

Special Issue

Nanotechnology for Biofilm Prevention, Treatment and Diagnosis

Message from the Guest Editor

Microbial biofilm formation constitutes the main reason for biomaterial associated infections around catheters, orthopaedic, trauma, dental implants, and many other biomedical devices, and complicates and impairs the healing of chronic wounds. The biofilm matrix acts as a protective barrier and prevents nutrients from penetrating into the deeper layers of a biofilm causing low susceptibility of organisms to antimicrobials and the host immune system. Main strategies to fight biofilms are either based on preventing biofilm formation, on penetration and the killing of bacteria or fungi in biofilms or finally biofilm debridement. Many of these strategies may involve nanotechnology. The treatment and prevention of biofilms are extremely complex and have sparked a great deal of interest. Biofilm diagnosis, detection and staging, particularly in clinical settings, however, are still far from mature and may benefit from nanotechnology as well. This Special Issue aims at collecting a compilation of articles that strongly demonstrate the continuous efforts in developing advanced and safe nanomaterial-based technologies to diagnose and fight microbial biofilms.

Guest Editor

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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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