

Tentative Outline

Special Thematic Issue for the journal : *Current Drug Targets*

Title of the Thematic Issue: Nanotechnology based theranostic approaches against cancerous malignancies and infectious diseases.

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- **Scope of the Thematic Issue:**

In recent years, prodigious progress of nanotechnology prompted researchers across the globe to ponder over the enormous possibilities of commissioning this for developing imaging and diagnostic-based medicine for cancer. Ergo, multimodal theranostics (therapy plus diagnostic) nanomedicine has emerged as a providential paradigm in cancer therapy. It entails the benefits of both worlds: highly efficacious nanocarriers to ferry cargo while loading them onto both imaging and therapeutic agents. However, systemic toxicity is a major drawback, limiting the utility and effectiveness of such therapies. Among a phenomenally diverse range of nano-systems with their divergent synthetic routes, bio-inspired methods are appraised to be superior to chemical methods as the latter involves consumption of noxious materials resulting in abysmal consequences. Therefore, synthesis of bioinspired nanoparticles (biomimetics or using biological agents such as microbes/plant extracts for nanoparticle synthesis) has gained much attention in the area of nanotechnology. Bio-assisted synthesis not only save us from chemical toxicity but also provide more biocompatible material.

Many recent research data suggest that bioinspired nano-formulations are typically well tolerated, less toxic besides its higher accumulation at the target site. Hence, this research topic aims to cover biomimetic e.g. tooth-inspired composites, peptide-based nanostructures, and protein-aided fabrication of inorganic nanostructures, together with molecular machines, sensors and nanoscale deformation in biological tissues, and nanomaterials for environmental applications. Further potential of nano-formulations has been realized in the development of targeted /guided drug delivery systems to deliver drugs or other agents at the target to achieve desired therapeutic ratio. Guided drug delivery is often achieved by functionalization of nanoparticles for specific binding or attachment of some traceable molecule (Qdots, Image contrast agents etc). In addition to targeted/guided nanoparticle delivery, other targeting strategies have utilized the unique microenvironment at the site of pathogenesis, such as change in pH, enzyme overexpression and other physiological changes.

Hence, this Research Topic aims to cover the current progress of bioinspired nanomaterials and formulations covering therapeutic and diagnostic applications against cancerous malignancies and infectious diseases

Keywords: Nanoformulations, theranostics, Nanoplatforms, Cancer, Infectious diseases, Targeted

Sub-topics:

Nanomaterials as anti-cancer and anti-Infectious diseases

Environmental friendly nanoparticles and their applications

Nanotechnology in disease diagnosis and prevention

New avenues in nanomedines (Not only limited to these subtopics)

Schedule:

✧ Thematic issue submission deadline: March 2021

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