



## NANOBIOTECK – 2017

NANOBIOTECK – 2017, 2<sup>nd</sup> annual conference of Indian Society of Nanomedicine (ISNM) was organized by IISER-Trivandrum in partnership with Department of Biotechnology, GoI and supported by Department of Science & Technology, GoI at Convention Centre, KTDC, Samudra, Trivandrum, 6<sup>th</sup> – 8<sup>th</sup> December 2017.

The conference was aimed at providing an interdisciplinary and interactive platform for nano-scientists, engineers, clinicians, regulators, industry representatives, policy makers and related stakeholders to promote innovations and commercialization of Nano-enabled products to address various issues related to healthcare and was focused on different thematic areas related to Nano-sciences. The theme of the conference covered issues ranging from cutting-edge research and innovations in the areas of Nanobiotechnology. The conference was structured according to the following sessions, in which discussions were held on the major scientific tracks:

- Session I - Nano-Products
- Session II - Nano-Diagnostics
- Session III - Nano-Safety
- Session IV - Nano-Crystals
- Session V - Nano-Vehicles
- Session VI - Nano Scaffolds

NANOBIOTECK – 2017 attended by more than 350 delegates, which included:

- 157 faculties, experts and young scientists
- 214 PhD scholars/students.
- 7 company representatives



The conference brought together 150 Nanobiotechnology taskforce supported PIs and experts promoting Nanoscience development and application. It also provided a valuable networking opportunity to develop inter-disciplinary collaboration among participants from different institutions across India. With support from North East Program - Department of Biotechnology, GoI (NEP-DBT), ISNM facilitated the participation of 20 young faculties/researchers from North-East India.

Overall, NANOBIOTECK – 2017 hosted 6 plenary talks, 10 invited talks, 17 snapshot presentations and 117 poster presentations.

The event was sponsored by DST, SERB, IISER-TVM and private sponsors (Spinger-Nature, Beckman Coulter, Nikon, Olympus).

NANOBIOTECK – 2017 began with a Pre-Conference session supported by Spinger-Nature India, which focused on writing skills for targeting high impact journals for publications. This was followed by 2<sup>nd</sup> Pre-Conference session “Nano-Product”, Chaired by Dr. Rajiv Sharma, Director, Nano-Mission, DST where the potential of laboratory research for translation including commercialization were emphasized. Different Govt. schemes to encourage the innovation in the field of nanomedicine were exemplified by Dr. Dhananjay Tiwary, DBT, Prof. Rohit Srivastava, IIT – Mumbai, Dr. Praveen Vemula, InStem, Bengaluru.

NANOBIOTECK – 2017 was officially inaugurated post-lunch on 6<sup>th</sup> December, 2017 by lighting of lamp in presence of **Prof. K. N. Ganesh** (*Chairman - DBT Nanobiotechnology TaskForce and President – Nanobioteck-2017*), **Prof. Randeep Guleria** (*Director, AIIMS*) **Prof. Jagadesh Kumar** (*JNU-VC*), **Prof V.Ramakrishnan** (*Director, IISER-TVM*) **Dr. Suchita Ninawe** (*Advisor, DBT*), **Dr. Dhananjay Tiwari** (*Joint Director, DBT*), **Prof. George Thomas** (*IISER-TVM*), **Prof. Y. K. Gupta** (*President – ISNM & Professor, AIIMS*) and **Prof. A. K. Dinda** (*General Secretary – ISNM & Professor, AIIMS*).



During the inaugural event, 2 major launches were executed:

1. Release of ***Virtual Platform - Nanobiotech@DBT*** - Platform for interaction, connect and share the knowledge gained/required between PIs and students actively working in the field of nanobiotechnology funded by DBT – Nanobiotechnology TaskForce.
2. Release of ***Guidelines For Evaluation Of Nanopharmaceuticals in India.*** This first guideline was the draft document for the regulatory issues to safety evaluation of nanoformulations for therapeutic use. The development of this guideline was initiated by ISNM and supported by DBT, AIIMS, DCGI and THSTI.

**Prof. Paul Weiss**, UC Presidential Chair (UCLA, USA) and Editor-in-Chief of ACS Nano delivered the inaugural lecture highlighting the importance of basic research and discovery in the domain of nanoscience which could inspire translation. As a part of inaugural event continued as Plenary Session with orations from leading experts:

- **Prof. Chandan K. Sen**, (OSU, USA) - Tissue Transfection: In-vivo Tissue reprogramming in rescue of Injured Tissue
- **Prof. So-Jung Park**, (South Korea) - Self-Assembly of Dynamic DNA Nanostructures,
- **Prof. Biju Vasudevan Pillai**, (Japan) - Semiconductor Quantum Dots for Single-molecule Detections in Living Cells: Challenges and Progress

The inaugural event concluded with a vote of thanks by Dr. Reji Vargese, General Secretary, Nanobiotech – 2017.



