Special Issue

Peptide-Based Antibiotics: Challenges and Opportunities

Message from the Guest Editors

Antimicrobial resistance is one of the most imminent threats to public health. There is a critical unmet need for novel antibiotics capable of killing multidrug-resistant bacteria. AMPs are a part of the innate immune system of all living organisms and typically exhibit broad-spectrum activity against Gram-positive and Gram-negative bacteria. Furthermore, AMPs display a wide range of immunomodulatory properties. Compared to traditional antibiotics, AMPs appear to have a lower propensity to select for resistant strains. However, natural AMPs are potentially toxic and rapidly degraded by proteases with an ensuing low bioavailability. The stability of AMPs can typically be improved by chemical modification such as lipidation, cyclization, or the insertion of non-standard building blocks, including D-amino acids or peptoids. Alternatively, peptidomimetics such as □-peptide/□-peptides, □-peptides/□-peptoids, or □-peptide/□-peptoids are very promising. Other interesting approaches are peptoids, AMP dendrimers, peptide–antibiotic conjugates, and peptidomimetics for the repurposing of antibiotics against multidrug-resistant pathogens.

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Message from the Editor-in-Chief

There are very few fields that attract as much attention as scientific endeavor related to antibiotic discovery, use and preservation. The public, patients, scientists, clinicians, policy-makers, NGOs, governments, and supra-governmental organizations are all focusing intensively on it: all are concerned that we use our existing agents more effectively, and develop and evaluate new interventions in time to face emerging challenges for the benefit of present and future generations. We need every discipline to contribute and collaborate: molecular, microbiological, clinical, epidemiological, geographic, economic, social scientific and policy disciples are all key. *Antibiotics* is a nimble, inclusive and rigorous indexed journal as an enabling platform for all who can contribute to solving the greatest broad concerns of the modern world.

Editor-in-Chief

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