Curriculum Vitae of Cristina Contini

Profile

Contract Professor of Biochemistry (SSD BIOS-07/A, ex BIO/10)

Research activities in the field of high-resolution mass spectrometry (ESI-IT-MS and MS/MS, LTQ-Orbitrap and Orbitrap-Elite) coupled with HPLC and nanoHPLC systems for proteomic applications. Main research topics: studies on the qualitative and quantitative variations of the protein profile of tissues and biofluids (saliva, plasma, cerebrospinal fluid) in relation to age, health status and pharmacological treatments, in subjects suffering from neurodegenerative diseases (Alzheimer's, Parkinson's, Multiple Sclerosis) and related to the immune and inflammatory system (Immunodeficiencies, Mastocytosis, Autoimmune Hepatitis); development of mass spectrometry-based methodologies for the structural characterization of proteins and peptides, including any post-translational modifications; affinity studies based on mass spectrometry with co-immunoprecipitation assays and use of antibodies to study protein expression and protein-protein interactions.

Work Experience (Teaching SSD BIOS-07/A, ex BIO/10)

Academic years 2024/25

- Contract professor of Biochemistry for the degree course “Medicine and Surgery” at the University of Cagliari, Faculty of Medicine and Surgery, 80 hours, frontal lessons.

Academic years 2022/23, 2023/24, 2024/25

- Contract professor of Chemistry and Biochemistry for the degree course “Dental Hygiene” at the University of Cagliari, Faculty of Medicine and Surgery, 24 hours, frontal lessons.

Academic years 2024/25

- Teaching Tutor (18 hours) in Advanced Biological Methodologies for the degree course “Cellular and Molecular Biology” at the University of Cagliari, Faculty of Biology and Pharmacy.

Academic years 2022/23, 2023/24, 2024/25

- Teaching Tutor (20 hours) in Biochemistry for the degree course “Chemicals and Pharmaceutical Technologies” at the University of Cagliari, Faculty of Biology and Pharmacy. Teaching Tutor (20 hours) in General and Medical Biochemistry for the degree course “Pharmacy” at the University of Cagliari, Faculty of Biology and Pharmacy.

Academic years 2022/23 and 2023/24

- Teaching Tutor (20 hours) in Biochemistry (BIO/10) for the degree course “Chemicals and Pharmaceutical Technologies” at the University of Cagliari, Faculty of Biology and Pharmacy.
- Teaching Tutor (20 hours) in General and Medical Biochemistry for the degree course “Pharmacy” at the University of Cagliari, Faculty of Biology and Pharmacy.

Academic year 2023/24

- Teaching Tutor (21 hours) in Advanced biological methodologies for the degree course “Cellular and Molecular Biology, curriculum Advanced Cellular Studies” at the University of Cagliari, Faculty of Biology and Pharmacy.

Academic year: 2021/22

- Teaching Tutor (40 hours) in Biochemistry and Applied Biochemistry for the degree course “Chemicals and Pharmaceutical Technologies” at the University of Cagliari, Faculty of Biology and Pharmacy.

Academic years: 2018-19, 2019-20, 2020-21

- Teaching tutor (49 hours) in Biochemistry for the degree course “Toxicological Sciences and Quality Control” at the University of Cagliari, Faculty of Biology and Pharmacy.

Academic year: 2018/2019

- Teaching tutor (15 hours) in Biochemistry and Applied Biochemistry for the degree course “Pharmacy” at the University of Cagliari, Faculty of Biology and Pharmacy.

From 01/06/2019 to 31/08/2019

- Teaching tutor (120 hours) for Istituto di Istruzione Superiore “De Sanctis-Deledda”, Cagliari, with the project “Potenziamento dei percorsi di alternanza scuola-lavoro PON-FSE – Per la scuola, competenze e ambienti per l’apprendimento. 2014-2020” at the Department of Life and Environmental Sciences, University of Cagliari.

