

# Mariano Mastinu, PhD

## PERSONAL INFORMATION

Dept. Biomedical Science  
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Sex: Male | Date of birth: September 19<sup>th</sup> | Nationality: Italian

## EDUCATION AND TRAINING

01/10/2018 - 27/04/2022 Ph.D. in Neuroscience  
Sensory Physiology Lab – Department of Biomedical Science – University of Cagliari (Italy)

Thesis: Taste and olfaction and their physiological mechanisms controlling individual variability, nutrition and health.

Supervisor: Prof. Tomassini Barbarossa

01/10/2016 - 22/07/2018 Master's degree in Cellular and Molecular Biology  
Faculty of Biology and Pharmacy – University of Cagliari (Italy)  
Master's final grade 110/110 magna cum laude

Thesis: First objective evaluation of taste sensitivity to 6-n-propylthiouracil (PROP), a paradigm gustatory stimulus in humans

Selected to participate at the 5th edition Contamination Lab (2018) of University of Cagliari. An electromedical device for the objective evaluation of human gustatory sensitivity was developed

01/10/2013 - 20/07/2016 Bachelor's degree in Biology  
Faculty of Biology and Pharmacy – University of Cagliari (Italy)  
Bachelor final grade 106/110

Thesis: *Analysis of the relationship between PROP sensitivity and TAS2R38 polymorphisms*

## WORK EXPERIENCE

25/07/2025 ongoing Technician at the Department of Biomedical Sciences- Section of Physiology  
University of Cagliari. Supervisor: Prof. Iole Tomassini Barbarossa  
Monitoring taste variability and the effect of genetic factors in healthy subjects and in subjects with inflammatory and neurodegenerative diseases

01/09/2022 – ongoing Postdoctoral Researcher at the University Clinic Carl Gustav Carus  
Smell and Taste Clinic, ENT Department – Technical University Dresden (Germany)  
Supervisor: Prof. Dr. med. Thomas Hummel

03/01/2022 - 03/06/2022 Researcher at Sensory Lab Rutgers University NJ (USA)  
Research assistant conducting clinical trials on astringency, food aroma and wine perceptions.  
Supervisor: Dr. Beverly Tepper

06/01/2016 - 30/06/2018 Physiology Intern  
Student researcher in the Sensory Physiology Laboratory, Department of Biomedical Sciences, University of Cagliari. Tutor: Prof. Iole Tomassini Barbarossa  
Evaluation of taste sensitivity and gene genotype with TaqMan technique

01/10/2017 – 30/12/2021 Tutor in General Physiology  
Tutor for the course of General Physiology, Degree in Biology.  
Teaching and Mentorship role

## FORMER MOBILITIES

01/01/2020 – 27/06/2020 Visiting Ph.D. Student at Sensory Lab – Rutgers University NJ (USA)  
Conceptualization and execution of the research project 'Measuring emotions elicited by food aromas'. Tutor: Dr. Beverly Tepper

27-28/09/2019 Taste and smell Specialistic course - University of Dresden Medical School

- 30/10/2017-  
03/11/2017 Erasmus+ HEI PLADI on “Modern methods in Plant Taxonomy”  
University of Lisbon, Portugal
- 15-19/10/2017 Erasmus+ HEI PLADI on “Plant Management: Botanic Garden”  
University of Sofia, Bulgaria

## PERSONAL SKILLS

Languages: Italian, mother tongue.  
English, C1 level of CEFR

Technical skills:

- Evaluation of taste sensitivity in humans: suprathreshold by using LMS Scale; determination of threshold with UP-DOWN, triangular 3-forced choice tests, electrogustometer; discrimination with Taste Strip test; direct measures of the degree of gustatory system activation by electrophysiological recordings from the human tongue. Gustatory event-related potentials for evaluation of central activation.
- Conduction and analysis of fMRI studies with FSL
- Electroencephalic recording of gustatory and olfactory Event-Related Potentials
- Evaluation of Olfactory sensitivity: threshold, discrimination, and identification with Sniffin' Stick test.
- Determination of salivary proteome by HPLC-ESI-MS; Dot blot for protein detection; ELISA
- DNA extraction by Salting Out and by Spin Column (KIT QIAGEN- QIAamp); DNA quantification; PCR, analysis of specific SNPs of genes of interest via enzymatic digestion and electrophoresis visualization; TaqMan Genotyping Assay; evaluation of Methylation levels for target genes.
- Expertise and competence in designing and carrying out scientific experiments.
- Highly skilled in experimental data collection, data analysis, and paper writing.

