



QUEEN'S UNIVERSITY BELFAST

*Title of studentship	Investigation of novel biocontrol agents against biofilms formed by human pathogens
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 £14,553
Awarding body	DFE
Number of studentships	1
*Summary descriptive text / Example of research project	<p>The global spread of antimicrobial resistance (AMR) among the biofilm-forming pathogenic bacteria of ESKAPE group is on the rise, significantly affecting the efficacy of established infection treatment methods and incurring additional costs, thus increasing the burden on national health systems. Alternative and complementary approaches to the use of antibiotics are desperately needed and proteinaceous compounds such as bacteriophage lysins and lysin-derived peptides represent an attractive option.</p> <p>The successful candidate will have an exciting opportunity to work on the investigation and development of novel agents for biofilm control using a combination of experimental and computational approaches. The project will involve collection and isolation of bacteriophages from a variety of sources including phage cocktails, their screening against libraries of bacterial pathogens, selection of bacteriophages showing activity against biofilms, and identification and characterisation of factors responsible for such activity. A number of identified candidate enzymes (lysins, exopolysaccharide depolymerases) will be further investigated to establish their mechanisms of action and possibilities for improvements through genetic engineering and rational re-design.</p>
*Supervisor(s)	Prof Brendan Gilmore Dr Timofey Skvortsov
*Eligibility / residence Status	UK/EU only
Country	Northern Ireland
*Start date and duration	1 November 2018 Funding covers a three-year full-time PhD.
*Faculty	MHLS
*Research centre / School	Pharmacy

Subject area	Molecular microbiology, biotechnology, bioinformatics
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	30 th September 2018
*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	Biofilms, bacteriophage, enzymes, peptides, molecular microbiology, metagenomics, genetic engineering, pathogens, anti-microbial resistance
Training provided through the research project	The proposed project will involve a multifaceted cross-disciplinary investigation of bacterial biofilms. The successful candidate will have an opportunity to learn about methods of cultivation of aerobic/anaerobic bacteria, specifics of biofilm manipulation in laboratory settings, techniques used to work with bacterial viruses, genetic engineering and molecular cloning, and methods of next-generation sequencing, bioinformatics and protein modelling.
Expected impact activities	The PhD student would be encouraged to engage in a variety of impact activities, disseminate the research project findings through public talks, and participate in QUB showcase events.