Work Experience (Research)

From 20/03/2024 to 20/03/2025

- **PostDoc position** at the University of Cagliari (Dep. of Medical Sciences and Public Health) titled “Proteomic analysis of CSF, plasma and saliva in the early stage of Multiple Sclerosis and Neuromyelitis Optica: relationship with disease condition and outcomes.

From 20/04/2022 to 20/10/2023

- **Research fellowship** at the University of Cagliari (Dep. of Life and Environmental Sciences) titled “Parkinson disease: Identification and quantification of VGF peptides by HPLC-high resolution ESI-MS and MS/MS” financed by Fondazione Banco di Sardegna 2020 (CUP: F75F21001300007).

From 01/11/2020 to 30/04/2021

- **Research fellowship** “Proteomic investigation of whole saliva from Alzheimer, Parkinson and Dementia with Lewy Bodies diseases: proteome profile and search of multiprotein complexes involving cystatins” awarded with the “Short-Term-Grants, 2020”, DAAD German Academic Exchange Service, used to support 6 months abroad research at the Max Planck Institute of Psychiatry, Munich, Germany.

Publications

1. Manai, A.L.; Caria, P.; Noli, B.; **Contini, C.;** Manconi, B.; Etzi, F.; Cocco, C. *VGF and Its Derived Peptides in Amyotrophic Lateral Sclerosis.* Brain Sci. 2025, 15, 329. https://doi.org/10.3390/brainsci15040329.
2. Cabras T, Manconi B, Olianas A, Sanna MT, **Contini C*,** et al. *The characterization of preterm newborn saliva by top-down proteomic as a stimulus for the study of human*
3. *development. A review of the results obtained over the past 25 years*. J Pediatr Neonatal Individ Med 2025,14(1):e140108. https://doi.org/10.7363/140108 ***Corresponding author**.
4. **Contini C,** Manconi B, Olianas A, Guadalupi G, Schirru A, Zorcolo L, Castagnola M, Messana I, Faa G, Diaz G, Cabras T. *Combined High-Throughput Proteomics and Random Forest Machine-Learning Approach Differentiates and Classifies Metabolic, Immune, Signaling and ECM Intra-Tumor Heterogeneity of Colorectal Cancer.* Cells, 2024, 3(16):1311 doi: 10.3390/cells13161311.
5. Cocco, C., Noli, B., Manconi, B., **Contini, C.,** Manca, E., Pisanu, C., Meloni, A., Manchia, M., Paribello, P., Chillotti, C., Ardau, R., Severino, G., Squassina, A., (2024) *Lower Plasma Levels of Selective VGF (non-acronymic) Peptides in Bipolar Disorder: Comparative Analysis Reveals Distinct Patterns Across Mood Disorders and Healthy Controls.* Neuropsychobiology, 2024, 83(3-4), pp. 160–169. doi: 10.1159/000540673.
6. Peddio, S., Lorrai, S., Dettori, T., **Contini, C.,** Olianas, A., Manconi, B., Rescigno, A., Zucca, P. (2024) *Purification and Characterization of Proteinaceous Thermostableα-Amylase Inhibitor from Sardinian Common Bean Nieddone Cultivar (Phaseolus vulgaris L.).* Plants, 13(15), 2074. https://doi.org/10.3390/plants13152074.
7. Faa, G., Messana, I., Coni, P., Piras, M., Pichiri, G., Piludu, M., Iavarone, F., Desiderio, C., Vento, G., Tirone, C., Manconi, B., Olianas, A., **Contini, C.,** Cabras, T., Castagnola, M. (2024) *Thymosin β4 and β10 Expression in Human Organs during Development: A Review.* Cells, 13(13), 1115. https://doi.org/10.3390/cells13131115.
8. Manca, E., Noli, B., Corda, G., El-Hassani, M., Manai, A., Sanna, F., Argiolas, A., Melis, MR., Manconi, B., **Contini, C.**, Cocco C. (2023) *VGF modifications related to dopaminergic neurodegeneration induced by the pesticide Fipronil in adult male rats.* Annals of Anatomy. 252:152194. https://doi.org/10.1016/j.aanat.2023.152194.