## LIST OF PUBLICATIONS

1. Melis M, **Mastinu M**, Arca M, Crnjar R, Tomassini Barbarossa I. Effect of chemical interaction between oleic acid and L-Arginine on oral perception, as a function of polymorphisms of CD36 and OBPIIa and genetic ability to taste 6-n-propylthiouracil. **PLoS ONE** 2018
2. Sollai G, Melis M, **Mastinu M**, Pani D, Cosseddu P, Bonfiglio A, Crnjar R, Tepper B.J, Tomassini Barbarossa I. Human Tongue Electrophysiological Response to Oleic Acid and Its Associations with PROP Taster Status and the CD36 Polymorphism (rs1761667). **Nutrients** 2019
3. Melis M\*, **Mastinu M\***, Sollai G, Paduano D, Chicco F, Magri S, Usai P, Crnjar R, Tepper BJ, Tomassini Barbarossa I. Taste Changes in Patients with Inflammatory Bowel Disease: Associations with PROP Phenotypes and polymorphisms in the salivary protein, Gustin and CD36 Receptor Genes. **Nutrients** 2020
4. Melis M, Sollai G, **Mastinu M**, Pani D, Cosseddu P, Bonfiglio A, Crnjar R, Tepper B.J, Tomassini Barbarossa I. Electrophysiological responses from the human tongue to the six taste qualities and their relationships with PROP taster status. **Nutrients** 2020
5. Yousaf NY, Melis M, **Mastinu M**, Contini C, Cabras T, Tomassini Barbarossa I, Tepper BJ. Time course of salivary protein responses to cranberry-derived polyphenol exposure as a function of PROP Taster Status. **Nutrients** 2020
6. Melis M, Pintus S, **Mastinu M**, Fantola G, Moroni R, Pepino MY, Tomassini Barbarossa I. Changes of Taste, Smell and Eating Behavior in Patients Undergoing Bariatric Surgery: Associations with PROP Phenotypes and polymorphisms in the Odorant-binding Protein OBPIIa and CD36 Receptor Genes. **Nutrients** 2021
7. Sollai G, Melis M, **Mastinu M**, Paduano D, Chicco F, Magri S, Usai P, Hummel T, Tomassini Barbarossa I, Crnjar R. Olfactory function in patients with inflammatory bowel disease (IBD) is associated with their body mass index and polymorphism in the odor binding-protein (OBPIIa) gene. **Nutrients** 2021
8. Melis M\*, **Mastinu M\***, Pintus S, Cabras T, Crnjar R, Tomassini Barbarossa I. Differences in salivary proteins as a function of PROP taster status and gender in normal weight and obese subjects. **Molecules** 2021
9. Melis M, Haehner A, **Mastinu M**, Hummel T, Tomassini Barbarossa I. Molecular and genetic factors involved in olfactory and gustatory deficits in Parkinson's Disease. **International Journal of Molecular Sciences** 2021, 22(8), 4286
10. Naciri LC, **Mastinu M**, Crnjar R, Tomassini Barbarossa I, Melis M. Automated Classification of 6-n-Propylthiouracil Taster Status with Machine Learning. **Nutrients** 2022, 14(2), 252
11. Yousaf NY, Wu G, Melis M, **Mastinu M**, Contini C, Cabras T, Tomassini Barbarossa I, Zhao L, Lam YY, Tepper BJ. Daily Exposure to a Cranberry Polyphenol Oral Rinse Alters the Oral Microbiome but not Taste Perception in PROP Taster Status Classified Individuals. **Nutrients** 2022,

