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A DELIVERY SYSTEM OF SMPSH FOR ORAL ADMINISTRATION OF ANTI-CANCER AGENT, PACLITAXEL

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ABSTRACT

Clinical application of paclitaxel (PTX) in the treatment of cancer is limited because of its poor bioavailability. The objectives of this study were to evaluate the potential of surface-modified PTX-incorporated solid lipid nanoparticles with hydroxypropyl beta cyclodextrin (smPSH). The smPSH showed an 89.70 ± 3.99% of release of PTX in dissolution medium including sodium lauryl sulfate (SLS) in 24 h and 5.3-fold increase in the cellular uptake of PTX compared to PTX solution in Caco-2 cells. Moreover, smPSH exhibited more cytoxicity than PTX solution. Also, AUC (5.43 μg·h/mL) and C_{max} (1.44 μg/mL) of smPSH were higher than those (1.81 μg·h/mL and 0.73 μg/mL) of PTX solution according to Taxol formulation and drug concentration of smPSH (11.12- 4.45 ng/mg of lymph tissue) in lymph nodes was higher than PTX solution (0.89- 0.75 ng/mg of lymph tissue), suggesting more PTX was transported to lymphatic vessel delivery in the form of smPSH. Taken together, smPSH have a potential as alternative delivery system for oral administration of PTX.

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