

Book: Integrative Nanomedicine for New Therapies

**Synthetic, natural derived lipid nanoparticles and polymeric nanoparticles drug delivery applications**

Muniasamy, Sudhakar  
Council for Scientific and Industrial Research  
Pretoria, 0001, South Africa  
Email: SMuniasamy@csir.co.za

**Abstract**

In modern therapeutic field, the delivery to the desired site is a crucial bottleneck that needs to be addressed for efficacy and potency of the administered drug. The recent advancements in the field of nanotechnology has enabled researchers to deliver the drug and other diagnostic agents without unfavourable effect in human. Though drug delivery system (DDS) is highly advantageous, the clinical success rate depends on the appropriate carrier molecules which precisely recognise the target site for the release of drug and its biocompatibility. To overcome this concern both synthetic and naturally derived lipid-based nano carriers are the preeminent option as it is biocompatible, non-toxic, enhances the bioavailability of poorly absorbed drugs, drug release modulation flexibility, improved drug loading capacity and stability.