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Advances in Antimicrobial Nanoparticles

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Deadline for manuscript submissions:
closed (31 October 2021)

Message from the Guest Editor

According to World Health Organization, antimicrobial resistance (AMR) which is the ability of a microorganism (bacteria, viruses, parasites) to stop an antimicrobial (antibiotic, antiviral and antimalarial) from working against it, is becoming an increasingly serious threat to global public health. Standard treatments become ineffective, infections persist and may spread to others. Nanoparticles (NPs) are increasingly used to target microorganisms as an alternative to the development of new antibiotics. NPs can be used either in solution, lyophilized, coated or incorporated into drug delivery devices to treat infection diseases, generate microbial diagnostics and antimicrobial vaccines. Sources of NPs include polymers, natural compounds, metals, organic, inorganic, composites and others. Synergistic effects of nanotechnology with antibiotics, natural extracts and photo-radiation; the mechanism of action against microbes are also important parameters for fighting AMR.

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Message from the Editor-in-Chief

Nanoscience and nanotechnology are exciting fields of research and development, with wide applications to electronic, optical, and magnetic devices, biology, medicine, energy, and defense. At the heart of these fields are the synthesis, characterization, modeling, and applications of new materials with lower nanometer-scale dimensions, which we call "nanomaterials". These materials can exhibit unusual mesoscopic properties and include nanoparticles, coatings and thin films, metal–organic frameworks, membranes, nano-alloys, quantum dots, self-assemblies, 2D materials such as graphene, and nanotubes. Our journal, *Nanomaterials*, has the goal of publishing the highest quality papers on all aspects of nanomaterial science to an interdisciplinary scientific audience. All of our articles are published with rigorous refereeing and open access.

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