



QUEEN'S UNIVERSITY BELFAST

*Title of studentship	Implantable device for on-demand and controlled drug delivery to the eye
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 £14,777
Awarding body	DFE
Number of studentships	1
*Summary descriptive text / Example of research project	<p>The number of people suffering from chronic ocular diseases are growing rapidly. Three big classes of eye diseases namely, glaucoma, age-related macular degeneration (AMD) and diabetic eye diseases account for nearly 74% causes of blindness in the UK. The current mode of treating these chronic diseases is not patient friendly, as it requires frequent intervention either <i>via</i> injections in the eye or drops. Despite the emergence of new drugs for treating retinal diseases, current standard of care requires direct injection of drugs into the vitreous on monthly intervals. Likewise, patients need to take daily eye drops for several years – resulting in poor adherence. Therefore, there is urgent need to reduce the frequency of intraocular injections or eye drops and reduce their complications by developing localised, on-demand and controlled drug delivery systems. This project addresses this unmet need by developing a novel controlled release implantable drug delivery system that will enable localised and on-demand drug delivery to the eye in treating both front and back of the eye diseases.</p> <p>This collaborative project between School of Pharmacy and School of Electronics, Electrical Engineering & Computer Science will provide unique experience for the potential PhD student in the design, development and characterisation of the novel on-demand drug delivery system that has potential to overcome current drug delivery challenges to the eye. The student will gain skills in the field of both pharmaceuticals (drug delivery, polymer/analytical science) and microelectronics (design and fabrication).</p>
*Supervisor(s)	Dr Raj Thakur, School of Pharmacy, QUB & Dr Neil Mitchell, School of Electronics, Electrical Engineering & Computer Science, QUB
*Eligibility / residence Status	UK/EU only
Country	Northern Ireland
*Start date and duration	1 October 2019 Funding covers a three-year full-time PhD.

*Faculty	MHLS
*Research centre / School	School of Pharmacy
Subject area	Pharmaceutics, pharmaceutical technology, drug delivery and polymer science, MEMS
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, Engineering, Molecular Biology, Pharmaceutical Sciences, Biochemistry, Biological/Biomedical Sciences, Chemistry, or a closely related discipline.
*Deadline for applications	7 th January 2019
*How to apply / contacts	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. 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/ Supervisors https://pure.qub.ac.uk/portal/en/persons/thakur-raghu-raj-singh(608efb12-6fca-4362-8f19-ba8b5cd97c07).html https://pure.qub.ac.uk/portal/en/persons/neil-mitchell(92b87334-623c-4147-97f2-323acb523886).html
Keywords for search filters	Ocular drug delivery, drug delivery, controlled drug delivery, microelectronics, MEMS, protein delivery, 3D printing
Training provided through the research project	Training will be provided in the formulation, analysis and characterisation of polymeric systems. Furthermore, training will also be provided in the micro-fabrication and characterisation of MEMS-based devices and 3D-fabrication.
Expected impact activities	PI has significant experience in commercialisation activities of ocular drug delivery systems, combined with expertise of Co-PI in MEMS. The project aims to improve the health-related-quality-of-life of visually-impaired patients. Due to the projects much, greater scope as compared to current ophthalmic delivery systems, the technologies described here has the potential to make a significant and far-reaching impact in this field and place UK Research at the very forefront of developments.