

# 3<sup>rd</sup> International Conference and Exhibition on **Biowaivers, Biologics & Biosimilars**

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## Superoxide nanoparticle in targeted drug delivery and cancer therapy

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The use of nano technology in medicine and more specifically drug delivery is set to spread rapidly. Currently many substances are under investigation for drug delivery and more specifically for cancer therapy. Interestingly pharmaceutical sciences are using nanoparticles to reduce toxicity and side effects of drugs and up to recently did not realize that carrier systems themselves may impose risks to the patient.

From a positive view point, especially the potential to cross the blood brain barrier may open new ways for drug delivery into the brain. In addition, the nano size also allows for access into the cell and various cellular compartments including the nucleus. A multitude of substances are currently under investigation for the preparation of nanoparticles for drug delivery, varying from biological substances like albumin, gelatin and phospholipids for liposomes, and more substances of a chemical nature like various polymers and solid metal containing nanoparticles. It is obvious that the potential interaction with tissues and cells, and the potential toxicity, greatly depends on the actual composition of the nanoparticle formulation. This paper provides an overview on some of the currently used systems for drug delivery.

A targeted drug delivery system is the need of the hour. Guiding magnetic iron oxide nanoparticles with the help of an external magnetic field to its target is the principle behind the development of super paramagnetic iron oxide nanoparticles (SPIONs) as novel drug delivery vehicles.