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| **\*Title of studentship** | Multifunctional Biomaterials to Combat Infection and Modulate Inflammation |
| **Value / what is covered?** | Tuition fees and student stipend, subject to funding. Self-funded students also welcome to apply. |
| **Awarding body** | DfE |
| **Number of studentships** | 1 |
| **\*Summary descriptive text / Example of research project** | Implantable medical devices are commonplace in modern medicine (e.g. joint replacements, stents, artificial heart valves, etc.), and are of ever increasing interest in the field of regenerative medicine. However, biomaterials from which such devices are made are essentially foreign to the human body, and are associated with triggering inflammation and immune reactions. Biomaterials are also a potential source of infection, owing to the ability of bacteria to attach and form biofilms on the material surface.  This project will focus on the quest for multifunctional biomaterials with combined properties that can combat infection, modulate inflammation, and promote regeneration at the same time. These properties are important considerations in the development of improved biomaterials for tissue scaffolds or implantable medical devices.  The cross-disciplinary project will provide an excellent opportunity for extensive training in a diverse range of scientific disciplines, including: polymer science, microbiology, advances analytical methods, medical device fabrication, cell culture, and molecular biology. |
| **\*Supervisor(s)** | Dr Louise Carson, Prof Karl Malcolm, Dr Matthew Wylie |
| **\*Eligibility / residence Status** | UK residents eligible for full DfE funding |
| **Country** | Northern Ireland |
| **\*Start date and duration** | October 2022 |
| **\*Faculty** | MHLS |
| **\*Research centre / School** | Pharmacy |
| **Subject area** | Biomaterials and Infection Control |
| **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, 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** | January 2022 for DfE applicants, self-funded applicants considered all year round. |
| **\*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** | Biomaterials, Medical Device, Infection, Biofilm, Inflammation, Immunomodulatory, Implant, Regenerative Medicine |
| **Training provided through the research project** | PhD programmes at Queen’s University Belfast are intended from the outset to include extensive training in modern research methods, and students are encouraged to make good use of the many excellent courses run by the QUB Graduate School. This project will help the student develop the key skills and knowledge that will make them highly attractive for employment in the medical devices industry. The student will be trained in a multidisciplinary environment and follow a personal development plan (PDP). |
| **Expected impact activities** | The student will be provided with the opportunity to disseminate their work through high quality journal outputs, and by participation at national and international conferences.  The project will further develop the knowledge and understanding of in research area, translating in the development of innovative biomaterials that ultimately improve healthcare outcomes. |