12. **Mastinu M**, Melis M, Yousaf NY, Tomassini Barbarossa I, Tepper BJ. Self-Report and Physiological Emotional Responses to Taste and Smell Stimuli: A Role for Individual and Genetic Factors. **Journal of Food Science** 2022.
13. Melis M, **Mastinu M**, Naciri LC, Muroi P, Tomassini Barbarossa I. Associations between Sweet Taste Sensitivity and Polymorphisms (SNPs) in the TAS1R2 and TAS1R3 Genes, Gender, PROP Taster Status, and Density of Fungiform Papillae in a Genetically Homogeneous Sardinian Cohort. **Nutrients** 2022, 14, 4903.
14. **Mastinu M**, Pieniak M, Wolf A, Green T, Haener A, Niv MY, Hummel T. A Simple Taste Test for Clinical Assessment of Taste and Oral Somatosensory Function—The “Seven-iTT”. **Life** 2022, 13(1):59.
15. Naciri LC, **Mastinu M**, Crnjac R, Tomassini Barbarossa I, Melis M. Automated Identification of the Genetic Variants of TAS2R38 Bitter Taste Receptor with Supervised Learning. **Computational and Structural Biotechnology Journal** 2023, 21: 1054-1065.
16. Naciri LC, **Mastinu M**, Melis M, Green T, Wolf A., Hummel T, Tomassini Barbarossa, I. A Supervised Learning Regression method for the analysis of oral sensitivity of healthy subjects and patients with chemosensory loss. **Scientific Reports** 2023
17. **Mastinu M**, Grzeschuchna LS, Mignot C, Guducu C, Bogdanov V, Hummel T. Time–frequency analysis of gustatory event related potentials (gERP) in taste disorders. **Scientific Reports** 2024
18. Naciri, LC, **Mastinu M**, Melis M, Green T, Wolf A, Hummel T, Tomassini Barbarossa I. A supervised learning regression method for the analysis of the taste functions of healthy controls and patients with chemosensory loss. **Biomedicines**, 2023
19. Green T, **Mastinu M**, Wolf A, Oleszkiewicz A, Aronis A, Hummel T, Pepino MY, Niv MY. Home screening of taste and oral gustatory trigeminal function at home and in the lab: a feasibility study. **European Archives of Otorhinolaryngology** 2024
20. Melis M, **Mastinu M**, Sollai G. Effect of the rs2821557 polymorphism of the human Kv1.3 gene on the olfactory function and BMI in different age groups. **Nutrients** 2024
21. **Mastinu M**, Puschner A, Gerlach S, Hummel T. Test-retest reliability and normative data for "Seven-iTT", a test for the assessment of taste and oral trigeminal function. **Journal of Neuroscience Methods** 2024
22. Melis M, Loi E, **Mastinu M**, Naciri LC, Zavattari P, Tomassini Barbarossa, I. Gene Methylation Affects Salivary Levels of the Taste Buds' Trophic Factor, Gustin Protein. **Nutrients**, 2024
23. **Mastinu M**, Puschner A, Gerlach S, Hummel T. Taste and oral somatosensation: Role of PTC bitter sensitivity, gender, and age. **Physiology & Behavior** 2025
23. Xu X, Flemming K, **Mastinu M**, Haehner A, & Hummel T. Oral Somatosensory Sensitivity in the Clinical Assessment of Gustatory Dysfunction. *The Laryngoscope*, 2025
25. Bierling AL; Croy A; Bilem F; Bloy L; Ho FY; Jimenez AF; Kyjakova P; **Mastinu M**; Power Guerra N; Sailer U; et al. A standardized lexicon of body odor words crafted from 17 countries. *Scientific Data*, 2025
26. Melis M; Loi E; Aru G; Sollai G; **Mastinu M**; Naciri LC; De Riu G; Vaira LA; Costanzo G; Firinu D; et al. TAS2R38 gene methylation is associated with syndrome Coronavirus 2 (SARS-CoV-2) infection and clinical symptoms. *Scientific Report*, 2025
27. **Mastinu M**; Thaploo D; Warr J; Hummel T. Cortical Representation of Food-Related Odors in Gustatory Areas Differs According to Their Taste Association: An fMRI Study. *Brain sciences*, 2025
28. **Mastinu M**; Schönherr M; Hummel T. The taste of trigeminal sensations: relation between taste, lingual tactile acuity, and spicy perception in patients with taste dysfunction. *Chemical Senses*, 2025

## ATTENDANCE TO CONFERENCE

- Mastinu M**. Taste assessments in clinical practice: tools and insights. NUH ENT STAR, Singapore, July 2025
- Mastinu M**. Individual variability and impact of taste dysfunction on oral trigeminal perception NUH ENT STAR, Singapore, July 2025
- Mastinu M**. Oral trigeminal perception of astringency, capsaicin, and stereognosis: exploring individual variability and impact of taste dysfunction. AChemS, Bonita Spring (FL, USA), April 2025.
- Mastinu M**. Show me the Flavor – Understanding nuances of taste, flavor & retronasal smell. Columbia University NYC, October 2024
- Mastinu M**, Thaploo D, Warr J, Hummel T. Central processing of food-related odors is affected by PROP taste sensitivity. ISOT (Iceland) 2024.

