

Special Issue

Microbial Mechanisms and Host Interactions in Oral Diseases: Implications for Pathogenesis, Prevention, and Novel Therapeutics

Message from the Guest Editor

Oral diseases, such as dental caries, periodontal diseases, and oral cancers, remain a major global health challenge. These conditions result from complex interactions between genetic, environmental, and microbial factors, with poor oral hygiene and lifestyle practices playing key roles. This review examines the etiology and pathogenesis of common oral diseases, focusing on microbial biofilms, host immune responses, and their systemic health impacts. It also explores advancements in diagnostic technologies, including molecular assays and advanced imaging, which improve early detection and disease monitoring. Preventive strategies like fluoride use, dietary changes, and public health initiatives are critically assessed. Furthermore, innovative therapies—such as probiotics, nanotechnology, and regenerative medicine—are highlighted for their potential to revolutionize oral healthcare. A comprehensive understanding of oral diseases is essential for effective prevention, early detection, and improved treatment outcomes.

Guest Editor

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About the Journal

Message from the Editor-in-Chief

The worldwide impact of infectious disease is incalculable. The consequences for human health in terms of morbidity and mortality are obvious and vast but, when infections of animals and plants are also taken into account, it is hard to imagine any other disease that has such a significant impact on our lives—on healthcare systems, on agriculture and on world economics.

Pathogens is proud to continue to serve the international community by publishing high quality studies that further our understanding of infection and have meaningful consequences for disease intervention.

Editor-in-Chief

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