HARVESTING EXOSOMES FOR THERAPEUTIC APPLICATIONS

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Exosomes are membrane nanovesicles secreted by most cells. The uptake of an exosome by a local or distant cell transfers the molecular cargo derived from a secreting parent to a recipient cell. Biologically active molecules exchanged by such mechanism of cell-to-cell signaling include surface and luminal proteins, membrane-bound microRNAs, and other compounds. A growing number of studies implicated exosomal signaling in tumor metastasis, drug resistance, and modulation of immune response. As an intrinsic molecular delivery system in health and disease, the exosomes are beginning to attract interest for their therapeutic potential to deliver various biologically active compounds and educate adaptive immune responses.

In this presentation, we review early results on therapeutic applications of exosomes and their harvesting from biofluids, excluding bioreactor cell growth medium. The utility of the exosomes in monitoring cell growth conditions in bioreactors is discussed.