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Evaluation of nanocarrier targeted drug delivery of capecitabine-PAMAM dendrimer complex in a mice colorectal cancer model

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Capecitabine, an effective anticancer drug in colorectal cancer chemotherapy, may create adverse side effects on healthy tissues. In the present study, we first induced colon adenocarcinoma with azoxymethane, a carcinogen agent, and then investigated the potentiality of poly-amidoamine (PAMAM) dendrimer to improve capecitabine therapeutic index and decrease its adverse side effects on healthy tissues like liver and bone marrow. Other variables such as nanoparticle concentrations have also been investigated. Drug loading concentration (DLC) and encapsulation efficiency (EE) were calculated for capecitabine/dendrimer complex. Experimental results showed an increase in DLC percentage resulted from elevated capecitabine/dendrimer ratio. Capecitabine/dendrimer complex could reduce tumor size and adverse side effects in comparison with free capecitabine form.

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