



# School of Pharmacy PhD Projects 2015/16

**Project Title** Identifying and targeting prostate cancer stem cells to achieve improved treatment outcomes

**Supervisors** Professor Tracy Robson, Dr Jonathan Coulter,

**Description** The development of treatment-resistant prostate cancer remains a significant problem, with treatment options for advanced metastatic disease limited to improving patient quality of life. Furthermore, it is well established that tumor hypoxia is known to strongly predict for poor treatment outcome in prostate cancer. An increasingly accepted hypothesis for treatment failure is the presence of cancer stem cells (CSCs).

This PhD project will establish if hypoxia is a key factor in promoting the proportion of prostate CSCs. Furthermore, the contribution of these CSCs in relation to both chemo- and radiotherapy resistance will be determined. Cells will be cultured in low nutrient, non-adherent conditions, to encourages TIC proliferation resulting in the formation of 3-dimensional prostaspheres.

In parallel CSC enriched cultures will be treated with a novel CD44 binding peptide derived from the active domain of FKBPL. Professor Robson has extensively demonstrated the potent anti-stem cell and anti-angiogenic properties of this peptide in various cancer models. Here the student will establish if the same peptide can promote CSC progression into a treatment sensitive state, thereby helping to reduce the likelihood of tumour recurrence in the prostate cancer setting.

Further information on the project can be obtained by emailing Prof.Tracy Robson (t.robson@qub.ac.uk)

**Start Date** October 2015

**Keywords** Tumour initiating cells, hypoxia, radiation sensitivity, prostate cancer

**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/>

