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| **\*Title of studentship** | Developing biodegradable long acting drug delivery systems for the treatment of chronic conditions |
| **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** | 1 |
| **\*Summary descriptive text / Example of research project** | Non-adherence to treatment costs the NHS more than £500M each year. Adherence is especially important when treating patients with chronic conditions that require lifetime pharmacological treatment, such as schizophrenia, Parkinson’s disease, HIV and Alzheimer’s disease. In addition to the economic impact, there is a direct human cost, as non-compliance significantly reduces patients’ health-related quality of life and, in many cases, is associated with early death. Non-adherence to treatment for schizophrenic patients increases the risk of relapse, hospitalisation and suicide (relapse costs £15,000/year/patient). Moreover, Parkinson’s or Alzheimer’s disease patients that do not adhere to treatment have higher risk of institutionalisation or hospitalisation, costing a total of up to £194M/year. Considering the economic and human impact of non-adherence to treatment, there is a clear need for drug delivery systems capable of providing unattended drug administration for prolonged periods of time for these conditions. Therefore, this PhD project seeks to develop long-acting drug delivery systems (LADDS) using biodegradable polymers for treatment of chronic conditions. These polymers will be formulated into a range of innovative types of LADDS. Pharmaceutical companies, charities and UK Research Councils all currently have LADDS development as a priority. Indeed, the QUB Drug Delivery Team has received extensive funding to develop and apply such systems. The Supervisory Team has been supported by EPSRC, Academy of Medical Sciences, Prostate Cancer UK the US NIH and USAID. Moreover, a range of leading pharmaceutical companies are currently funding research projects in our lab to develop LADDS. Accordingly, QUB has extensive experience in developing such systems. The interest of pharmaceutical companies in LADDS have risen significantly. Accordingly, this project will address not only a clear patient need, but also a growing commercial interest. This 3-year PhD project will be focused on delivery of two representative compounds: risperidone and tizanidine. The first drug is an antipsychotic drug used for the treatment of schizophrenia. The second compound is a centrally acting muscle relaxant used to treat spasticity in multiple sclerosis. The project will explore the use of several technologies, including 3D-printing, to develop solid implantable LADDS. |
| **\*Supervisor(s)** | Dr. Eneko Larrañeta  Prof. Ryan F. Donnelly |
| **\*Eligibility / residence Status** | UK |
| **Country** | Northern Ireland |
| **\*Start date and duration** | 1 October 2022 (36 months) |
| **\*Faculty** | MHLS |
| **\*Research centre / School** | Pharmacy |
| **Subject area** | Drug delivery and medical devices |
| **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** |  |
| **\*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://pure.qub.ac.uk/en/persons/eneko-larra%25C3%25B1eta>  https://pure.qub.ac.uk/en/persons/ryan-donnelly |
| **Keywords for search filters** | drug delivery / long-acting drug delivery / medical devices / 3D printing / implantable drug delivery systems |
| **Training provided through the research project** | This interdisciplinary project will provide training in a range of analytical methods, design, manufacture and assessment of novel medical devices and biological models for assessment of the potential clinical efficacy of formulations. Furthermore, student training will take place within a highly active international research culture. In addition to laboratory based-skills, the student will also undergo training in research methodology and statistics and will have opportunities to develop both verbal and written communication skills. The student will publish their research in journal articles and present at both national and international conferences. The student will also have the opportunity to actively participate in a range of outreach activities in the community and gain teaching experience on our undergraduate and postgraduate courses. |
| **Expected impact activities** | Enhanced patient care and quality of life, economic development for the pharmaceutical and medical devices industry. The student’s CV will be enhanced through training with a leading international Group |