Bioinorganic Chemistry and Applications

Hindawi

Special Issue on

Bioinorganic Compounds and Nanomaterial as Metallotherapeutics: An Alternate Therapeutic Regime against Drug-Resistant Bacteria

CALL FOR PAPERS

Pretreatment antimicrobial resistance threatens the effective prevention and treatment of an ever-increasing range of infections caused by bacteria, parasites, viruses, and fungi. This phenomenon is an increasingly serious threat to global public health and requires rapid action across all government sectors and societies across the globe. Recent studies have reported that antimicrobial resistance to standard drugs is present in all parts of the world. New resistance mechanisms emerge and are spreading globally. Recently, WHO has reported a gradual increase in resistance to first-line treatment drugs, which might require using more expensive drugs in the near future. Medicinal chemists are making their tremendous efforts to address the problem by the development of new antimicrobial agents and modification of the therapeutic regimens currently being used for infectious diseases. Metals, metallic complexes, metal-based nanoparticles and nanomaterial, and so forth are being explored for their potential biological activities.

Therefore, in this special issue, we invite the authors to submit original research and review articles that seek the new synthetic and cost-effective approaches including physical and biological and chemical methods for the preparation of metallic complexes, chelates, metal-drug chelates, metallic nanoparticles, composite materials, and other nanomaterials, the probe into the advanced techniques for the characterization, and analysis of the physicochemical and biological properties of such materials. Moreover, the *in vitro* and *in vivo* biological applications of biocompatible materials against drug-resistant bacteria and various fields including protein immobilization, biomolecules sensing, biomedical, immunoassay, cell adsorption, and proliferation cover the scope of this issue.

Potential topics include but are not limited to the following:

- Recent advances in biological applications of metallotherapeutics including metallonanomaterial and their applications against drug-resistant bacteria
- Novel synthetic approaches of metallotherapeutics with enriched biocompatibility
- Synthesis, characterization, and biological evaluation of novel metal-based drugs
- Green and chemical based synthesis methodologies for the preparation of biologically active nanoparticles by using modern characterization techniques
- Physical and chemical properties of biocompatible nanoparticles
- Biofunctionalization of nanoparticles for protein adsorption and biomolecules sensing
- Size- and shape-dependent biological properties of metallic nanoparticle
- Study of metallic nanoparticles and other materials as enzyme inhibitors
- Synergistic antibacterial activities of metallic complexes and nanoparticles in conjunction with standards antimicrobial agents
- Toxicity studies of metals, metallic complexes, nanoparticles, and metallic composite materials
- Mechanistic study of antimicrobial activities of metallotherapeutics
- Synthesis of nanomaterial for the treatment of *Helicobacter pylori* induced gastric ulcer

Authors can submit their manuscripts through the Manuscript Tracking System at http://mts.hindawi.com/submit/journals/bca/bnb/.

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