

## **Tentative Outline**

### **Special Issue for Current Medicinal Chemistry**

**Guest Editor: Alexandru Mihai Grumezescu, Carmen Mariana Chifiriuc**

### **Prevention of microbial biofilms - the contribution of micro and nanostructured materials**

#### **Aims & Scope:**

Microbial biofilms are associated with drastically enhanced resistance to most of the antimicrobial agents and with frequent treatment failures, generating the search for novel strategies which can eradicate infections by preventing the persistent colonization of the hospital environment, medical devices or human tissues. The purpose of this special issue is to highlight the combined application of nanotechnology and biomaterials science for obtaining nanobiostructures with improved resistance to microbial biofilm development. We expect this special issue to be of great interest for the medicinal chemistry, opening new directions for the design of micro/nano engineered materials to inhibit microbial colonization on the surfaces or to potentiate the efficiency of the current antimicrobial agents by improving their bioavailability and pharmacokinetic features.

**Keywords:** Nanoparticles, biopolymers, functionalized surfaces, natural compounds, antimicrobial substances.

#### **Subtopics:**

- Magnetite: a powerful nanomaterial for the design of new therapeutic agents and functionalized surfaces to prevent microbial colonization
- Antibiofilm and antimicrobial properties of 5 nm water soluble iron oxid nanostructures
- Magnetic PLGA nanospheres for stabilization of antibiofilm activity of essential oils
- Water soluble hybrid nanomaterials based on metal oxides for the improvement of the current antibiotics anti-biofilm activity
- Multifunctional nanobiomaterials based on metal oxide and quorum sensing inhibitory agents with prolonged resistance to staphylococcal colonization
- Natural polymeric microspheres for the intracellular delivery of antibiotics normally active on extracellular bacteria
- Natural and synthetic zeolites as carriers and antibiotic delivery systems
- Hybrid-silica networks for the improvement of antimicrobial drugs activity
- Functionalized tubular prosthetic devices with improved resistance to microbial colonization
- Highly biocompatible collagen based bionanomaterials with antimicrobial properties
- PLGA-cyclodextrins micro and nanospheres for the design of anti-pathogenic surfaces
- Improvement of the antimicrobial properties of the natural compounds by using nanotechnological solutions
- Nanotechnological solutions for fighting medical biofilms. A review

#### **Schedule:**

**Manuscript Submission Deadline: 24/07/2013**

**Peer Review Due: 24/08/2013**

**Revision Due: 24/09/2013**

**Notification of Acceptance by the Guest Editor: 24/10/2013**

**Final Manuscript Due: 01/11/2013**