

Tentative Outline

Special Issue for Current Topics in Medicinal Chemistry

Recent Contributions of Medicinal Chemistry to Nano Drug Delivery Systems and Bio-Conjugates

Guest Editor: *Fatemeh Bahadori*

Aims & Scope:

During the last decades delivering biologically active molecules using nano materials, have gained increasing attention in a wide range of applications from sensing and imaging to treatment of disease. The superior properties of nano materials provide numerous feasibilities such as controlling the release of drugs, targeting and imaging of cancer tumors, increasing serum half-life of bioactive molecules, passing over Blood Brain Barrier etc. and this is where, Medicinal Chemistry has a lot to say. The involvement of Medicinal Chemistry to this area, starts from the very first step of synthesis and preparation of nanocarriers in laboratory and continues till the last step, where, the newly created bioactive material will fulfill its outstanding task on biological system.

The aim of this Special Issue of CTMC, is to emphasize the undeniable importance of Medicinal Chemistry in each step of the processing Nano-drug delivery systems and bio-conjugates.

Nanomedicines are obtained from uploading active molecules to nano drug delivery systems. These carriers which are generally in spherical shape, are able to carry the payload either in core part or by adsorbing them to the surface. It is also possible to decorate the surface of nano drug delivery system with specialized ligands, receptors of which are over-expressed at the surface of targeted organ or tissue and cell. Bio-conjugates are synthesized by chemically binding of biologically active molecule to polymer or protein chain. Some bio-conjugates are also obtained by conjugation of proteins to polymers. Both of nano-drug delivery systems and bio-conjugates have the ability of protecting the biologically active molecule from immunologic system of body which will try to clear the body from foreigner material and consequently will increase the serum half-life of the therapeutic material. More importantly both bio-materials will provide targeting the disease side using the special properties of their own or the physiological properties of the targeted tissue.

Keywords: Synthesis of Nano-Drug Delivery Systems, Bioconjugation, Bio-Material Synthesis, Surface Modification of Nano-Drug Delivery Systems, Synthesis of Amphiphilic Materials, Synthesis of Bio-Polymers

Subtopics:

The subtopics to be covered within this issue are listed below:

- New non-toxic synthesis methods for preparation of bio-degradable and bio-compatible polymers, how to avoid toxic residues?
- The role of green chemistry in synthesis of medicinal nano materials
- Synthesis of nano-drug delivery systems using natural products
- The effect of chemical structure of lipid chain on morphology and stability of liposomes and lipid based micelles
- The effect of chemical structure of amphiphilic materials on the shape and size of the self-assembly systems
- The effect of chemical structure of amphiphilic materials on surface charge of nano drug delivery systems and their uptake by cells
- The changes on size, surface charge and drug loading efficacy of dendritic spheres caused by the chemical structure of used materials
- Current methods used in cross linking amphiphilic materials used in structure of self-assembly systems, strengthen or increase in toxicity?
- Toxicity and efficacy of carbon nano-tubes based on their size and structure
- Increase or decrease in efficacy of peptides and proteins after chemical reaction, does the receptor recognize the chemically bonded ligand?
- The importance of docking studies prior to conjugation of receptor ligands to polymers or drugs for more effective targeting

- Contribution of different hydrophobic polymers to the drug loading efficacy of self-assembly systems for carrying poorly water soluble materials
- Contribution of branch number of hydrophilic polymers in the strength of self-assembly systems
- Short and cheap methods for synthesis of bio- polymers. Is complicated synthesis methods an obstacle for translational studies?
- Current status of Enzyme modifications and bioconjugation
- Current status in development of radioimmunoconjugates
- Other similar topics.

Please note that manuscript must be for long, definitive reviews, with a focus on medicinal chemistry

Schedule:

Prior to accepting the main manuscripts, authors need to send the tentative title and an abstract consisted of 250 words for editorial review.

- ✧ Title and Abstract Manuscript submission deadline June 27, 2015
- ✧ Manuscript submission deadline August 23, 2015
- ✧ Peer Review Due: September 27, 2015
- ✧ Revision Due: October 27, 2015
- ✧ Announcement of acceptance by the Guest Editors: November 7, 2015

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