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| **\*Title of studentship** | Relationship between antibiotic therapy and development of antimicrobial resistance in patients with bronchiectasis and COPD |
| **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** |  |
| **Number of studentships** |  |
| **\*Summary descriptive text / Example of research project** | To decrease the risk of acute infective exacerbations or flare-ups of their condition, individuals with bronchiectasis and COPD are frequently prescribed long-term oral and inhaled antibiotics. However, it is not clear what effect such antibiotic treatment has on microbial community composition and the development of antibiotic resistance and how this relates to patient outcomes.  As part of an ongoing collaboration between Queens University Belfast and the University of Dundee, we have access to a large number of clinical samples and extensive clinical and biomarker data from patients enrolled in clinical studies and the European Bronchiectasis Registry (EMBARC). In this project, we will determine whether microbiota composition and presence of resistance genes in these samples correlates with antibiotic treatment. Metagenomic analysis will be performed to determine the abundance of genes encoding antimicrobial resistance, the 'resistome', within the community of bacteria as a whole, and how it changes in response to treatment. The relationship between development of resistance and an extensive range of clinical outcomes (lung function, quality of life, time to next exacerbation) and measures of inflammation will also be determined. |
| **\*Supervisor(s)** | Professor Michael Tunney, School of Pharmacy, Queen’s University Belfast  Professor Stuart Elborn, Wellcome Wolfson Institute for Experimental Medicine, Queen’s University Belfast  Professor James Chalmers, School of Medicine, University of Dundee |
| **\*Eligibility / residence Status** |  |
| **Country** |  |
| **\*Start date and duration** | September 2022 |
| **\*Faculty** | MHLS |
| **\*Research centre / School** | Pharmacy |
| **Subject area** | Clinical Pharmacy, Therapeutics, Microbiology, Infection and antimicrobial resistance |
| **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 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/>  https://www.qub.ac.uk/schools/SchoolofPharmacy/Research/find-a-phd-supervisor/professor-michael-tunney.html  <http://amr.dundee.ac.uk/staff/prof-james-chalmers> |
| **Keywords for search filters** | Infection, antimicrobial resistance, PCR, next-generation sequencing, metagenomics, clinical pharmacy |
| **Training provided through the research project** | This project will provide extensive training in, clinical pharmacy, clinical trial methodology, molecular microbiology, inflammatory biomarker measurement and statistical analysis as part of an inter-disciplinary and internationally renowned research team. |
| **Expected impact activities** | This study will use rich clinical metadata and molecular resistance markers to explore prognostic markers that have potential to drive improvements in clinical care of people with bronchiectasis and COPD. |