9. Serrao, S., **Contini, C.***, Guadalupi, G., Olianas, A., Lai, G., Messana, I., Castagnola, M., Costanzo, G., Firinu, D., Del Giacco, S., Manconi, B., Cabras, T. (2023). Salivary Cystatin D Interactome in Patients with Systemic Mastocytosis: An Exploratory Study. International journal of molecular sciences, 24(19), 14613. https://doi.org/10.3390/ijms241914613 ***Corresponding author**.
10. Messana, I., Manconi, B., Cabras, T., Boroumand, M., Sanna, M. T., Iavarone, F., Olianas, A., Desiderio, C., Rossetti, D. V., Vincenzoni, F., **Contini, C.,** Guadalupi, G., Fiorita, A., Faa, G., Castagnola, M. (2023). *The Post-Translational Modifications of Human Salivary Peptides and Proteins Evidenced by Top-Down Platforms.* International journal of molecular sciences, 24(16), 12776. https://doi.org/10.3390/ijms241612776.
11. **Contini, C.,** Fadda, L., Lai, G., Masala, C., Olianas, A., Castagnola, M., Messana, I., Iavarone, F., Bizzarro, A., Masullo, C., Solla, P., Defazio, G., Manconi, B., Diaz, G., Cabras, T. (2023). *A top-down proteomic approach reveals a salivary protein profile able to classify Parkinson's disease with respect to Alzheimer's disease patients and to healthy controls.* Proteomics, e2300202. https://doi.org/10.1002/pmic.202300202.
12. Guadalupi, G., **Contini, C.**, Iavarone, F., Castagnola, M., Messana, I., Faa, G., Onali, S., Chessa, L., Vitorino, R., Amado, F., Diaz, G., Manconi, B., Cabras, T., Olianas, A. (2023). *Combined Salivary Proteome Profiling and Machine Learning Analysis Provides Insight into Molecular Signature for Autoimmune Liver Diseases Classification.* International journal of molecular sciences, 24(15), 12207. https://doi.org/10.3390/ijms241512207.
13. **Contini, C.,** Serrao, S., Manconi, B., Olianas, A., Iavarone, F., Guadalupi, G., Messana, I., Castagnola, M., Masullo, C., Bizzarro, A., Turck, C. W., Maccarrone, G., Cabras, T. (2023). *Characterization of Cystatin B Interactome in Saliva from Healthy Elderly and Alzheimer's Disease Patients*. Life, 13(3), 748. https://doi.org/10.3390/life13030748.
14. Olianas, A., Guadalupi, G., Cabras, T., **Contini, C.,** Serrao, S., Iavarone, F., Castagnola, M., Messana, I., Onali, S., Chessa, L., Diaz, G., Manconi, B. (2023). *Top-Down Proteomics Detection of Potential Salivary Biomarkers for Autoimmune Liver Diseases Classification.* International journal of molecular sciences, 24(2), 959. https://doi.org/10.3390/ijms24020959.
15. Yousaf, N. Y., Wu, G., Melis, M., Mastinu, M., **Contini, C.,** Cabras, T., Tomassini Barbarossa, I., Zhao, L., Lam, Y. Y., Tepper, B. J. (2022). *Daily Exposure to a Cranberry Polyphenol Oral Rinse Alters the Oral Microbiome but Not Taste Perception in PROP Taster Status Classified Individuals.* Nutrients, 14(7), 1492. https://doi.org/10.3390/nu14071492.
16. **Contini, C.,** Serrao, S., Manconi, B., Olianas, A., Iavarone, F., Bizzarro, A., Masullo, C., Castagnola, M., Messana, I., Diaz, G., Cabras, T. (2022). *Salivary Proteomics Reveals Significant Changes in Relation to Alzheimer's Disease and Aging.* Journal of Alzheimer's disease, 89(2), 605–622. https://doi.org/10.3233/JAD-220246
17. Boroumand M., Manconi B., Serrao S., Iavarone F., Olianas A., Cabras T., **Contini C.**, Pieroni L., Sanna M., Vento G., Tirone C., Desiderio C., Fiorita A., Faa G., Messana I., Castagnola M. (2022) *Investigation by top-down high-performance liquid chromatography-mass spectrometry of glutathionylation and cysteinylation of salivary S100A9 and cystatin B in preterm newborns*. Separation Science Plus 5: 17-27. https://doi.org/10.1002/sscp.202100049
18. **Contini C.,** Olianas A., Serrao S., Deriu C., Iavarone F., Boroumand M., Bizzarro A., Lauria A., Faa G., Castagnola M., Messana I., Manconi B., Masullo C., Cabras T. (2021) *Top-Down Proteomics of Human Saliva Highlights Anti-inflammatory, Antioxidant, and antimicrobial Defense Responses in Alzheimer Disease*. Frontiers in Neuroscience 15:668852. https://doi.org/10.3389/fnins.2021.668852 Erratum in Frontiers in Neuroscience 15:743596.
19. Olianas, A., Serrao, S., Piras, V., Manconi, B., **Contini, C.,** Iavarone, F., Pichiri, G., Coni, P., Zorcolo, L., Orrù, G., Messana, I., Faa, G., Castagnola, M., Fanni, D., Cabras, T. (2021). *Thymosin β4 and β10 are highly expressed at the deep infiltrative margins of colorectal cancer - A mass spectrometry analysis.* European review for medical and pharmacological sciences, 25(23), 7285–7296. https://doi.org/10.26355/eurrev_202112_27422

