



## School of Pharmacy PhD Projects 2014

**Project Title** Development of novel orally administered formulations for the treatment of colorectal cancer

**Supervisors** Dr. Gavin Andrews & Prof. David Jones

**Description** Colorectal cancer (CRC) is the third most common malignant neoplasm worldwide with 40,695 new cases reported in the UK in 2010. Recent studies suggest long-term administration of COX-2 inhibitors has chemopreventive properties against CRC. Consequently, combination therapy involving a selective COX-2 inhibitor may enhance the chemosensitivity of 5-Fluorouracil therapy. One such COX-2 inhibitor receiving considerable interest is Celecoxib; a BCS class II drug that suffers from low and variable bioavailability following oral administration. Importantly, CX exhibits wide tissue distribution and extensive plasma protein binding such that the recommended oral dose is high. This raises concerns about serious possible side effects and a growing interest in developing delivery systems that offer improved site targeting. Moreover, CX is poorly water-soluble (~3mg/L) and if it is to be used successfully for chemoprevention there is an urgent need for enabling technologies to effectively target this compound to the large bowel whilst also improving drug solubility in the limited fluids available within the colonic region. In this project we will work on novel fixed dose CX/5-FU combinations. The dosage forms will be evaluated using a range of in vitro tests currently used by the School of Pharmacy and candidate formulations will be brought forward to animal studies. Animal studies will be used to assess efficacy of CX formulations and to understand the efficacy of CX chemotherapy on tumor regression.

**Start Date** October 2014

**Keywords** Colorectal Cancer, Oral Dosage Forms, COX-2 inhibitors, 5FU.

### Contact Details

[pharmacypostgrad@qub.ac.uk](mailto:pharmacypostgrad@qub.ac.uk)

### How to Apply

Postgraduate applications should be made using Queen's Online:

<http://go.qub.ac.uk/pgapply>

Please note that there are two application processes: one for admission to the university and another for postgraduate awards.

### Further Information

Additional information for prospective postgraduate students can be found on the School of Pharmacy website:

<http://www.qub.ac.uk/pha>

and the Queen's Postgraduate website:

<http://www.qub.ac.uk/home/ProspectiveStudents/PostgraduateStudents/>