



QUEEN'S UNIVERSITY BELFAST

*Title of studentship	Multi-mode responsive biomaterials resistant to infection
Value / what is covered?	Fully funded 100% of UK/EU tuition fees paid and an annual stipend for UK residents only (living expenses), currently at £14,777
Awarding body	DFE
Number of studentships	1
*Summary descriptive text / Example of research project	<p>A major problem associated with medical devices is infection. With infection rates of approaching 100% in some devices, ways to prevent formation of bacterial biofilm on medical device surfaces are urgently required. This project will develop methods in preventing the development of bacterial growth on polymer surfaces using a combination of strategies.</p> <p>Specifically, we will target polymeric devices such as urinary catheters and endotracheal tubes, which suffer badly from high infection rates, for improvement. The McCoy group has recently published a new way of using changes in chemical environment, such as that found at the onset of infection to trigger drug release. In this project, this technology will be developed further to exploit the changes which occur at the onset of infection to produce materials which can “self-clean” in the presence of an infection.</p> <p>Additionally, we will exploit our recent findings that a strong antimicrobial effect, which can kill resistant bacteria, is produced when light is applied to materials incorporating appropriate photosensitisers.</p> <p>The resulting next-generation biomaterials are aimed at reducing or eliminating infection, thereby reducing treatment costs and improving patient outcomes. This important project will give extensive experience as part of an internationally-funded research team.</p>
*Supervisor(s)	Professor Colin McCoy, Dr Nicola Irwin
*Eligibility / residence Status	UK/EU only
Country	Northern Ireland
*Start date and duration	1 October 2019 Funding covers a three-year full-time PhD.

*Faculty	MHLS
*Research centre / School	Pharmacy
Subject area	Pharmacy, drug delivery, materials science
Candidate requirements / Key skills required for the post	Applicants should have a 1st or 2.1 honours degree (or equivalent) in a relevant subject. Relevant subjects include Pharmacy, Molecular Biology, Pharmaceutical Sciences, Biochemistry, Biological/Biomedical Sciences, Chemistry, Engineering, or a closely related discipline.
*Deadline for applications	7 th January 2019
*How to apply / contacts	Postgraduate Research applicants for Pharmacy who are interested in applying for a fully funded DFE studentship must have applied to Queen's, via the Direct Applications Portal, and submitted all required supporting documents by the closing date, which will be announced later in the Academic year. https://dap.qub.ac.uk/portal/user/u_login.php
Relevant links / more information	http://www.qub.ac.uk/schools/SchoolofPharmacy/Research/PostgraduatePositions/ http://www.qub.ac.uk/schools/SchoolofPharmacy/Research/
Keywords for search filters	Drug delivery, antimicrobial, AMR, polymer, materials science, surface modification, surface chemistry
Training provided through the research project	The program will give specific training in polymer synthesis, drug delivery methodology, materials characterisation, microscopy, microbiology and spectroscopic techniques, including UV-visible, Raman and infrared spectroscopy. Additionally, presentation, writing and interpersonal skills will be developed
Expected impact activities	Attendance art conference, publication of scientific papers, collaboration with interested industrial partners.