Curriculum Vitae Prof. Caterina Signoretto

Born in Villimpenta (Mantua- Italy), 22/01/1966
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Academic studies:

• 1991: Degree in Biology at the University of Parma, Italy
• 1992: National Ability to the profession of Biologist (University of Parma).
• 1996: Specialisation in Microbiology and Virology at the University of Verona
•1998: Named expert in the subject of Microbiology and Clinical Microbiology (MED/07), by the Faculty of Medicine of the University of Verona
• 2001: PhD in Microbiology at the University of Padua
• 20017: National Scientific Abilitation (ASN) to Associate Professor (SSD 06/A3 Microbiology and Clinical Microbiology MED/07).

Working experiences:

•1992- 1993: Research contract from C.I.F.A. (Italian Consortium Anti-infectious Drugs)
•1994: Research contract from USSL 25 of Verona for the validation of new diagnostic methods.
•1995-1996: Research contract from the Consiglio Nazionale delle Ricerche (CNR-FATMA project).
•1996-2000: Fellowships and Ph.D. student (Institute of Microbiology; University of Verona).
•2001-2003: Research contract Microbiology's Institute, University of Verona.
•2003-2005: Graduated technician (category D1), Department of Pathology of the University of Verona.
•2006-2021: University Researcher for the SSD MED/07-Clinical Microbiology, at the University of Verona
•Since 2007, she has been working as manager biologist at the UOC of Microbiology and Virology of the University Hospital of Verona.
•Since 1/2022: Associate Professor (SSD 06/A3 Microbiology and Clinical Microbiology MED/07). Department of Diagnostics and Public Health, University of Verona

Educational Activities

• From 1995 to 1997: Microbiology exercitation at the Degree Course in Dentistry and Dental Prosthetics of the University of Verona.
• 1996/97: lecturer at the University Diploma of Laboratory Healthcare Technician, (University of Verona).
• 2001/2002: lecturer of Clinical Microbiology for the Degree in Dental Hygiene (University of Verona).
• From 2006 to today: lecturer of Microbiology and Clinical Microbiology in different Degree of the Health Professions of the University of Verona (Nursing, Dental Hygienist, Physiotherapy, Biomedical Laboratory Techniques) and lecture in the degree in Molecular and Medical Biotechnology (LM9).
•From the 2023: teacher of Microbiology and Clinical Microbiology in the master's degree course in Dentistry and Dental Prosthetics.
• Teacher of Microbiology for specialty schools of Medicine in Microbiology, Oral Surgery and Orthopedics

Outline of the Research Activity

Prof. Signoretto started her research activity dealing with bacterial morphology and division. She has studied the physiology and morphogenesis of viable but non-culturable (VBNC) bacterial forms, a survival strategy adopted by many bacteria (including those of medical interest) when exposed to adverse environmental conditions. She has also conducted studies on the molecular mechanisms of resistance to β-lactam antibiotics in *Enterococcus faecalis* caused by mutations in penicillin binding protein 5 (PBP5).

Since many years she has been involved with the action of natural substances (especially polyphenols) present in various foods and plants, capable of interfering with the adhesion of bacteria, in particular those of the oral cavity, to the different surfaces of the mouth. In the study she evaluated the composition of the microbiological flora of the saliva and dental plaque of subjects who drank various drinks daily, both by culture and by molecular biology method, showing that there is a correlation between the consumption of specific foods and oral health in terms of reduction of plaque and fewer odontopathogenic bacteria. This research was also funded by the European Community (FP6, contr. N. 036210).

She has also studied, in collaboration with colleagues from the dental clinic, the use of adjuvant treatments in the periodontal disease control. In particular, treatment with hyperbaric oxygen has an effect on the bacterial microflora of periodontal pockets, which has led to the conclusion that hyperbaric oxygen can represent a useful aid to non-surgical periodontal therapy

From 2016, thanks to a project funded by the Cystic Fibrosis Foundation (FFC # 22/2016) she is involved in the study of human and environmental reservoirs of bacteria potentially pathogenic able to colonize the upper and lower airways of patients with cystic fibrosis (CF).There is evidence to suggest that the upper respiratory tract, the oral cavity and everyday personal objects such as the toothbrush, can act as reservoirs of differents pathogenic bacteria (*Pseudomonas aeruginosa*, Acromobacter spp, and other species) that cause lung infection in patients with CF. It is therefore important to compare the oral flora of the upper respiratory tract and the oral cavity with that isolated from the bronchi of the same subject affected by CF in order to calculate the incidence of the various potentially pathogenic bacterial species intervening with early therapeutic regimens to prevent the onset of chronic infections and improve pulmonary outcomes.

She collaborated in virology research, in particular the use of new microbicidal molecules as a strategy to prevent the transmission of human immunodeficiency virus (HIV-1) and the application of new HIV-1 antiretroviral therapies in HIV-positive subjects.

Recently she started a collaborations for new projects that aim to link alterations in the oral microbiota and systemic diseases in particular diabetes and some types of cancers. Research is focusing on identifying " bacteria core" that can predict disease development.