20. Yousaf, N. Y., Melis, M., Mastinu, M., **Contini, C.,** Cabras, T., Tomassini Barbarossa, I., Tepper, B. J. (2020). *Time Course of Salivary Protein Responses to Cranberry-Derived Polyphenol Exposure as a Function of PROP Taster Status*. Nutrients, 12(9), 2878. https://doi.org/10.3390/nu12092878
21. Serrao, S., Firinu, D., Olianas, A., Deidda, M., **Contini, C.,** Iavarone, F., Sanna, M. T., Boroumand, M., Amado, F., Castagnola, M., Messana, I., Del Giacco, S., Manconi, B., Cabras, T. (2020).*Top-Down Proteomics of Human Saliva Discloses Significant Variations of the Protein Profile in Patients with Mastocytosis.* Journal of proteome research, 19(8), 3238–3253. https://doi.org/10.1021/acs.jproteome.0c00207
22. **Contini, C.,** Firinu, D., Serrao, S., Manconi, B., Olianas, A., Cinetto, F., Cossu, F., Castagnola, M., Messana, I., Del Giacco, S., Cabras, T. (2020). *RP-HPLC-ESI-IT Mass Spectrometry Reveals Significant Variations of the Human Salivary Protein Profile Associated with Predominantly Antibody Deficiencies.* Journal of clinical immunology, 40(2), 329–339. https://doi.org/10.1007/s10875-020-00743-4

