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Special Issue Reprint

Functional Polymers as Innovative Tools in the Delivery of Antimicrobial Agents

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This Special Issue explored different topics concerning recent progress in the synthesis and characterization of suitable innovative macromolecular systems, proposed as carriers of specific antimicrobial molecules, to be employed in the biomedical and pharmaceutical fields. Many infectious diseases are induced by omnipresent micro-organisms, including bacteria, viruses, protozoa, fungi, and algae, and, consequently, are very common, accounting for a significant share of the global disease burden. Unfortunately, antimicrobial resistance, adverse effects, and the high cost of antimicrobials are crucial health challenges worldwide. One of the common efforts in addressing this issue lies in improving the existing antimicrobial delivery systems. In this regard, nanoparticles as well as three-dimensional hydrophilic systems represent valuable tools able to ensure excellent performances. Biocompatible polymeric particles, entrapping these bioactive molecules, are capable of releasing them over a desired period of time, thereby decreasing the frequency of their administration. At the same time, these systems are able to protect antimicrobial drugs from degradation, enhancing their bioavailability. This Special Issue serves to highlight and capture the contemporary progress recorded in this field.



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