

Dual Stimuli Responsive Polymeric Nanocarrier Based on Carboxymethyl Dextran for Cancer Therapy

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Self-assembled polymeric nanoparticles, composed of carboxymethyl dextran(CMD) and poly(caprolactone)(PCL) using click chemistry, are promising nanocarriers for anticancer drugs. We introduce pyridinethandiamine (PED) and 2-(2-pyridinyldithio) ethylamine (PDA) for improving controlled drug release. PED is convert positively charge in mildly acidic condition. As a results, endocytosis of nanocarrier enhance on tumor microenvironment. That means more efficient drug delivery into tumor tissue. Also, nanocarrier can efficiently encapsulate hydrophobic drugs in physiological condition because PDA is formed crosslinked core using disulfide bond. But, when these are come into tumor site, structure of nanocarrier destroys by glutathione and drugs are more release than normal condition. In this study, we prepared bioreducible polymeric nanocarrier which can response against dual stimuli for cancer therapy. The physicochemical characteristics of the polymeric nanocarrier were investigated using ¹H-NMR, DLS, UV/VIS spectrophotometer.