Collaborations with national and international research groups

- Prof. E. Cocco, Dr. L. Lorefice, Department of Medical Sciences and Public Health, Multiple Sclerosis Center, Binaghi Hospital, ASL Cagliari, University of Cagliari, Cagliari, Italy. Research topic: characterization of novel potential biomarkers in Multiple Sclerosis and Neuromyelitis Optica Spectrum Disorder in cerebrospinal fluid, serum, plasma and saliva.
- Dr. S. Tambaro, Department of Neurobiology, Care Sciences and Society, Karolinska Institute, Stockholm, Sweden. Research topic: proteomic investigations of brain tissues from SPPL2b deficient mice in relation to Alzheimer's disease.
- Prof. C. Cocco, Department of Biomedical Sciences, University of Cagliari, Cagliari, Italy. Research topic: characterization of VGF peptides in biofluids from Parkinson's disease patients with potential application in the early diagnosis of the pathology.
- Prof. F. Iavarone, Dipartimento di Scienze Biotecnologiche di Base, Cliniche Intensivologiche e Perioperatorie, Università Cattolica del Sacro Cuore, Rome, Italy. Dr. A. Bizzarro, and Prof. C. Masullo, UOC Continuità Assistenziale, Fondazione Policlinico Universitario "A. Gemelli" - IRCCS, Rome, Italy, and Dipartimento di Neuroscienze, Sez. Neurologia, Università Cattolica del Sacro Cuore, Rome, Italy. Research topic: proteomic investigations to characterize potential salivary biomarkers in patients affected by Alzheimer's disease.
- Prof. G. Diaz, Department of Biomedical Sciences University of Cagliari, Cagliari, Italy. Research topic: Biostatistics analysis of proteomics data.
- Prof. B. J. Tepper, Center for Sensory Sciences & Innovation & Department of Food Science, Rutgers University, New Brunswick, USA. Prof. I. Tommassini Barbarossa, Department of Biomedical Sciences, University of Cagliari, Cagliari, Italy. Research topic: salivary proteomics in relation to oral health and taste perception.

Education and training

07/04/2022 - **Ph.D. Degree in Life, Environmental and Drug Sciences**

- Ph.D. Degree with the highest mark at the University of Cagliari and Doctor Europaeus in Life, Environmental and Drug Sciences, Biomedical Curriculum. Thesis title: "Proteomic investigation and characterization of cystatin B interactome in saliva of patients with Alzheimer's disease".

From 05/02/2018 to 05/08/2018 - **Traineeship at the Industrial Liaison Office**

- Traineeship at the Industrial Liaison Office, University of Cagliari on patents, protection and enhancement of intellectual property. Drafting of scientific projects for national and international calls. Organization of events, as UniCa & Imprese 2018.

From 15/09/2020 to 30/04/2021 - **Research experience at Max Planck Institute of Psychiatry**

- Training and research experience for access to the title of Doctor Europaeus at Max Planck Institute of Psychiatry, Munich, Germany. Supervisor: Pr. Chris Turck and Dr. Giuseppina Maccarrone.

Role: Characterization of the interactome of cystatin B in saliva of healthy subjects and patients affected by Alzheimer's disease by bottom-up proteomic approach and analysis nano-HPLC-high resolution MS/MS (NanoESI-Orbitrap Q-Exactive Plus).

From 18/09/2017 to 18/12/2017 - **Erasmus + Traineeship**

- Erasmus + Traineeship at the Mass Spectrometry Center, University of Aveiro (Portugal). Supervisor: Prof. Francisco Amado. Role: Proteomic and lipidomic study approaches by Mass Spectrometry in human plasma samples from cancer patients. Role: Participation in sample preparation and analysis using the Orbitrap Q Exactive high resolution mass spectrometer.

26/07/2017 - **Master's degree in Cellular and Molecular Biology (LM-6)**

- Master's degree at the University of Cagliari, Faculty of Biology and Pharmacy, in Cellular and Molecular Biology (LM-6) with the highest mark. Thesis title: "Proteomic Top Down characterization of saliva from patients affected by Common Variable Immunodeficiency".

14/07/2015 - **Bachelor's degree in Toxicology (L-29)**

- Bachelor's degree at the University of Cagliari, Faculty of Biology and Pharmacy, in Toxicology (L-29) with the highest mark. Thesis title: "Proteomic study of submandibular saliva in "Sardinian alcohol preferring rats". Qualitative and quantitative differences compared with "Sardinian alcohol not preferring rats"".

From 11/11/14 to 23/01/15 - **Traineeship at AOU San Giovanni di Dio**

- 240 hours traineeship in Clinic Chemistry, Immunometry and Clinic Microbiology at the Azienda Ospedaliero-Universitaria San Giovanni di Dio.

