



QUEEN'S UNIVERSITY BELFAST

*Title of studentship	Nanoparticle delivery of antibiotics for treatment of pulmonary infection
Value / what is covered?	
Awarding body	
Number of studentships	1
*Summary descriptive text / Example of research project	<p>In respiratory diseases such as Cystic Fibrosis (CF) and COPD, the lungs are colonized by diverse polymicrobial bacterial communities. Inhaled antibiotics are currently only used in the treatment of chronic <i>P. aeruginosa</i> infection in CF and a major challenge with such treatment is antibiotic penetration into sputum. We have developed formulations with excellent powder properties for pulmonary delivery. We have extensive data to show that several antibiotics used in the treatment of chronic lung infection can be encapsulated in these formulations.</p> <p>The aim of this project will be to determine the activity of nanoparticle encapsulated antibiotics against a wide range of pathogens detected in the lung microbiome. <i>In vitro</i> activity will be determined using planktonic and biofilm models of infection under aerobic and anaerobic conditions, similar to those found in sputum in the lungs of CF patients. <i>In vivo</i> activity will be determined using sputum from patients with lung infection. Depending on results, further formulation studies may be undertaken to optimize antimicrobial activity. Extensive training will be provided throughout the project as part of internationally renowned research teams.</p>
*Supervisor(s)	Dr Vicky Kett, Professor Michael Tunney
*Eligibility / residence Status	
Country	Northern Ireland
*Start date and duration	1 October 2020
*Faculty	MHLS
*Research centre / School	Pharmacy

Subject area	Drug delivery; nanoparticles; microbiology, antimicrobial resistance
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. Students who have a 2.2 honours degree and a Master's degree may also be considered, but the School reserves the right to shortlist for interview only those applicants who have demonstrated high academic attainment to date
*Deadline for applications	
*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/ https://www.qub.ac.uk/schools/SchoolofPharmacy/Research/ResearchThemes/PharmaceuticalMaterialsScienceandFormulation/DrVickyKett/
Keywords for search filters	Liposomes; Cystic Fibrosis; infection; pulmonary delivery; inhalation; antibiotic; pharmaceuticals
Training provided through the research project	Extensive training will be provided throughout the project as part of internationally renowned research teams. Focus will be on formulation and characterisation of inhaled powder, microbiology and cell culture methods for evaluation of product efficacy.
Expected impact activities	