



# QUEEN'S UNIVERSITY BELFAST

<b>*Title of studentship</b>	Controlling Bacterial Biofilms with Cold Plasma
<b>Value / what is covered?</b>	Fully funded  100% of UK/EU tuition fees paid and an annual stipend for UK residents only (living expenses), currently at £14,777
<b>Awarding body</b>	DFE
<b>Number of studentships</b>	1
<b>*Summary descriptive text / Example of research project</b>	<p>The ability to generate plasmas (quasi-neutral, wholly or partially ionised gases) at ambient of 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 has many potential applications in the agri-food sector.</p> <p>Recently, we have demonstrated that cold plasma, in addition to direct bactericidal activity, also primes cells of the immune system, such as macrophages, and significantly enhances their ability to eliminate biofilms of <i>P. aeruginosa</i>. This PhD will focus on the mechanisms and the application of cold plasma-mediated immune activation as a novel approach to controlling biofilms formed by the ESKAPE pathogens.</p>
<b>*Supervisor(s)</b>	Prof Brendan Gilmore Dr Timofey Skvortsov Dr Padrig Flynn
<b>*Eligibility / residence Status</b>	UK/EU only
<b>Country</b>	Northern Ireland
<b>*Start date and duration</b>	1 October 2019 Funding covers a three-year full-time PhD.
<b>*Faculty</b>	MHLS
<b>*Research centre / School</b>	Pharmacy
<b>Subject area</b>	Pharmaceutical Microbiology, Antimicrobials and AMR, Plasma Medicine

<b>Candidate requirements / Key skills required for the post</b>	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.
<b>*Deadline for applications</b>	7 <sup>th</sup> January 2019
<b>*How to apply / contacts</b>	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.  <a href="https://dap.qub.ac.uk/portal/user/u_login.php">https://dap.qub.ac.uk/portal/user/u_login.php</a>
<b>Relevant links / more information</b>	<a href="http://www.qub.ac.uk/schools/SchoolofPharmacy/Research/PostgraduatePositions/">http://www.qub.ac.uk/schools/SchoolofPharmacy/Research/PostgraduatePositions/</a>  <a href="http://www.qub.ac.uk/schools/SchoolofPharmacy/Research/">http://www.qub.ac.uk/schools/SchoolofPharmacy/Research/</a>
<b>Keywords for search filters</b>	Cold plasma, biofilms, ESKAPE pathogens, Immune activation
<b>Training provided through the research project</b>	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, molecular microbiology, mammalian tissue culture and co-culture models for studying host pathogen interactions
<b>Expected impact activities</b>	The project will deliver impact through the demonstration of cold plasma as a multimodal, multi-target approach to control pathogenic biofilms, as an alternative to conventional antibiotic agents. The candidate will present their work at international conferences and through peer reviewed, high impact publications