

Tentative Outline

Special Issue for Current Nanomedicine

Guest Editor(s): Dr. Swarnali Das Paul, Faculty of Pharmaceutical Sciences, SSGI, SSTC, Bhilai, C.G., India.

TITLE: “Nanotechnology: Past, Present and future trends”

Aims & Scope:

In the period of 30BC to 640AD, the first apparently accidental early use of nanotech came into existence as Lycurgus Cup which contains gold and silver nanoparticles that cause it to change color from green to red when illuminated from the outside or inside, respectively. After this the first true discovery was colloidal “ruby” gold by Michael Faraday in 1857. The word “Nanotechnology” first used and formulated by Professor Norio Taniguchi in 1974. Subsequently this nanotechnology applied into the infinite field of research and development.

Further, nanotechnology was defined by National Nanotechnology Initiative (NNI) as the study and use of structures roughly in the size range of 1 to 100 nm. Today nanotechnology is a multidisciplinary field, convergence of basic sciences and applied disciplines like biophysics, molecular biology, and bioengineering. It has created powerful impact in various fields of medicine including cardiology, ophthalmology, endocrinology, oncology, pulmonology, immunology etc., and to highly specialized areas like gene delivery, brain targeting, tumor targeting, and oral vaccine formulations. Nanotechnology provides intelligent systems, devices and materials for better pharmaceutical applications. Pharmaceutical nanotechnology is most innovative and highly specialized field, which will revolutionize the pharmaceutical industry in near future. Pharmaceutical nanotechnology presents revolutionary opportunities to fight against many diseases. It helps in detecting the antigen associated with diseases such as cancer, diabetes mellitus, neurodegenerative diseases, as well as detecting the microorganisms and viruses associated with infections. It is expected that in next 10 years market will be flooded with nanotechnology-devised medicine.

For decades pharmaceutical sciences have been using nanoparticles to reduce toxicity and side effects of drugs. Up to recently it was not realized that these carrier systems themselves may impose risks to the patient. The types of hazards that are introduced by using nanoparticles for drug delivery are beyond that posed by conventional hazards imposed by chemicals in delivery matrices. However, so far, the scientific paradigm for the possible (adverse) reactivity of nanoparticles is lacking and we have little understanding of the basics of the interaction of nanoparticles with living cells, organs and organisms. A conceptual understanding of biological responses to nanomaterials is needed to develop and apply safe nanomaterials in drug delivery in the future.

The impact of nanotechnology is spectacular in today’s life. Scientist assumed that in this growth rate, very soon “nanorobots” and “nanosurgeon” will be developed. Patients will be able to drink fluids containing “nanorobots” which will attack the molecular structure of cancer cells and viruses. It is

expected that this “nanorobots” could reverse the aging process and increase life expectancy. Scientists may one day be able to program airborne “nanorobots” to rebuild the ozone layer. It will be used to help clean up oil spills. “Nanosurgeons” may be able to perform delicate surgeries without the high risk.

Thematic Issue Highlights

- Fundamentals of Nanoscience and Nanotechnology
- Nano drug discovery and drug development
- Drug Development Stages
- Challenges of nanoproduct
- Clinical Studies
- Nanotoxicology
- Good manufacturing practices for nanoproducts manufacturing
- Functions of Regulatory Bodies
- Applications of Nanoproducts

Subtopics:

1. Dr. Rupa Mazumder, Professor, NIET, Noida, India.

Topic: Formulation development and optimization of gastro-retentive floating hollow microspheres of diacerein

2. Mr. Debarshi Kar Mahapatra , Kamla Nehru College of Pharmacy, Nagpur (MH), India

Topic: Anticancer drug design and discovery

3. Dr. Preeti Venugopalan, Associate Professor, Pt. RSSU, C.G., India

Topic: Development and physicochemical characterization of nanostructured lipid carriers for ocular delivery of azithromycin

4. Mr. Gyanesh Sahu, Assistant Professor, RCPSR, Bhilai, India

Topic: Application of nanotechnology in anticancer drug delivery

5. Dr Shekhar Verma, Associate Professor, Faculty of Pharmaceutical Sciences, Shri Shankaracharya Group of Institutions, Bhilai, C.G., India.

Topic: Anhydrous Nanoemulsion: An Advanced Drug Delivery System for Poorly Aqueous Soluble Drugs

6. Miss Payal Ganguli, Project engineer, Indian Institute of Technology, Mumbai

Topic: Gold Nanoparticulate systems: Applications & Considerations in Drug Delivery Techniques

Schedule:

Manuscript submission deadline:	February 28 th 2016
Peer Review Due:	March 30 th , 2016
Revision Due:	April 30 th , 2016
Notification of acceptance by the Guest Editor:	May 10 th , 2016
Final manuscripts due:	May 30 th , 2016