

# Submission Summary

**Conference Name**

International Conference on Nanoscience and Nanotechnology

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**Paper ID**

114

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**Paper Title**

EXOSOMES:A NOVEL NANOPLATFORM FOR DRUG DELIVERY

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**Abstract**

Nanoparticulate drug delivery systems use nanoparticles for targeted and controlled release of therapeutic agents. Exosomes are nanosized extracellular vesicles of 30-150 nm size range, which are produced by every cell in the body. As exosomes are naturally produced by the body, they can easily evade the immune system. As their size matches the size criterion for the nanoparticles, they can be used as natural nanoparticulate drug carrier. Compared to other drug delivery systems, they have advantages like low toxicity, greater biocompatibility, low clearance rates, high stability, high targeting, high drug loading capacity and capability to cross biological barriers. Exosomes are isolated using different techniques such as ultracentrifugation, size exclusion chromatography, gel filtration and density gradient centrifugation, based on their size and density. They can be suitably modified for its use in therapy, such as incorporation of pharmaceuticals and other therapeutic agents and the surface charge modifications to facilitate drug absorption. Exosome outer surface can be altered by modifying their surface. Their stability can be increased by various encapsulation techniques. Exosomes have various applications in cancer, inflammation, and CVD. Exosomes can be used as nanocarriers to carry various drugs. For example, exosomes derived from dendritic cells are used to carry fluorouracil in the treatment of colon cancer, exosomes derived from blood act as carriers for drugs targeted to the brain and can deliver drug across blood brain barrier. They can also be fused with other carriers like liposomes to deliver therapeutic agents. Apart from drug delivery, exosomes can also be used in vaccine development, gene therapy etc.

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