# Tentative Outline

**SPECIAL THEMATIC ISSUE for CURRENT MEDICINAL CHEMISTRY**

**Title of thematic issue:** NANOBIOENGINEERING IN DRUG DELIVERY

**Guest Editor:** Dr. Alexandru Mihai GRUMEZESCU

## Aim and Scope

Nanobiotechnology is a field which aims to control various parameters at the nanometric scale in order to obtain structures, devices or different systems with improved properties for numerous applications in the biomedical field. Two approaches are considered in this regard: top down and bottom up. The top down systems include, but are not limited to nanofluidic biochips, solid-state nanopore sensors used especially for DNA sequencing, lab-on-a-chip for flow separation and detection of DNA, proteins or other macromolecules. The bottom up scale is used in the fabrication process of hybrid materials and it includes nanoparticles, quantum dots, micelles, fullerenes, liposomes or biological molecules. These types of systems are very exploited these days by scientists and the newest direction in research refers to the idea of merging nanoscale materials such as nanowires, nanotubes etc. with engineered biomolecules (enzymes, polysaccharides, lipids, proteins etc.) with the aim of obtaining systems which might be used in therapy, diagnosis, sensing and imagining, cell and organ chips etc. The properties which may be obtained through this pathway are unique and the final product is completely different compared to their corresponding bulk biomaterial. The current challenge in the field of nanotechnology is represented by the intracellular drug delivery which is quite difficult due to the biological barriers. Therefore, many strategies have been proposed in the last years in order to overcome these issues, but research is still needed to find a balance between the engineered products and the human body. The results which can be obtained by exploiting these strategies are promising especially due to the fact that complex systems with highly ordered dimension can be obtained with a high fabrication accuracy and an improvement in both structural and functional control may be achieved. Thus, the need of investigation is a must in order to develop healthcare products which may treat and even prevent the appearance of various critical diseases.

The aim of this special issue is to present the latest updates in the field.

*Keywords: nanobiotechnology, lab-on-a-chip, nanofluids, engineered biomolecules, etc.*

## Subtopics

1. Nanofluidic biochips
2. Solid-state nanopore sensors
3. Fullerenes
4. Engineered biomolecules
5. Nanowires

## Schedule

- **Manuscript submission deadline:** October 1st, 2018
- **Peer Review Due:** November 10th, 2018
- **Revision Due:** December 10th, 2018
- **Announcement of acceptance by the Guest Editors:** December 20th, 2018
- **Final manuscripts due:** January 15th, 2019
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