



antibiotics



Special Issue Reprint

Design and Synthesis of Novel Antibiotics

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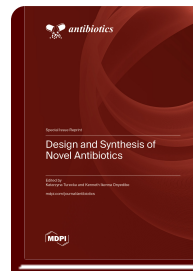
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The increasing resistance of microorganisms to currently available antimicrobial agents represents a serious and growing global health concern. Antimicrobial resistance (AMR) arises naturally over time, driven by selective pressure associated with the extensive use of antimicrobial compounds. Genetic mutations and adaptive mechanisms allow sensitive microorganisms to acquire resistance, with bacterial pathogens showing particularly alarming trends—especially the rapid emergence and dissemination of multidrug-resistant (MDR) and pan-drug-resistant (PDR) strains.

This phenomenon is exacerbated by the widespread use of antibiotics in clinical therapy, agriculture, and the food industry, contributing to the environmental accumulation of antimicrobial residues and further promoting resistance. As a result, there is an urgent need to develop novel antibiotics with alternative mechanisms of action and improved safety profiles.

This Reprint presents recent advances in the design, chemical synthesis, and structural characterization of new antimicrobial agents. Emphasis is placed on the evaluation of their biological activity and cytotoxicity. The Special Issue includes both original research articles and review papers, offering valuable insights into current strategies aimed at overcoming antimicrobial resistance.



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