Aims & Scope:
The unique mechanical, electrical, optical and chemical properties of carbon nanomaterials (CNs) like: Fullerenes, Carbon nanotubes, Graphene, Carbon nano-onions, their derivatives and composites made them widely used materials for various applications including biomedicine. Few recent applications of the CNs in biomedicine include: targeted drug delivery, bio-sensing, cell and tissue imaging, antibacterial and antiviral activity, MRI contrast agents and regenerative medicine. In this issue, we review the most important literature reports in this area, which in a condensed way, present these nanostructures, their production methods, their unusual physical and chemical properties and their potential uses focusing in biomedicine. However, functionalization renders the CNs non-toxic, passive and water soluble, which is required for biomedical applications. We will describe several synthetic approaches, which have given remarkable progress in biological application, and we will focus on the most recent developments for different biological and medical application. The low cytotoxicity and the high biocompatibility of this class of CNs along with their encouraging immunological and antioxidant properties, can envisage the realization of multi stimuli-responsive and dynamic materials which could results relevant for diagnosis, imaging and therapies of specific disease applications.

We will also describe and compare the practical use of low-cost, nanomaterial biosensor devices able to rapid, sensitive and accurate determination of pathogenic agents and physiologically relevant molecules (such as nitrate and oxygen free radicals or reactive forms of oxygen), based on the most effective enzymatic direct electron transfer mechanism. The effectiveness of biosensors strictly depends on the properties and the construction of matrix for biocatalysts, therefore a special attention is focused also on nanostructures and their modifications impact on bio-detecting opportunities.

Keywords: MRI contrast agents, regenerative medicine; bioelectrochemistry; immunology; biology; biomedicine; electrocatalysis; physicochemical methods; spectroscopy

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

- materials chemistry,
- fullerene derivatives,
- carbon nanostructures,
- drug delivery, biosensing, c
- cell and tissue imaging,
- antibacterial and antiviral activity,
- MRI contrast agents,
- regenerative medicine;
- bioelectrochemistry; immunology; biology; biomedicine;

Schedule:

- Manuscript submission deadline: April 2018
- Final manuscripts due: August 2018.

Contacts:

Guest Editor: Dr. Marta Brzezinska
Affiliation: Institute of Chemistry, University of Bialystok, Poland
Email: mplonska@uwb.edu.pl

Any queries should be addressed to cmc@benthamscience.org.