



Bioinorganic Chemistry and Applications

Special Issue on Supramolecular Bioinorganic Chemistry

CALL FOR PAPERS

Noncovalent interactions occurring between different molecules play key roles in many biological systems and processes. The importance of these interactions has inspired researchers to investigate this supramolecular phenomenon and to develop a diverse range of synthetic receptors that are capable of encapsulating or undergoing complexation with molecules of interest, in order to mimic the structure and functionality of receptor systems found in nature. Meanwhile, inorganic systems play key roles in many biological processes, such as enzymatic metabolism, allowing organisms to breathe, facilitating photosynthesis, and playing critical roles in numerous other processes. In the medical field, inorganic compounds have a wide range of applications, including anticancer drugs, anti-inflammatory agents, for combating arthritis, facilitating digestion, and many other uses. The complexation of biologically or medically relevant inorganic substances with supramolecular hosts is thus of significant interest. These systems have applications as drug delivery vehicles, biosensors, imaging agents to facilitate diagnosis, enzyme and metalloprotein models, and stimuli-responsive switches for the controlled release of drugs or activation of other biological functions, as well as numerous other potential applications.

This special issue will attempt to highlight the intersection between the fields of supramolecular and bioinorganic chemistry. With this in mind, we invite original research articles and review articles describing the complexation between biologically or medically relevant inorganic compounds and common supramolecular hosts. These supramolecular hosts may include (but are not limited to) cucurbiturils, calixarenes, crown ethers, Schiff base macrocycles, cyclophanes, cyclodextrins, and other relevant receptors and their derivatives. While we open this invitation to contributions involving a wide range of supramolecular receptors and bioinorganic compounds, a common theme between all of these targeted contributions is that they will involve the complexation of biologically or medically relevant inorganic compounds with these supramolecular receptors.

Potential topics include, but are not limited to:

- ▶ Supramolecular hosts as delivery systems for inorganic drugs
- ▶ Host-guest systems between supramolecular hosts and biologically relevant inorganic compounds and their applications as biosensors
- ▶ Supramolecular systems as models of metalloenzyme binding sites
- ▶ The mediation of biologically relevant metal-containing redox systems by complexation with supramolecular hosts
- ▶ Complexation of gadolinium-based imaging agents with macrocyclic receptors
- ▶ The regulation or inhibition of metalloenzymes via supramolecular complexation
- ▶ The remediation of free metals or metal complexes from the environment and from physiological media
- ▶ Stimuli-responsive complexation (and decomplexation) of biologically relevant inorganic compounds with supramolecular hosts
- ▶ Supramolecular receptors for the targeted delivery of image contrast agents
- ▶ Investigation of metalloproteins and metalloprotein mimics via supramolecular chemistry

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