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(57) Abstract :
The present invention provides a folate-conjugated liposomal drug delivery composition for the targeted delivery of small interfering RNA (siRNA) to ovarian cancer cells overexpressing folate receptors. The composition comprises cationic liposomes encapsulating siRNA and functionalized on the surface with folate-polyethylene glycol (PEG) conjugates to enable receptor-mediated endocytosis. The liposomes are formulated using a combination of cationic lipids, helper lipids, cholesterol, and folate-PEG-lipid conjugates, resulting in nanoparticles with enhanced biocompatibility, stability, and tumor-targeting ability. This delivery system significantly improves siRNA protection, cellular uptake, and gene-silencing efficiency, offering a promising therapeutic strategy for the treatment of ovarian cancer with minimized off-target effects and systemic toxicity.

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