**Mastinu M**, Grzeschuchna LS, Mignot C, Bogdanov V, Hummel T. Time-Frequency analysis for gustatory Event Related Potentials can be used as a diagnostic tool in taste disorders. ECRO, Nijmegen (The Netherlands) 2023.

**Mastinu M**, Pieniak M, Wolf A, Green T, Haener A, Niv MY, Hummel T. New feasible test for clinical assessment of taste and oral somatosensory function – the ‘Seven-iTT’. AChemS, Bonita Spring (FL, USA) 2023.

**Mastinu M**, Melis M, Tomassini Barbarossa I, Beverly J Tepper. Equally Liked Food Aromas Evoke Different Emotions Based on Gender and PROP Status. AChemS, Bonita Spring (FL, USA) 2023.

Melis M, Naciri LC, **Mastinu M**, Hummel T, Tomassini Barbarossa I. Machine learning identifies the most important parameters to predict prop phenotype and genotype, and the overall taste status in healthy subjects and patients with taste disease. AChemS, Bonita Spring (FL, USA) 2023.

**Mastinu M**. New test for clinical assessment of taste and oral somatosensory function – Seven-items Taste Test. Working Group on Olfaction and Gustation of the German ENT society. Marburg 2022

**Mastinu M**, Melis M, Pintus S, Cabras T, Crnjar R, Tepper BJ Tomassini Barbarossa I. Variations in Taste-Related Salivary Proteins are Differently Associated with Gender and PROP Taster Status in Normal Weight and Obese Subjects. AChemS, Bonita Spring (FL, USA) 2022.

Yousaf NY, **Mastinu M**, Tepper BJ. Effects of Cranberry Polyphenol Extract (CPE) Supplementation on Astringency and Flavor Perception as a Function of PROP Taster Status and Other Individual Factors. AChemS, Bonita Spring (FL, USA) 2022.

Yousaf NY, Wu G, Lam YY, Melis M, **Mastinu M**, Contini C, Cabras T, Tomassini Barbarossa I, Zhao L, Tepper BJ. Daily exposure to a cranberry polyphenol oral rinse alters the oral microbiome in PROP Taster Status classified individuals. AChems 2021

Naciri LC, Melis M, **Mastinu M**, Tomassini Barbarossa I. Evaluation of PROP taster status with Machine Learning. AChems 2021

Yousaf N, Melis M, **Mastinu M**, Cabras T, Tomassini Barbarossa I, Tepper BJ. *Salivary Protein Response to and Recovery from Cranberry-derived Polyphenol Exposure: Methodological Insight From A Time-Course Study*. ISOT 2020

Melis M, Sollai G, **Mastinu M**, Pani D, Cosseddu P, Bonfiglio A, Crnjar R, Tepper BJ, Tomassini Barbarossa I. *Human tongue electrophysiological responses to taste stimuli and their relationships with PROP taster status*. ISOT 2020

Yousaf NY, Melis M, **Mastinu M**, Cabras T, Tomassini Barbarossa I, Tepper BJ. *Salivary Protein Response to and Recovery from Cranberry-derived Polyphenol Exposure: Methodological Insights from a Time-Course Study*. NY IFT Student Night, New Brunswick (NJ, USA) 2020.

**Mastinu M**, Melis M, Sollai G and Tomassini Barbarossa I. *The electrophysiological response of the human tongue to oleic acid is affected by CD36 polymorphism (rs1761667)*. SINS Neuroscience – Napoli 2019.

## AWARDS

2025	Graduate Academy (TU Dresden) travel award for AChemS meeting
2024	TU Dresden P.R.I. and Graduate Academy travel awards for ISOT meeting DAAD travel grant for ISOT meeting
2022	ECRO travel grant for the attendance of AChemS meeting
2019	1st prize winner for best Master's thesis demonstrating digitization and technological innovation relevant to industry; award given by Camera di Commercio Oristano- Italy.
2018	Special award in the 5th edition Contamination Lab of University of Cagliari for innovative use of a Cagliari University patent.