



QUEEN'S UNIVERSITY BELFAST

*Title of studentship	Enhancing Macrophage-Biofilm Interaction using Non-Thermal Plasma
Value / what is covered?	
Awarding body	
Number of studentships	
*Summary descriptive text / Example of research project	<p>The ability to generate plasmas (quasi-neutral, wholly or partially ionised gases) at ambient or tissue tolerable temperatures has given rise to the nascent field of plasma medicine. Cold plasmas have rapidly evolved as a technology for biological applications such as microbial decontamination and wound healing, owing to the chemical and bioactive radicals generated reactive oxygen (ROS) and nitrogen species (RNS), known collectively as RONS. This technology is increasingly proposed for applications in human medicine and recently we have demonstrated the efficacy of cold plasma for biofilm eradication and control across a range of human pathogens. Recent work has also described the potential of cold plasma to activate cells of the immune system for enhanced clearance of infection.</p> <p>This PhD programme will elucidate the mechanisms of immune cell activation and aims to understand the potential for cold plasma to enhance the clearance of biofilms by cells of the immune system, using a range of advanced techniques in plasma physics, biofilm- and molecular microbiology. This project forms part of a major collaboration with research groups in the USA and Republic of Ireland, with opportunities to conduct research in each of the centres.</p>
*Supervisor(s)	Prof Brendan Gilmore, Dr Padrig Flynn, Dr Timofey Skvortsov
*Eligibility / residence Status	UK/EU Only
Country	Northern Ireland
*Start date and duration	1 October 2020
*Faculty	MHLS
*Research centre / School	Pharmacy
Subject area	Pharmaceutical Microbiology, Advanced Healthcare Technologies

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/
Keywords for search filters	Pharmaceutical Microbiology, Biofilm Microbiology, Molecular Microbiology, Plasma Physics, Macrophage, ESKAPE Pathogens
Training provided through the research project	The successful candidate will join a multidisciplinary team focusing on the microbiological interactions with cold plasma, currently funded by BBSRC and Innovate UK. The PhD candidate will be trained and develop high-level expertise in biofilm microbiology, plasma physics/plasma medicine and molecular microbiology.
Expected impact activities	The project will deliver impact through the demonstration of cold plasma as a multimodal, multi-target approach to probe the biological response of both macrophages and bacteria in biofilms. The candidate will present their work at international conferences and through peer reviewed, high impact publications