

Trends in nanoscience and nanomedicine

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Nanoscience and Nanomedicine are close interrelated and demonstration of this interrelation is the main purpose of this new journal. Nanomedicine is the medical application of nanotechnology/nanoscience. It is concerns to the use of precisely engineered materials at nanoscale length to develop novel therapeutic and diagnostic modalities. Nanomedicine ranges from the medical applications of nanomaterials and biological devices, to nanoelectronic biosensors and more. Among the applications of nanomedicine are worth to mention: molecular diagnostics, nanodiagnosics, and improvements in the discovery, design and delivery of drugs, including nanopharmaceuticals/nanotherapeutics. It will improve biological therapies such as vaccination, cell therapy and gene therapy. Nanobiotechnology is the basis of many new devices for medicine and surgery such as nanorobots. Every branch of medicine is developing by using nanoscience as cancer (nanooncology), neurological disorders (nanoneurology), cardiovascular disorders (nanocardiology), diseases of bones and joints (nanoorthopedics), diseases of the eye (nanophthalmology), (nanodentistry) and infectious diseases. The main purpose of nanomedicine is the integration of diagnostics with nanotherapeutics in order to facilitate the development of personalized medicine, so that the prescription of specific therapeutics to be the best suited for an individual person.

Journal of Nanoscience and Nanomedicine is an open access journal which intends to be an international forum to disseminate the achievements in the nanoscience and nanotechnology as interdisciplinary research at the interfaces of chemistry, biology, pharmacy and medicine, materials science, physics, and engineering.

The journal will publish comprehensive articles on synthesis, processing, assembly (self- and directed-assembly), characterization, theory, and simulation of nanomaterials, such as nanoparticles, micelles, nanogels, nanocomplexes, nanocrystals, dendrimers, polymer–drug conjugates, nanoemulsions, inorganic nanoparticles etc., nanobiotechnology, nanofabrication, energy/environment, methods and tools for nanoscience and nanotechnology information technology, detection science, healthcare and drug discovery, and electronics.

In addition, perspectives on cutting-edge research, disputed and discussions of special topics between the leaders in nanoscience and nanotechnology that provide distinctive views about the future of nanoscience and nanotechnology will be also welcome especially as special issues and conferences proceedings.

Journal of Nanoscience and Nanomedicine publishes a mix of research articles on experimental and theoretical work, including reviews, letters and full papers. The review articles will be usually invited by the Editors. Topics covered in the journal include the followings: synthesis of nanostructured and nanoscale materials, characterization of functional nanomaterials and assemblies, properties of nanomaterials and nanotherapeutics, complex hybrid nanostructures as nanocomposites, nanocrystalline materials, and nanoclusters, nanotubes, nanowires, nanofibres and nanocrystals, theoretical modelling, nanoscale devices, nanochips, nanosensors, nanofluidics and nanofabrication, biomimetic materials, regulatory approaches and risk assessment. Much attention will be paid to the bioresponsive polymeric nanotherapeutics as: pH-responsive, tumor extracellular enzyme, endo/lysosomal pH-responsive, glutathione-responsive, lysosomal enzyme-responsive nanotherapeutics, ROS-responsive nanotherapeutics and dual- or multi-responsive nanotherapeutics. This is because such bioresponsive nanotherapeutics facilitate tumor cell uptake and trigger drug release at the target site and also they are more safe and efficient in cancer therapy. These act to achieve active drugs and proteins release in the tumor tissue or cancer cells. The development of new-generation nanotherapeutics ensuring active targeting through interaction between surface ligands and certain receptors on the surface of targeted cells is under research.

Therefore the nanotechnology provides the basis of computer-controlled molecular tools which are much smaller than human cells. Such tools as biosensors will be used for interventions in a controlled manner at the cellular and molecular levels to remove obstructions in the circulatory system, kill cancer cells so the refinements in nanodiagnosics will be possible and these will guide the appropriate treatment. The future of such R & D is very promising as many nanotherapeutics are now commercially available, in clinical trials, preclinical development or under study. The top researches in this field are very interesting for the publication in Journal of Nanoscience and Nanomedicine.

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