Title:

Enhanced anticancer activity of Doxorubicin by multi-functional liposomes

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Content:

The objection of this study is to achieve enhanced delivery of Doxorubicin through folic acid coupled multifunctional liposomes for effective management of lung tumor (A549). Doxorubicin loaded liposomes were prepared by cast film method and characterized for liposome size, shape, percent encapsulation efficiency, drug release, cytotoxicity and in vivo pharmacokinetics. In the study, the mixture of phospholipid (ApiKuron) and cholesterol made as based liposome formulation. To design the multifunctional liposomes, the based liosome added pH-sensitive phospholipid (DoPE), shielding material (mPEG2000-DSPE) and targeting agent (DSPE-mPEG 2000-folic acid). We get multifunctional liposome, its particle size at 143.10±9.54 nm, 0.37±0.03 of PI, -12.00±1.24 mV of Zeta potential, 89.63±0.79% of encapsulation ratio and 12.4% of loading dose. The liposomes enhanced cytotoxicity of A549 cancer cell estimated by IC50. We evaluated the pharmacokinetics of multifunctional liposme by IV injection in rat. In conclusion, the multifunctional Doxorubicin liposome had increasing effect for circulation time, and decrease the drug content in the heart.