

SOME HEALTHY CYNICISM REGARDING NANOMETER-SIZED DRUG AND ANTIGEN DELIVERY SYSTEMS

Amit Misra, Pharmaceuticals Division, Central Drug Research Institute, Lucknow

Interest in colloidal drug delivery systems (recently re-positioned as nanotechnology-enabled material) often induces a willingness to overlook a cost-benefit analysis of formulating nanometer-sized material. Three case studies using data generated by our group shall be offered to illustrate that (a) nanomaterial need not be used where micrometer-sized fabrication suffices; (b) there are some applications that require the delivery system in nanometer-size rather than micron-size range, (c) nanometer-scale fabrication has implications not only for size control but also drug release rate control. The first study describes formulation of nanoparticles and microparticles containing tetanus toxoid, and demonstrates that microparticles actually generate a stronger antibody response. The second demonstrates that nanoparticles but not microparticles can be used to target the hexose transporters on human erythrocytes infected with *Plasmodium falciparum*. The third suggests that size control in the nanometer-range is a valid method of achieving pulsatile drug delivery from a transdermal drug delivery system for male contraception.

BIO DATA: AMIT MISRA

Amit obtained his B. Pharm. from the University of Saugor and his M. Pharm. in Pharmaceutics from Delhi University's Hamdard College of Pharmacy. He then moved to Bombay, working at M/s. Trends Pharma for some time, before joining the National Institute of Immunology (NII), New Delhi. Amit's Ph. D. was awarded by the Jawaharlal Nehru University, for a thesis on transdermal drug delivery. He got a post-doctoral grant from the Department of Science & Technology and worked on transdermal immunisation by electroporation as a DST Young Scientist at NII. He has been working at the Pharmaceuticals Division of the Central Drug Research Institute, Lucknow in various capacities since 1998.

Amit's research interests include transdermal and pulmonary drug and antigen delivery, chronopharmacologically relevant drug delivery systems and immunobiology of antigen-presenting cells. His work has been funded by the DST, CSIR, NMITLI, OSDD, MEND, AERAS, The Royal Society, UK and private pharmaceutical firms. He has published 26 papers as first or corresponding author.

