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Editorial Note

Research Highlights of Contemporary Nanoscience and Nanotechnology with Biomedical Applications

Agnes Ostafin*

Nanoshell Research Institute, Center for Nanomaterials, NanoInstitute, University of Utah, 36 S Wasatch Dr 5535 SMBB, Salt Lake City, UT 84054, USA

Nanotechnology and nanomedicine are rapidly evolving fields and form an essential component of modern health care. This field of research has immense potential in the advancement of science and technology related to precision drug delivery, medical imaging, diagnostics, regenerative medicines, biosensors, medical devices, and novel therapeutics. It is indeed my privilege to bring forth this year's fifth issue of the Journal of Nanomedicine & Nanotechnology. In fact this year the journal is commemorating a decade of its services in scientific publications. Since 2010, the journal has been consistently publishing quality peer reviewed articles at a regular frequency in a timely manner and has now stepped into the compilation of its 11th volume. In addition to the regular mainstream issues, the journal has also taken keen interest in publication of International Conference proceedings and thematic special issues formulated based on the contemporary research, emerging challenges in nanoscience and biomedical applications.

In the current calendar year, the journal has published fourteen scientific articles that include topics related to biological, biomedical and environmental applications. Specifically the research activities that have been covered so far include various aspects of biosensor, silver nanoparticle, electrode multiwall carbon nanotubes, alveolar macrophages; granulomas; sarcoidosis, zero point of charge nanoparticles, nanocatalysts, organic synthesis, green nanocatalysts; green reactions, microelectronic semiconductor gas sensor, breath analysis; metal oxide, nano-theragnostics; Covid-19; hyperperameability, tissue engineering, nanoceria, SARS-CoV-2, targeted drug delivery, cancer biotechnology and antitumoral activity. This year about 48 International authors originating from diverse geographical regions of the world have published their research outcomes and explorations making substantial contribution towards advancement of nanoscience and nanotechnology and their application in medicine. The rejection rate was approximately 60% with an average turnaround time of 25 days per manuscript implying greater emphasis on publication of original and quality articles. The published content is highly relevant for academic and industry professionals, translational medicine, physicians, pharmacists, biomedical engineers, material scientists and biotechnology entrepreneurs.

The preceding issue was well balanced and composed of editorial, research, a short note communication; perspective and review articles. Butterfield et al. [1] have conducted a proteomics study on the interaction of cerium oxide nanoparticles with blood proteins and identified a number of serum and plasma proteins exhibiting several regulatory and cellular functions including antioxidant activity, detoxification, energy metabolism, signaling, immune function, metal haemostasis, adhesion, enzyme regulation, etc. The study has suggested that protein corona affect the nanoceria uptake, its bioprocessing and physiological effects and emphasized that nanoceria can potentially alter the protein structure and thus its functions including the pro or anti-inflammatory effects. Appropriate binding could lead to more protective cellular effects and hence have proposed nanoceria as potential therapeutic agent. This study is relevant for the development of nanostructures for regulation of serum and plasma protein functions having beneficial and therapeutic effects.

In a short note communication, Nandi and Mitra [2] described the biochemical and biophysical aspects of corona virus as well as their surface glycoprotein binding properties and emphasized on the potential of nanotechnology for both viral disease diagnosis as well as therapy. The study has noted that therapeutic approaches based on gold nanoparticles could be effective in diagnosis of corona virus infection. The observations presented in this paper would be useful for developing novel diagnostic and therapeutic methods to confront the COVID-19 pandemic.

Iversen et al. [3] have indicated that COVID-19 disease is mostly restricted within the respiratory system and suggested that targeted drug delivery would be more advantageous and precise in treatment rather than the use of systemic drugs. The authors also recommended further studies on the bioavailability aspects of target tissue.

***Correspondence to**: Agnes Ostafin, Chief Scientist Nanoshell Research Institute; fmr Director, Center for Nanomaterials, NanoInstitute, University of Utah, 36 S Wasatch Dr 5535 SMBB, Salt Lake City, UT 84054, USA, Telephone: 8016983955; E-mail: aostafin@nanoshellcompany.com

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Recognizing the potential of nanotechnology in the field of oncology particularly the cancer treatment based on the user of nanoparticles with antitumoral activity, Nicolete et al. [4] have reviewed the literature using the descriptors of nanoparticles and antitumoral. The study found that while there were several reports on the use of nanoemulsions against tumour cells, the major challenge has been on the risk of nanoparticles when used in in vivo conditions and in clinical trials.

The tusy wil be useful for optimization of better, safe and efficient nanomedicines for cancer therapy.

The journal is geared to compile its upcoming special issue entitled "Covid-19: Current Challenges in Diagnosis, Therapy & Prognosis". I welcome our new editorial board members and reviewers and extend my congratulations for joining our journal activities. I also extend my sincere thanks to the editors, reviewers and advisory members for rendering their profession services and bringing out quality publications within the stipulated time frame. I would like to notify our readers that this year the journal has moved under the banner of Longdom Publishing and the necessary ISSN journal transfer protocol has been completed. With all new outlook of the journal domain along with sophisticated and secure web technology, as well as with support of all stakeholders, I am very much looking forward for the release of the fifth issue.

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