M.H., Precht U., Mortensen P., Marengo E., Robotti E., A Fully Automated Online SPE-LC-MS/MS Method for the Determination of 10 Pharmaceuticals in Wastewater Samples, (2022) *Toxics*, 10 (3), art. no. 103, DOI: 10.3390/toxics10030103
- 20) Clericuzio M., Bivona M., Gamalero E., Bona E., Novello G., Massa N., Dovana F., Marengo E., Robotti E., A Systematic Study of the Antibacterial Activity of Basidiomycota Crude Extracts, (2021) *Antibiotics*, 10 (11), art. no. 1424, DOI: 10.3390/antibiotics10111424
- 21) Robotti E., Calà E., Marengo E., Two-Dimensional Gel Electrophoresis Image Analysis, (2021) *Methods in Molecular Biology*, 2361, pp. 3 – 13, DOI: 10.1007/978-1-0716-1641-3\_1
- 22) Zippo V., Robotti E., Maestri D., Fossati P., Valenza D., Maggi S., Papallo G., Belay M.H., Cerruti S., Porcu G., Marengo E., Development of a Self-Updating System for the Prediction of Steel Mechanical Properties in a Steel Company by Machine Learning Procedures, (2025) *Technologies*, 13 (2), art. no. 75, DOI: 10.3390/technologies13020075
- 23) Brandi J., Siragusa G., Robotti E., Marengo E., Cecconi D., "Analysis of veterinary drugs and pesticides in food using liquid chromatography-mass spectrometry", (2024) *TrAC - Trends in Analytical Chemistry*, 179, art. no. 117888, DOI: 10.1016/j.trac.2024.117888
- 24) Aceto M., Gulino F., Calà E., Robotti E., Petrozziello M., Tsolakis C., Cassino C., Authentication and traceability study on barbera d'asti and nizza docg wines: The role of trace-and ultra-trace elements, (2020) *Beverages*, 6 (4), art. no. 63, pp. 1 – 15, DOI: 10.3390/beverages6040063
- 25) Robotti E., Belay M.H., Calà E., Benedetto A., Cerruti S., Pezzolato M., Pennisi F., Abete M.C., Marengo E., Brizio P., Identification of Illicit Conservation Treatments in Fresh Fish by Micro-Raman Spectroscopy and Chemometric Methods, (2023) *Foods*, 12 (3), art. no. 449, DOI: 10.3390/foods12030449
- 26) Papagiannaki D., Belay M.H., Gonçalves N.P.F., Robotti E., Bianco-Prevot A., Binetti R., Calza P., From monitoring to treatment, how to improve water quality: The pharmaceuticals case, (2022) *Chemical Engineering Journal Advances*, 10, art. no. 100245, DOI: 10.1016/j.cej.2022.100245