All the sessions in NANOBIOTECK – 2017 were structured as follows:

- 1 Plenary Talk – reviewing, showcasing the challenges and opportunities in specific thematic area
- 2 Invited Talks – highlighting the application in thematic area according to research work.
- 4 -5 Snapshot presentations by PI's of DBT funded project – showcasing the results
- Brief 45 minutes discussion among panelists, speakers and audience

The Conference organized a unique session called “Meet the Experts” which consisted of highly interactive discussion with experts of international and national repute to provide students the opportunity to be updated about the topic of interest. The special session was held between 7:30am – 9:30am on 7<sup>th</sup> and 8<sup>th</sup> December in the background of the open sea and sky.

Topics covered under Meet The Professor;

- Career opportunities in cutting edge science
- Higher education – Conflicts between qualities and job opportunities
- Career in academics vs entrepreneurship – Future Path
- Reformatory ideas from young mind
- Nano-enabled Imaging & Therapeutics
- NanoScaffolds and Nano-Devices
- NanoSafety



Experts:

- Prof. Randeep Guleria, Director, AIIMS
- Prof. Jagadeesh Kumar, VC, JNU
- Prof. K. N. Ganesh, Director, IISER - Tirupati
- Prof. K. George, IISER – Trivandrum
- Dr. Rajiv Sharma – Nanomission, DST
- Dr. Dhananjay Tiwary – DBT
- Dr. Madhan Mohan – DBT
- Prof. Y. K. Gupta – AIIMS
- Prof. A. K. Dinda – AIIMS
- Prof. Chandan Sen – OSU, USA
- Dr. Anil Patri – USFDA, USA
- Dr. Rajkumar - Adyar Cancer Institute
- Prof. Tapas Kundu – JNCASR
- Dr. Anil Mishra – INMAS, DRDO

Apart from the usual thematic sessions, NANOBIOTECK – 2017 also hosted Trigger Talks by **Prof. Ram Gopal Rao** (*Director – IIT-Delhi*) and **Prof. Arun Chattopadhyay** (*IIT – Guwahati*) who touched upon “Driving Nanobiotech led innovations - An institutional prespective” and “Flipping the way we train the next generation scientists” respectively.

Prof. Randeep Guleria, Director, AIIMS chaired Nano-Diagnostics (Session II), where the nano-interventions for developing point-of-care diagnosis with high efficacy and low was highlighted and discussed. In this session, Prof. Chia-fu Chou (Taiwan) delivered the plenary talk about “Nano devices for molecular sensing and biomedical applications”.



Most important session of the second day of NANOBIOTECK – 2017, was Nano-Safety (Session III) which was chaired by Prof. Y. K. Gupta, AIIMS, Delhi. The plenary talk was delivered by Dr. Anil Patri, Chairperson, Nanobiotechnology TaskForce, US-FDA (USA) discussing the regulatory science perspective for drug products containing nanomaterials. Prof. Dinda, AIIMS, Delhi highlighted the Indian scenario and Indian nano-safety draft regulation released during inauguration of NANOBIOTECK-2017. The talks delivered in this session generated huge interests among the participants who agreed upon the implementation of regulations for translation of nanomedicine research.

Session IV – NanoCrystals, chaired by Prof. George Thomas, IISER – Trivandrum, highlighted the importance of this upcoming domain for imaging and theranostics. A new area of Nanobiotics was discussed.

Prof. Chandan Sen, chaired the first session on day – 3; Nano-Vehicles (session V), wherein talks were delivered by Prof. Dinda, AIIMS (Lymphatic Targeting), Prof. Dharendra Katti, IIT - Kanpur (Ocular Delivery) and Prof. Ashok, IIT – Kanpur (tissue regeneration). All the talks emphasized the high translational value of nanomaterials in targeted drug delivery. The major point of discussion in this session was development of inter-disciplinary collaborative research for nano-drug delivery system.

Prof. Chandan delivered a plenary talk “Nanoscaffolds for Wound Management - Innovations & Challenges” during the session Nano-Scaffold (Session VI). The talk was followed by Dr. Amitava Pramanik who highlighted the industry perspective of nano-based products in cosmeceuticals. The session was chaired by Prof. Prabha Nair, SCTIMST, Trivandrum. Discussion in this session highlighted the scope of nano-intervention in both areas of regenerative medicine.



The mega event, NANOBIOTECK – 2017 concluded on 8<sup>th</sup> December, 2017 with Award ceremony where 12 students were rewarded with a certificate and a cash prize of Rs. 5,000/- each for best poster under thematic areas of the conference. Vote of Thanks was delivered by Prof. A. K. Dinda, General Secretary, ISNM with a final announcement made by Dr. Dhananjay Tiwary regarding Delhi being the venue for NANOBIOTECK – 2018, which would be co-hosted by AIIMS and IIT – Delhi.