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Hyaluronic acid for anticancer drug and nucleic acid delivery

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ABSTRACT

Hyaluronic acid (HA) is widely used in anticancer drug delivery, since it is biocompatible, biodegradable, non-toxic, and non-immunogenic; moreover, HA receptors are overexpressed on many tumor cells. Exploiting this ligand-receptor interaction, the use of HA is now a rapidly-growing platform for targeting CD44-overexpressing cells, to improve anticancer therapies. The rationale underlying approaches, chemical strategies, and recent advances in the use of HA to design drug carriers for delivering anticancer agents, are reviewed. Comprehensive descriptions are given of HA-based drug conjugates, particulate carriers (micelles, liposomes, nanoparticles, microparticles), inorganic nanostructures, and hydrogels, with particular emphasis on reports of preclinical/clinical results.

Keywords: hyaluronic acid, drug delivery systems, nanotechnology, CD44, conjugates, anticancer agents, liposomes, micelles, microparticles, hydrogels

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