

Special Issue

Bacterial Infections: Unraveling Pathogenesis, Resistance, and Therapeutic Frontiers

Message from the Guest Editor

Bacterial infections represent one of humanity's most persistent health challenges, now established as the second leading cause of death globally. The landmark 2022 GRAM Project study revealed that 33 bacterial pathogens were associated with 7.7 million deaths in 2019—approximately one in eight global deaths. The molecular basis behind the virulence and pathogenicity of these bacteria urgently needs to be investigated on the genomic, transcriptomic, and proteomic levels.

Intervention strategies based on molecular insights—from CRISPR-based diagnostics to bacteriophage engineering and novel small-molecule inhibitors targeting resistance mechanisms—show promise for averting millions of deaths.

This Special Issue of IJMS will exclusively feature research with robust molecular data exploring bacterial resistance genomics, host–pathogen interactions, molecular epidemiology, and novel antimicrobial targets. As a molecular-focused journal, IJMS requires submissions to include comprehensive molecular analyses using techniques such as whole-genome sequencing, transcriptomics, proteomics, or structural biology.

Guest Editor

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Message from the Editor-in-Chief

The International Journal of Molecular Sciences (*IJMS*, ISSN 1422-0067) is an open access journal, which was established in 2000. The journal aims to provide a forum for scholarly research on a range of topics, including biochemistry, molecular and cell biology, molecular biophysics, molecular medicine, and all aspects of molecular research in chemistry. *IJMS* publishes both original research and review articles, and regularly publishes special issues to highlight advances at the cutting edge of research. We invite you to read recent articles published in *IJMS* and consider publishing your next paper with us.

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