Languages

- Italian (Native)
- 04/07/2024 - **English, level C1,** certified by CLA (Centro Linguistico di Ateneo), University of Cagliari
- 13/06/2017 - **English, level B2**, certified by CLA (Centro Linguistico di Ateneo), University of Cagliari
- 22/01/2010 - **English, level B1**, certified by University of Cambridge ESOL Examinations

Training Courses and Certifications

- 19/10/2023, Direct Analysis of Glycosylated Therapeutics – 2 hours, organized by ACS – Chemistry for Life
- 19-22/06/2023, Biacore™ X100 system training – 24 hours, organized by Application Specialist for Biacore™ products, Cytiva
- 25-30/09/2022, 1st International School on Mass Spectrometry (High Resolution Mass Spectrometry: Fundamentals, Advances, and Applications), Erice, Italy – 40 hours, organized by Società Chimica Italiana – Divisione Spettrometria di Massa
- 24/02/2022, R software –advanced course (on-line) – 6 hours, organized by Alta Formazione Insubria
- 21-25/06/2021, 12th International Summer School on Computation Mass Spectrometry-based proteomics (on-line) – 40 hours, organized by Max-Planck-Institute of Biochemistry, Martinsried, Germany
- From Nov. 2020 to May 2021, EU Fund Rising and Project Planning course – 40 hours, organized by University of Cagliari
- 3-14/05/2021, Computational and Statics for Mass Spectrometry and Proteomics (on-line) – 33 hours, organized by Northeastern University, Boston, MA
- 27-30/04/2021, Proteome Discoverer 2.5 Workshop – 10 hours, organized by Sales support team Thermo Scientific
- 15/10/2020, LTQ XL on-line training – 4 hours, organized by Sales support team Thermo Scientific

- 19-22/10/2020, 19th Human Proteome Organization World Congress - Main Congress (on-line) – 40 hours, organized by 19th Human Proteome Organization World Congress
- 12-16/10/2020, HUPO CONNECT 2020 - Pre-Congress Training Courses (on-line) – 40 hours, organized by 19th Human Proteome Organization World Congress
- 10-11/09/2020, Theoretical and Practical Aspects on Linear Trap Technology LTQ (on-line) – 4 hours, organized by Sales support team Thermo Scientific
- 13-14/09/2018, Orbitrap Elite e Sieve – 14 hours, organized by Sales support team Thermo Scientific, at Centro Servizi di Ateneo per la Ricerca (CeSAR), University of Cagliari
- 06-08/03/2018, LTQ Orbitrap ELITE – Proteomics Applications – 21 hours, organized by Sales support team Thermo Scientific, at Centro Servizi di Ateneo per la Ricerca (CeSAR), University of Cagliari
- Form 26/02/2018 to 09/04/2018, Concepts and Practice of Responsible Research and Innovation (on-line) – 40 hours, organized by Universitat Pompeu Fabra (Barcelona, Spain)

Affiliations to scientific societies

- Member of Italian Proteomic Association (ItPA) since 2019
- Member of European Proteomic Association (EUPA) since 2019
- Member of Italian Biochemistry Society (SIB) since 2021, councilor for the LAMS section (Lazio-Abruzzo-Molise-Sardegna) from March 2024

Seminars/Congresses/Schools' organization

- Organizing commettee of "1st Interregional Congress of Central Italy For Young Researchers in Biochemistry and Molecular Biology" July 21-22, 2025, LAMS
- Assistant in the organization of the 6th International Mass Spectrometry School, Cagliari, Italy September 17-22, 2023.
- Assistant in the organisation of "UniCa & Imprese 2018", Univ. of Cagliari, Italy.

Participation in dissemination events

- SHARPER, European Researcher's Night. Member of the project: PARKINSON: UN NUOVO KIT DIAGNOSTICO, project coordinator Prof. Cristina Cocco, Cagliari, September 29, 2023