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Pharmaco-dynamic of peptide HM-3 and its effect on HCT-116 tumor micro-environment

Sitelbanat Yassin[1,2], Han- Mei Xu [1*], Jia-Liang Hu [1], Jun-Jing He[1], Ce Li[1] and Sarra Setrerrahmane[1]
[1]Department of Life Science and Technology, China Pharmaceutical University, People Republic of China
[2]Department of pharmaceutics, Faculty of Pharmacy, University of Gezira, Sudan

A novel antitumor polypeptide HM-3 is an integrin receptor antagonist composed of eighteen amino acids and contained integrin targeting sequence RGD. Based on the fact, the peptide HM-3 had good In vitro results against HCT-116 tumor cell line. The present study was done for determination of In vivo dose effect relationship of HM-3 against HCT-116 cell line and its interactions with the tumor micro-environments. In vivo image was done in BALB/c-nu nude mice which showed this peptide not only distributed in the GIT, breast, limb and lung but also in the tumor mass. Furthermore, HM-3 was evaluated against HCT-116 cell xenografted in BALB/c-nu nude mice. The results exhibited that HM-3 (3 mg/kg) had an excellent inhibitory effect against HCT-116 cell with the inhibition rate of 71.5%, similar to Sunitinib (60 mg/kg) which was 72%. Moreover, immunohistochemstry (IHC) analysis for the extracted tumor of the mice treated with HM-3 (3 mg/kg) and the negative control group showed that HM-3 reduced HIF1-α, VEGF, CD105-MVD and CD31-MVD. In conclusion, FITC-HM-3 accumulated within the tumor mass that was confirmed by the in vivo image. However, the research history of integrin antagonists was relatively short and the researchers may not notice the specific dose-efficacy relationship of these drugs, the effective dose was accurately defined and the interactions between HM-3 and tumor micro-environments were determined immunohistochemically. This study provided an important reference for clinical applications of HM-3, which is worth for future use as a therapeutic drug for treatment of colorectal cancer solid tumor of HCT-116.

Biography

Sitelbanat will award her PhD on December/ 2015 at the age of 37 years from China Pharmaceutical University School of Life Science and technology. She is the Head department of Pharmaceutics, Faculty of Pharmacy, Gezira University, Sudan. She has published more than 3 papers in reputed journals.

dr.sonu1986@gmail.com

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