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Oral delivery of folate targeted colorectal cancer therapeutics

Dewan Taslima Akhter[1,2], Adrian V Fuchs[1,2] and Kristofer J Thurecht[1,2]
[1]University of Queensland, Australia
[2]ARC Centre of Excellence in Convergent Bio-Nano Science and Technology, Australia

Colorectal Cancer (CRC) is the third leading cause of cancer related mortality after lung and prostate cancer. Every year approximately 700,000 people die of colorectal cancer. Chemotherapy is typically administered by intravenous injection and infusion which often fails to deliver an effective concentration of the drug at the target site, with severe side-effects occurring due to off-target delivery. Oral chemotherapy has the potential to open a new treatment concept called "chemotherapy at home". Unfortunately, most anticancer drugs are not suitable for oral delivery due to the myriad of physiological barriers as well as the physicochemical properties of the drugs. The aim of this project is to develop a model carrier for oral delivery of colon targeted anticancer therapeutics that incorporates drug-encapsulated nanoparticles within microcapsules suitable for oral delivery. An amphiphilic block copolymer of PEGMA-PMMA was synthesised and characterised successfully. Curcumin loaded micelles were formed having sizes of 30 and 70 nm with excellent drug encapsulation efficiency of 85.11% and 87.64%. Further, the micelles were encapsulated into an alginate microcapsule carrier to make a favourable formulation for oral delivery. *In vitro* release studies of the curcumin-loaded micelles showed a sustained diffusional release at pH 5.0 and 7.4.

Biography

Dewan Taslima Akhter has completed her BPharm (Hons) from Jahangirnagar University in 2008 and MS in Pharmaceutical Science, Jahangirnagar University in 2010. Between 2011 and 2014, she worked as Senior Lecturer in the Department of Pharmacy at East West University and currently is a PhD student at AIBN, University of Queensland, Australia.

dewan.akhter@uq.net.au

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