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**Abstract Form**

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| **❏ Presentation title:** **PEGylated-paclitaxel and dihydroartemisinin nanoparticles for simultaneously delivering paclitaxel and dihydroartemisinin to colorectal cancer** |
| Thien Giap Le 1,a, Cao Dai Phung2,a , Van Hai Nguyen3, Thi Trang Vu1, Huong Quynh Nguyen1, Jong Oh Kim2, Chul Soon Yong2\*\*, and Chien Ngoc Nguyen1,3\**1National Institute of Pharmaceutical Technology, Hanoi University of Pharmacy, 15 Le Thanh Tong, Hanoi, Vietnam**2College of Pharmacy, Yeungnam University, 214-1, Dae-Dong, Gyeongsan 712-749, South Korea**3Department of Pharmaceutical Industry, Hanoi University of Pharmacy, 15 Le Thanh Tong, Hanoi, Vietnam*\*Corresponding author: Chien Ngoc Nguyen, Assoc. Prof. Dr.\*\*Co-corresponding author: Chul Soon Yong, Prof. Dr. |
| Presenter | Chien Ngoc Nguyen | Email: chiennn@hup.edu.vn |
| **❏ Abstract (up to 250 words) ※Please refer to below** |
| ***Purpose*** Development of a nanoplatform constructed by the PEG-dual drug conjugation for co-delivery of paclitaxel (PTX) and Dihydroartemisinin (DHA) to the tumor.  |
| ***Methods*** PEG was conjugated with PTX and DHA to form PTX-PEG-DHA complex as a nanocarrier. The PTX and DHA were co-encapsulated in PTX-PEG-DHA nanoparticles (PD@PPD NPs) by the emulsion evaporation method. The physicochemical properties of PD@PPD Nps were characterized, including size, zeta potential, and morphology. The drug loading capacity and entrapment efficiency, in vitro drug release at different pH conditions were also evaluated. For in vitro assessment, the effects of the NPs on HT-29 colorectal cancer cells, including intracellular uptake, cytotoxicity, and Bcl-2 protein expression were assessed. The *in vivo* distribution of the NPs was investigated by labelling the NPs with Cyanine 5.5 fluorophore. Finally, the antitumor efficacy of the NPs was evaluated in HT-29 tumor-bearing mice. |
| ***Results*** The nanoparticles were formed at small size (~114 nm) and narrow distribution. The combination of PTX and DHA in the DHA-PEG-PTX nanosystems (PD@PPD) showed remarkably increased apoptosis in colorectal adenocarcinoma HT-29 cells, as compared to free drug treatment. More importantly, the PD@PPD nanoparticles exhibited significantly higher accumulation in the tumor site owing to the enhanced permeability and retention (EPR) effect, effectively restrained the tumor growth *in vivo* at low-dose of PTX while reducing the systemic toxicity.  |
| ***Conclusions*** The combination of PTX and DHA in a PEG-conjugated dual-drug co-delivery system can minimize the severe side effect associated with the high-dose of PTX while enhancing the antitumor efficacy. |
| **KEYWORDS** (up to 5 words):Dihydroartemisinin, paclitaxel, PEGylated, nanoparticle, combination chemotherapy. |
| **❏ Graphical abstract (optional) ※Please refer to below** |
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