

## Special Issue

# Molecular Mechanisms of Antimicrobial Resistance and Host–Pathogen Interactions: From Genes to Therapeutics

### Message from the Guest Editor

This Special Issue aims to explore the complex molecular landscape of antimicrobial resistance and the dynamic interplay between pathogens and the host immune system. We welcome submissions focusing on the genetic and molecular determinants of resistance (e.g.,  $\beta$ -lactamases, carbapenemases, ESBLs, MBLs, and mcr genes), regulation of virulence and persistence, quorum sensing, and the molecular architecture of biofilms. Particular interest is given to studies investigating host immune responses, immunoparalysis, and microbiota-related mechanisms that influence infection outcomes. We also encourage contributions addressing innovative diagnostics and therapeutic approaches, including antimicrobial peptides, phage therapy, immunomodulators, and pharmacodynamic optimization strategies in complex clinical settings such as sepsis, ECMO support, and intensive care. We hope this Special Issue will serve as a platform to deepen the understanding of AMR at the molecular level and promote the development of targeted therapeutic strategies.

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### Guest Editor

Dr. Carlo Acierno

Department of Internal Medicine and Infectious Diseases, San Carlo Hospital, Potenza, Italy

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### Deadline for manuscript submissions

30 September 2025



## International Journal of Molecular Sciences

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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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### Editor-in-Chief

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