

Special Issue on **Biocompatible Nanostructured Inorganic Materials**

CALL FOR PAPERS

Coordination polymers (CPs) have attracted a great amount of attention because of their beneficial uses in catalysis and biomedical applications. Recent research efforts have been devoted to the development of new nanoarchitected CPs to meet the emerging technological advances in biological and biomedical applications. Various nanostructures can be simply synthesized by purposefully changing the synthetic parameters. Several approaches have been developed to construct nanostructured inorganic materials from CPs. One way is the controlled thermal treatment of CPs nanostructures in air or in an inert atmosphere yielding nanoporous metal oxides, carbides, and/or alloys with similar morphology. In spite of the rapid progress in the field of bioinorganic CPs, more research is needed to develop highly functional nanostructured inorganic biomaterials. Challenges include the following: the development of fine crystal systems without defects or impurities, hollow and hierarchical porous architectures with high specific surface area, well-retained thermally derived inorganic nanostructures, and highly functional inorganic nanomaterials which are biocompatible.

Many of these nanoscale materials have shown a great success in biological and biomedical applications because of their tunable sizes, high agent loadings, controllable drug release, the enhanced permeability and retention (EPR) effect, or active tumor targeting. For instance, these materials improved the functionality of highly effective imaging techniques, such as magnetic resonance imaging (MRI) and optical imaging.

We invite researchers to contribute original research as well as review articles for developing new CPs nanomaterials and their derivatives for their utility and applications in biology and medicine. We are particularly interested in articles that evaluate the biocompatibility and magnetism of nanostructured inorganic materials and their applications in biomedical imaging, biosensors, bioelectronics, drug delivery, and anticancer and antimicrobial modalities. We hope to attract review articles which describe the current state of the art of biocompatible CPs, their derivatives, and their applications in biology and medicine.

Potential topics include but are not limited to the following:

- ▶ Synthesis of metal-organic frameworks (MOFs) and porous coordination polymers (PCPs) and their inorganic derivatives and evaluation of their biocompatibility
- ▶ Functionalization of MOFs or PCPs with biological molecules (e.g. enzymes, proteins) and studying them in nanospace
- ▶ Metalloenzymes, model compounds, biomaterials, biocatalysis, implantable and wearable biosensors, and bioelectronics
- ▶ Metal nanostructures in biology and medicine, toxicology of metal nanoparticles, metals in the environment, and interactions of metal nanostructures with biomolecules
- ▶ Application of nanoparticles for drug-delivery systems (DDSs), magnetic resonance imaging (MRI), and magnetic-guided chemotherapy
- ▶ Application of nanoparticles as antimicrobial agents (e.g. combating pathogens, enhancing efficiency of herbicides and pesticides)

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/bca/bnim/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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