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VP103_CHIR

Visiting Professor Program
Academic Year 2023/2024

TEACHING COMMITMENT: **20 hours**

COURSE TITLE

Bacteriology and Immunology of Periodontal Diseases

TEACHING PERIOD

1st term

SCIENTIFIC AREA

Microbiology/Immunolgy

LANGUAGE USED TO TEACH

Italian, English

COURSE SUMMARY

Discussion and/or lecture presentations addressing recent literature as related to the microbial etiology and pathogenesis of periodontal diseases. The course will be directed to dental students, graduate students in periodontology and other interested students in post-graduate programs in the UNITO Dental School.

This section of the Parodontologia I course is designed to provide students with the knowledge and the basic tools necessary for understanding the microbial ecology and the immunopathology of periodontitis. The section includes a thorough discussion on the composition and architecture of the oral and periodontal microbiome around teeth and dental implants. The cellularity and the humoral components of the innate and adaptive immune response contributing to the pathophysiology are discussed in depth. The kinetics of microbial colonization and relative development of the destructive inflammatory immunopathology will be highlighted. The immunopathology which plays a central role in the etiopathogenesis of periodontal diseases will be

treated in detail and particular emphasis will be placed on the host pro-inflammatory susceptibility. Special attention will be also given to the development of the CD4+ T cell immune response and its various prominent phenotypes: Th1, Th2, Th17 and Tregs.

LEARNING OBJECTIVES

Knowledge and understanding skills:

1. The Oral Microbiome: Archea, Bacteria and Phages, Virus and Fungi
2. Bacteriology of Periodontal Disease: (i) Structure, composition, and ecology of the microbial biofilm; (ii) Symbionts, pathobionts and keystone pathogens.
3. Virulence Factors of Oral and Periodontal Microorganisms
4. Bacteriology of peri-implant disease
5. Oral biology of viruses: a niche for SARS-CoV-2
6. Microbial Invasion of Oral Epithelial Cells and Humoral Innate Defenses
7. Innate Immunity and Antigen Presentation: White blood cell function Neutrophil/Monocyte, Macrophages and Dendritic cells.
8. Contribution of T cells
9. Contribution of B cells / Plasma cells
10. Neutrophils and Crevicular Fluid Components
11. Host Response: Primary and Secondary Mediators of Inflammation in Periodontitis: Cytokines, Chemokines, Prostaglandins, Interleukins, Kinins.
12. Humoral and Cellular Immune Response: Role of Immunopathological Mechanisms in Periodontal Disease

TUTORSHIP ACTIVITIES

Office hours for post-lecture individual tutoring.

LAB ACTIVITIES

1. Laboratory of Biologia Cellulare di CIR Dental School
2. Laboratories of the Dipartimento di Scienze Cliniche e Biologiche

OTHER ACTIVITIES BESIDES THE COURSE

Seminars addressed to Postgraduate Program in Periodontology, PhD students and Research Fellows.

VISITING PROFESSOR PROFILE

The candidate should be a Professor of Periodontology and Oral Biology. The research interest should be centered on mucosal immunology and animal models of periodontitis. The candidate should be an expert in periodontal immunology in T cell-mediated immune response in oral infections. The candidate research interest should be focused on the clinical periodontal sciences and on the metabolomics of periodontitis and peri-implantitis.

CONTACT REFERENT
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