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| **\*Title of studentship** | Antibiotic Resistance and Biofilm Formation in Clinical Isolates of *Enterococcus faecium* – a WHO High Priority Pathogen |
| **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 **£15,285** |
| **Awarding body** | DfE |
| **Number of studentships** | 1 |
| **\*Summary descriptive text / Example of research project** | *E. faecium* is an important human pathogen which exhibits resistance to a range of antibiotics, and is implicated in a wide variety of device associated infections. Due to its clinical significance, the World Health Organization (WHO) assigned vancomycin-resistant *E. faecium* (VREF) as a high priority pathogen on its global priority list of antibiotic-resistant bacteria. Aggregation and biofilm formation are important mechanisms of tolerance in *E. faecium* but are poorly described in the context of urinary tract devices, where it is a predominant pathogen. This project seeks to understand the mechanisms of resistance, tolerance and aggregation in clinical isolates of *E. faecium* derived from urinary tract devices, including ureteral stents.  The successful candidate will join a dynamic biofilm research group focused understanding the mechanisms of biofilm formation and developing novel approaches to their detection and control. The project will combine classical culture-based methodologies of isolation, planktonic and biofilm culture models and biofilm antibiotic susceptibility assays alongside DNA analysis (PCR, next generation sequencing, comparative genomics). The student will build on existing expertise in the group to elucidate E. faecium aggregation and biofilm formation, antibiotic resistance, tolerance and persister formation. The project benefits from clinical supervisory links to the Belfast City Hospital Renal Transplant Unit, with the potential for findings to influence clinical practice. |
| **\*Supervisor(s)** | Prof Brendan Gilmore, Dr Stephen Kelly, Mr Tim Brown (Consultant Transplant Surgeon) |
| **\*Eligibility / residence Status** |  |
| **Country** | Northern Ireland |
| **\*Start date and duration** | October 2022 – September 2025 |
| **\*Faculty** | MHLS |
| **\*Research centre / School** | Pharmacy |
| **Subject area** |  |
| **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, Pharmaceutical Sciences, Microbiology, Molecular Biology, 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 must have applied to Queen’s, via the Direct Applications Portal.  <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** | Microbiome, extremophile, enzymes, biocatalysis, biotechnology |
| **Training provided through the research project** | The successful candidate will be trained in microbiology, molecular biology techniques including molecular cloning, and microbial bioinformatics for analysis of whole genome DNA sequence datasets, as well as project management and data analysis training. Training received during this studentship will ensure the successful candidate possesses a comprehensive skillset, of high relevance to a career in the pharmaceutical industry or in academia. |
| **Expected impact activities** | Attendance at international conferences, including the opportunity for conference presentations. Publication in international, peer-reviewed journals. Potential for clinical collaboration and application of novel discoveries. |