

## Special Issue

# Beyond Antimicrobial Resistance: Molecular Mechanisms of Bacterial Survival Strategies and Next-Generation Therapeutic Approaches

### Message from the Guest Editor

The global crisis of antimicrobial therapy failure has long been primarily attributed to classical mechanisms of antimicrobial resistance. However, bacteria continuously remain one-step ahead by developing increasingly sophisticated adaptive survival strategies to evade antimicrobial activity and persist under therapeutic pressure. Phenomena such as heteroresistance, persistence, tolerance and biofilm formation are increasingly recognized as important contributors to chronic infections and reduced therapeutic efficacy. Understanding of the molecular mechanisms underlying adaptive bacterial survival strategies, and development of next-generation therapeutic approaches, is urgently needed.

The scope includes, but is not limited to, heteroresistance, multi-heteroresistance, persistence, tolerance, biofilm formation, stress adaptation and virulence-associated survival mechanisms. Original research articles and review papers addressing innovative anti-infective strategies beyond conventional antibiotics are particularly encouraged, including anti-biofilm therapies, antimicrobial peptides, nanotechnology-based approaches, anti-virulence strategies, and emerging therapeutic technologies.

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### Guest Editor

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