Special Issue

Novel Antibacterial and Antimicrobial Nanoparticles for Healthcare Applications

Message from the Guest Editor

Owed to the extraordinary rise in bacterial resistance towards antibiotics, infections continue to proliferate, and millions of deaths in hospitals take place. Hospitalacquired infections result in up to \$4.5 billion in additional healthcare expenses annually in the US. Therefore, infection-prevention strategies are essential. Antibacterial nanoparticles are a suitable solution to antimicrobial resistance; they not only kill antibioticresistant bacteria via different mechanisms, but can also be combined with antibiotics to overcome antimicrobial resistance. Nanotechnology can be specially advantageous in treating bacterial infections. Examples comprise the use of nanoparticles in antibacterial coatings for implantable devices, in bacterial detection systems to provide microbial diagnostics, in medicinal nanomaterials to prevent infections and promote wound healing, and so forth. This Special Issue is devoted to both original research and review papers regarding the synthesis, design and characterization of new antimicrobial nanoparticles (e.g., carbon-based, metal and polymeric) which significantly prevent the growth of bacteria, specially focused on healthcare applications.

Guest Editor

Prof. Dr. Ana María Díez-Pascual

Facultad de Ciencias, Departamento de Química Analítica, Universidad de Alcalá, Química Física e Ingeniería Química, Ctra. Madrid-Barcelona Km. 33.6, 28805 Alcalá de Henares, Madrid, Spain

Deadline for manuscript submissions

closed (31 December 2022)



Nanomaterials

an Open Access Journal by MDPI

Impact Factor 4.3 CiteScore 9.2 Indexed in PubMed



mdpi.com/si/67583

Nanomaterials
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
nanomaterials@mdpi.com

mdpi.com/journal/nanomaterials





Nanomaterials

an Open Access Journal by MDPI

Impact Factor 4.3 CiteScore 9.2 Indexed in PubMed



About the Journal

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 nanometerscale 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. We are proud of our increasing impact factor and ability to provide rapid decisions to authors.

Editor-in-Chief

Prof. Dr. Eugenia Valsami-Jones

School of Geography, Earth and Environmental Science, University of Birmingham, Birmingham B15 2TT, UK

Author Benefits

Open Access:

free for readers, with article processing charges (APC) paid by authors or their institutions.

High Visibility:

indexed within Scopus, SCIE (Web of Science), PubMed, PMC, CAPlus / SciFinder, Inspec, and other databases.

Journal Rank:

JCR - Q2 (Physics, Applied) / CiteScore - Q1 (General Chemical Engineering)

