



# QUEEN'S UNIVERSITY BELFAST

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| <b>*Title of studentship</b>                                   | Investigation of horizontal gene transfer of antimicrobial resistance genes by bacteriophages in aquatic environments  |
| <b>Value / what is covered?</b>                                |  |
| <b>Awarding body</b>   |  |
| <b>Number of studentships</b>                                  |  |
| <b>*Summary descriptive text / Example of research project</b> | <p>Antimicrobial resistance poses a serious threat to public health in the UK and worldwide. Bacteriophages, being the most ubiquitous and abundant biological entities in the biosphere, make a significant contribution to the dissemination of antimicrobial resistance genes (AMG) in the environment via horizontal gene transfer.</p> <p>The proposed PhD project will be focussed on understanding of the role of bacteriophages and non-encapsidated mobile genetic elements (such as plasmids) in the spread of antimicrobial resistance genes in Northern Ireland. For that, samples will be collected from potential antimicrobial resistance hotspots (e.g. wastewater treatment plants outflow, slurry tanks), processed to obtain virus-like particle fractions, concentrated and investigated for the presence of AMGs using a combination of microbiological, molecular and next-generation sequencing techniques.</p> |
| <b>*Supervisor(s)</b>  | Dr Timofey Skvortsov<br>Dr Laura Sherrard<br>Dr Louise Carson  |
| <b>*Eligibility / residence Status</b>                         | SELF-FUNDED  |
| <b>Country</b>   | Northern Ireland   |
| <b>*Start date and duration</b>                                | 1 October 2020   |
| <b>*Faculty</b>  | MHLS   |
| <b>*Research centre / School</b>                               | Pharmacy   |
| <b>Subject area</b>  | Molecular microbiology, biotechnology, bioinformatics  |
| <b>Candidate requirements / Key skills</b>                     | Applicants should have a 1st or 2.1 honours degree (or equivalent) in a relevant subject. Relevant subjects include Pharmacy, Molecular Biology, Molecular Microbiology, Virology, Pharmaceutical Sciences, Biochemistry, Biological/Biomedical Sciences, Chemistry, Engineering, or a closely related   |

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| <b>required for the post</b>                          | 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   |
| <b>*Deadline for applications</b>                     |  |
| <b>*How to apply / contacts</b>                       | <p>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.</p> <p><a href="https://dap.qub.ac.uk/portal/user/u_login.php">https://dap.qub.ac.uk/portal/user/u_login.php</a></p> |
| <b>Relevant links / more information</b>              | <p><a href="http://www.qub.ac.uk/schools/SchoolofPharmacy/Research/PostgraduatePositions/">http://www.qub.ac.uk/schools/SchoolofPharmacy/Research/PostgraduatePositions/</a></p> <p><a href="http://www.qub.ac.uk/schools/SchoolofPharmacy/Research/">http://www.qub.ac.uk/schools/SchoolofPharmacy/Research/</a></p>  |
| <b>Keywords for search filters</b>                    | Bacteriophage, enzymes, molecular microbiology, genomics, genetic engineering, pathogenic bacteria, anti-microbial resistance  |
| <b>Training provided through the research project</b> | The proposed project will involve an investigation of antimicrobial resistance spread in natural and built aquatic environments. The successful candidate will have an opportunity to learn specifics of microbial bioinformatics, protein modelling, genetic engineering and molecular cloning, and methods of next-generation sequencing   |
| <b>Expected impact activities</b>                     | 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.   |