



## Nanomedicine: Biomolecules for Human Health, Small Molecules, Big Opportunities!! (NBHH-2021): Conference Report

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It is proud moment for Kirori Mal College, University of Delhi to organize an international conference *via* Virtual Platform on “Nanomedicine: Biomolecules for Human Health, Small Molecules: Big opportunities!!” (NBHH-2021), 27<sup>th</sup> - 28<sup>th</sup> September 2021 and “Post conference workshop on Nanomedicine” on 29<sup>th</sup> September, 2021. NBHH-2021 was jointly organized by Department of Botany and Zoology under the aegis of DBT Star College Scheme.

Nanomedicine is a very special area of nanotechnology encompassing an extremely large field ranging from *in vivo* and *in vitro* diagnostics to therapy including targeted delivery and regenerative medicine; it interfaces nanomaterials (*e.g.*, surfaces and particles) or analytical instruments with ‘living’ human material (cells, tissue and body fluids) and it creates new tools and methods that impact significantly on existing practices.

The inaugural session was graced by the Chief Guest, our honorable Vice Chancellor, University of Delhi, Prof. P.C. Joshi and Principal, Prof. Vibha S. Chauhan, who gave the welcome address. The appraisal of the conference, its theme, objectives and the post conference workshop on Nanomedicine was discussed by Convenor and Program Coordinator of DBT Star College Scheme, Prof. Anita Kamra Verma. The conference co-convenor Dr. Renu Kathpalia invited Prof. P.C. Joshi to formally inaugurate the conference. At the onset, Prof. Joshi congratulated the organizing committee for conceptualizing such a relevant theme of the international conference and assembling such eminent National and International speakers. He also congratulated the college for establishing itself as Star College and getting grade “A” NAAC Accreditation. Prof. Joshi acknowledged the fact that the organizing committee was taking full advantages of the available resources

from the presentations at the Conference, full length manuscripts are to be published in the CSIR journal “Indian Journal of Biochemistry and Biophysics” with impact factor of 1.918. He also emphasized the concept of ‘Nano’ or ‘Parmanu - a tiny molecule or building block’ given by Maharshi Karnad.

Further, the conveners shared that ~215 participants were registered and 130 abstracts have been received for the conference. This conference also witnessed the participation from 30 different Universities including 24 National Universities (11 private, 13 Government) and 6 International Universities. The conference had a galaxy of distinguished speakers and panelists from across the world including the National (JNU, DU-South Campus, NII, ICGEB, INMAS, Jamia Hamdard, AIIMS, ICMR) as well as eminent international institutes (Mayo Clinic-Florida, USA, Shenzhen University-China, UCLan-UK, University of Liverpool-UK Netherlands, Bostin University and Deakin University-Australia among others).

The program consisted of invited plenary sessions with a host of expert keynote speaker, oral and poster presentations and technical workshops and discussions with eminent speakers covering six themes in plenary session, *viz.*, Plenary Session I: Radiation Nanomedicine; Plenary Session II: Nano vaccines; Plenary Session III: Environmental Nanotechnology/ Engineered Nanomaterials; Plenary Session-IV: Nanophotonics; Plenary Session-V: Regenerative Nanomedicine; Plenary Session VI: Nanomedicines. This rich program provided all attendees with the opportunities to meet and interact with one another. The conference maintained a high-quality peer-review process for all the Abstracts submitted, starting with a primary evaluation based on the contents. Posters were invited from all the participants.

The inaugural session was followed by the Plenary Session I- Radiation Nanomedicine/Nanovaccines, wherein Prof. V. S. Chauhan, Arturo Falaschi Emeritus Scientist, ICGEB gave a very

lucid and insightful talk on "Vaccine Platforms: Delivery and Role of Nanotechnology". He discussed the different types of vaccines and its components and emphasised the role of formulation of nanostructures as a vehicle to deliver the vaccine. He explained about the nucleic acid based vaccine-DNA and RNA, and about the lipid nanoparticle (LNP) delivery system and peptide-based vaccines for Malaria.

The lecture concluded with useful aspects of the Nanotechnology as a role model to deliver the vaccine in an effective manner. At the end a very well elaborated interaction session cleared the various aspects regarding the current pandemic condition and coronavirus.

Prof. Sunil Krishnan, spoke on "Radiation Therapy and Radio-diagnostics as Nanomedicine" elaborating the role of amalgamated gold nanoparticles and irradiation therapy for effectively treating pancreatic and hepatobiliary tumors. He further supported these findings with Monte-Carlo computational modelling and simulations. Dr. A. K. Mishra, DG, INMAS, spoke on "Radionuclides are Nano and Beyond: Application in Human Health",

Day 2 was set off with elan by our distinguished speaker Prof. Tymish Y. Ochulchansky presently at Shenzhen University, China enlightened the audience about "Merging Nanotechnology and Biophotonics for Imaging Guided Photo induced Therapy or Cancer". Prof. Tymish discussed the applications of nanotechnology in biomedicine and how the same can be used for addressing the challenges or lacunae that exist in diagnostics and therapy of various diseases. The audience were enlightened with the concept of multimodal nanoparticulate probes.

This conference particularly encouraged the interaction of research students and developing academics with the more established academic community in an informal setting to present and to discuss new and current work. The Program has packed the conference with pre-conference abstract and poster submissions, creation of official website to showcase the work of all young researchers as well as faculty members all over national and international universities and invited judges who judged the work of researchers according to international standards. The presentations were judged with a panel of eminent judges having expertise in their field. Prof Tapas Sen, UCLan, UK, Prof Reena Saxena, Kirori Mal College, and Prof Tinku Basu, Amity University diligently judged the posters. While, Dr Rajni Rani, ICMR, Dr Pratima Chaudhary, Amity University Dr Durba Pal, IIT Ropar, Dr NK Prasanna, CSIR-NIScPR and Dr Zeenat Iqbal, Jamia Hamdard, judged the Oral Presentations. The program was concluded with the gracious presence of Prof. Suman Kundu, Director, South campus, University of Delhi. He announced the results of oral and poster presentations. A total of 12 awards were given that included faculty members, research scholar and undergraduate students. One day post conference workshop was organised which dealt with principle of working and methodology with the help of short video of presenters.

The conference concluded with a vote of thanks by the Convenor. All the participants will be given e-Certificates and Abstract Proceedings. As announced the winners for Oral Presentations and Poster Presentations were given cash prizes.