

# Oral Microbial Ecology

## Current Research and New Perspectives



*Edited by:* **Nicholas S. Jakubovics and Robert J. Palmer Jr.**

*Newcastle University, UK and National Institute of Dental Research, National Institutes of Health, Bethesda MD, USA; respectively*

**Published:** February 2013 (book); October 2013 (ebook). **Pages:** xii + 232

**Book:** ISBN 978-1-908230-17-1 £159, \$319. **Ebook:** ISBN 978-1-908230-82-9 £159, \$319

**Published by:** Caister Academic Press [www.caister.com](http://www.caister.com)

The oral cavity supports a rich and diverse microbial population. Oral health is dependent on the maintenance of stable microbial communities; disease occurs when this balance is disturbed and more pathogenic species outgrow the commensals. Health and disease in the mouth are active processes in which the ecology of communities, not of single organisms, is paramount.

Expert authors from around the world provide an update on recent developments in the burgeoning field of oral microbial ecology. The focus of the book is on the most topical areas in oral microbiology and the volume is a major new work in the field. The chapters are arranged into five sections: microbial populations in oral biofilms, the structure of oral biofilms, communication and sensing within biofilms, health to disease - the microbial community perspective, and new approaches for oral biofilm control. Specialist authors contribute chapters on various topics including population biology, detection and culture of novel oral bacteria, bacterial catabolism of salivary substrates, structural organization of oral biofilms, the extracellular polysaccharides matrix, extracellular proteins and DNA in the matrix, a holistic view of inter-species bacterial interactions, environmental sensory perception, microbial community interactions of *Streptococcus mutans*, biofilms in periodontal health and disease, oral biofilms as a reservoir for pathogens, oral biofilms as a device for therapeutic agents, and probiotics in oral healthcare.

The book is an essential text for scientists interested in oral microbiology, bacterial communities and biofilms and is recommended reading for anyone working in the areas of oral health, and the pathogenesis of dental caries and periodontal disease. A recommended book for all microbiology laboratories.

**Chapter 1.** Microbial Populations in Oral Biofilms. *Michael F. Cole, Katherine A. Wirth and George H. Bowden*

**Chapter 2.** Detection and Culture of Novel Oral Bacteria. *William Wade*

**Chapter 3.** Bacterial Catabolism of Salivary Substrates. *David Beighton, Sadaf Rasheed Mughal and Thuy Do*

**Chapter 4.** Structural Organization of Oral Biofilms in Supra- and Subgingival Environments. *Vincent Zijne, Annette Moter, Frank Abbas and Hermie Harmsen*

**Chapter 5.** The Role of Extracellular Polysaccharides Matrix in Virulent Oral Biofilms. *Marlise I. Klein, Megan L. Falsetta, Xiao J, William H. Bowen and Hyun Koo*

**Chapter 6.** Extracellular Proteins and DNA in the Matrix of Oral Biofilms. *Nicholas S. Jakubovics*

**Chapter 7.** A Holistic View of Inter-species Bacterial Interactions within Human Dental Plaque. *Alexander H. Rickard, Adam J. Underwood and William Nance*

**Chapter 8.** Environmental Sensory Perception by Oral Streptococci. *Justin Merritt and Jens Kreth*

**Chapter 9.** Microbial Community Interactions of the Cariogenic Organism *Streptococcus mutans*. *Saswat Sourav Mohapatra and Indranil Biswas*

**Chapter 10.** Biofilms in Periodontal Health and Disease. *Purnima S Kumar, Matthew R Mason and Janel Yu*

**Chapter 11.** Periodontal Biofilm and Immunity: Immune Subversion by Select Pathogens as a Community Service. *George Hajishengallis*

**Chapter 12.** Oral Biofilms as a Reservoir for Extra-oral Pathogens: Ventilator Associated Pneumonia. *John G. Thomas*

**Chapter 13.** Oral Biofilm as a Vehicle for Chemotherapeutic Agents. *Marieke P.T. Otten, Henk J. Busscher, Chris G. van Hoogmoed, Frank Abbas and Henny C. van der Mei*

**Chapter 14.** Probiotics: a Possible Tool in Oral Health Care?. *Christof Godts, Gitte Loozen, Marc Quirynen and Wim Teughels*

### Order from:

Caister Academic Press, c/o Book Systems Plus <http://www.caister.com/order>

☞ **MALDI-TOF Mass Spectrometry in Microbiology**

**Edited by:** Markus Kostrzewa and Sören Schubert (Published: 2016)

☞ ***Aspergillus* and *Penicillium* in the Post-genomic Era**

**Edited by:** Ronald P. de Vries, Isabelle Benoit Gelber and Mikael Rørdam Andersen (Published: 2016)

☞ **The Bacteriocins: Current Knowledge and Future Prospects**

**Edited by:** Robert L. Dorit, Sandra M. Roy and Margaret A. Riley (Published: 2016)

☞ **Omics in Plant Disease Resistance**

**Edited by:** Vijai Bhadauria (Published: 2016)

☞ **Acidophiles: Life in Extremely Acidic Environments**

**Edited by:** Raquel Quatrini and D. Barrie Johnson (Published: 2016)

☞ **Climate Change and Microbial Ecology: Current Research and Future Trends**

**Edited by:** Jürgen Marxsen (Published: 2016)

☞ **Biofilms in Bioremediation: Current Research and Emerging Technologies**

**Edited by:** Gavin Lear (Published: 2016)

☞ **Microalgae: Current Research and Applications**

**Edited by:** Maria-Nefeli Tsaloglou (Published: 2016)

☞ **Gas Plasma Sterilization in Microbiology: Theory, Applications, Pitfalls and New Perspectives**

**Edited by:** Hideharu Shintani and Akikazu Sakudo (Published: 2016)

☞ **Virus Evolution: Current Research and Future Directions**

**Edited by:** Scott C. Weaver, Mark Denison, Marilyn Roossinck and Marco Vignuzzi (Published: 2016)

☞ **Arboviruses: Molecular Biology, Evolution and Control**

**Edited by:** Nikos Vasilakis and Duane J. Gubler (Published: 2016)

☞ ***Shigella*: Molecular and Cellular Biology**

**Edited by:** William D. Picking and Wendy L. Picking (Published: 2016)

☞ **Aquatic Biofilms: Ecology, Water Quality and Wastewater Treatment**

**Edited by:** Anna M. Román, Helena Guasch and M. Dolors Balaguer (Published: 2016)

☞ **Alphaviruses: Current Biology**

**Edited by:** Suresh Mahalingam, Lara Herrero and Belinda Herring (Published: 2016)

☞ **Thermophilic Microorganisms**

**Edited by:** Fu-Li Li (Published: 2015)

☞ **Flow Cytometry in Microbiology: Technology and Applications**

**Edited by:** Martin G. Wilkinson (Published: 2015)

["an impressive group of experts"](#) (ProtoView)

☞ **Probiotics and Prebiotics: Current Research and Future Trends**

**Edited by:** Koen Venema and Ana Paula do Carmo (Published: 2015)

☞ **Epigenetics: Current Research and Emerging Trends**

**Edited by:** Brian P. Chadwick (Published: 2015)

["this is one text you don't want to miss"](#) (Epigenie); ["up-to-date information"](#) (ChemMedChem)

☞ ***Corynebacterium glutamicum*: From Systems Biology to Biotechnological Applications**

**Edited by:** Andreas Burkovski (Published: 2015)

["Without question a valuable book"](#) (BIOSpektrum)

☞ **Advanced Vaccine Research Methods for the Decade of Vaccines**

**Edited by:** Fabio Bagnoli and Rino Rappuoli (Published: 2015)