

## **Nanomedicine: The Promise of Nanoparticles in Drug Delivery**

**Speaker:** Dr M. N. V. Ravi Kumar, Department of Pharmaceutics & Center for Pharmaceutical Nanotechnology, National Institute of Pharmaceutical Education and Research (NIPER), India

**Venue:** Blk EA, #02-11 (Executive Seminar Room), Faculty of Engineering

**Date:** 27th October 2006 (Friday)

**Time:** 11.00am – 12.00pm

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### **Abstract:**

The nanomedicine is all about applying nanotechnology to prevent/treat human disorders. For an active compound to reach the target site from the site of administration in sufficient concentration, and to maintain therapeutic levels for a sufficient period of time, a delivery system is needed. These carriers are designed to overcome difficulties of treatment with conventional formulations/free drugs that frequently lead to inadequate therapeutic responses or even treatment failure. The oral route is the preferred route of drug delivery; however, numerous drugs remain poorly bio-available when administered by this route. The poor bioavailability could be due to one or more of the following reasons: (a) low mucosal permeability for the drug, (b) existence of absorption windows in the gastrointestinal tract for certain drugs undergoing carrier mediated transport, (c) low or very low solubility of the compound which results in low dissolution rate in the gastrointestinal fluids and thus elimination of a fraction of the drug in undissolved form from the alimentary canal, (d) lack of stability in the gastrointestinal environment, resulting in degradation of the compound prior to its absorption (e.g. peptides, oligonucleotides). Due their unique absorption mechanisms, nanoparticles are promising carriers for improving the oral bioavailability of such drugs. The inherent shortcomings of conventional drug delivery and the potential of nanoparticles as drug delivery systems have offered tremendous scope for researchers in this field and is moving from concept to reality. In this presentation, I would share some of our findings on nanomedicines in the areas of Cancer, Hypertension and Diabetes.

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### **Biography:**

Current Position

September 2003-Till date, Assistant Professor, Department of Pharmaceutics, National Institute of Pharmaceutical Education and Research (NIPER), INDIA

Research Interest

Particulate Drug Delivery

Funds Generated

3 Million USD

Details of Training

2000 PhD, Indian Institute of Technology (Former University of Roorkee) INDIA

2000-2002 Postdoctoral Fellow, University of Kentucky Medical Center, USA

2002-2003 Alexander Von Humboldt Fellow, Saarland University, GERMANY

Editorial

2005- Asian Editor, Journal of Biomedical Nanotechnology

2005- Editorial Board, Journal of Nanoscience and Nanotechnology

Invited Talks/Guest Lectures in India and Abroad since January 2004:

22

Bibliographic Information

| Performance Indicator                                | Total |
|--|-------|
| Research Papers Communicated/Ready For Communication | 10    |
| Peer Reviewed Papers                                 | 42    |
| Course Developed (National and International)        | 05    |
| Special Issues Edited (one In Progress)              | 02    |
| Books (In Progress)                                  | 02    |
| Book Chapters  | 10    |
| Other Articles (Journals/Magazines)                  | 27    |
| Abstracts in Conference/Symposia                     | 31    |

Other Professional Details

- Ad hoc Reviewer for 32 International Journals
- Plenary Lecture at 7<sup>th</sup> APCCS, Korea, April 23-26, 2006.
- Chair, Nano-Microparticles Session 33<sup>rd</sup> Annual Meeting and Exposition of the Controlled Release Society in Vienna, July 22-26
- Young Scientist Member, Education Committee, Controlled Release Society, USA
- Honorary Membership, German Chemical Society, GDCh
- Member, Royal Society of Chemistry, London

<http://www.nanotechnology-drugdelivery.com>

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For details, please contact:

Ms Kelly Low, NUSNNI, Blk E3, #05-29, 2 Engineering Drive 3, Singapore 117576.

Tel: 6516-3991, Fax: 6872-5563, Email: [kellylow@nus.edu.sg](mailto:kellylow@nus.edu.sg)