



QUEEN'S UNIVERSITY BELFAST

*Title of studentship	IGNITE: IGnifying Tumours: Nanotechnology for Immune Oncology TargEts
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>It is thought that the ultimate cure for cancer would arise from harnessing the host immune system that could eradicate cancer cells even as they evolve. Immune Checkpoint Inhibitors need 'immune hot' tumours. However, only 1 in 8 tumours are "immune hot" with the remainder termed "immune cold". Cancers such as triple negative breast cancer, ovarian cancer and pancreatic cancer are all generally "immune cold" which may underpin the poor clinical outcome associated with these cancer types. The focus of this PhD is to turn "cold" tumours "hot" using nanotechnology to deliver dinucleotides (cDNs) to activate the innate immune pathway through the cGAS/STING pathway.</p> <p>We will use a novel patented targeting drug delivery system, RALA, to deliver these cDNs specifically to solid tumours following intravenous administration in a nano-formulation. This will allow the cDNs to escape enzymatic destruction and, as these nanoparticles specifically accumulate in the tumour, limits the adverse immune responses often observed using systemically delivered immune agonists. Overall this project will address an area of significant unmet clinical need through the utilisation of a novel delivery system that overcomes the significant limitations observed to date in the development of immune agonists-based therapeutics. This project forms a part of an exciting collaboration between Prof Helen McCarthy, Chair of Nanomedicine, Dr Niamh Buckley, a cancer researcher with expertise in the interplay between cancer and the immune system and Dr Eileen Parkes, a clinical academic lecturer with expertise in STING biology and immune oncology. The project workplan encompasses a broad range of molecular biology, physiochemical and in vivo techniques providing the student with an excellent training environment and key transferable skills for future development.</p>
*Supervisor(s)	Prof Helen McCarthy, Dr Niamh Buckley and Dr Eileen Parkes

*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	Pharmacy
Subject area	Cancer, immune oncology and Nanomedicine
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.
*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/ http://www.qub.ac.uk/schools/SchoolofPharmacy/Research/ResearchThemes/NanomedicineandBiotherapeutics/ProfessorHelenMcCarthy/ http://www.qub.ac.uk/schools/SchoolofPharmacy/Research/ResearchThemes/NanomedicineandBiotherapeutics/DrNiamhBuckley/ https://pure.qub.ac.uk/portal/en/persons/eileen-parkes(ce4faa0b-d93b-4c16-805c-4cdfd5e400e4).html
Keywords for search	Nanomedicine, cancer, immune oncology, STING agonists,

filters	
Training provided through the research project	<p>Research Skills: the supervisors will ensure excellent training in physiochemical, in vitro and in vivo techniques providing the student with a broad spectrum of knowledge and expertise. The supervisors will ensure the student is aware of the translational relevance of the project and its potential impact on patient care,</p> <p>Record keeping & monitoring: Monthly meetings with the student will take place with electronic records. Students must also complete a 3-month initial review and annual progress review to proceed to years 2 & 3. The annual progress review involves written work, presentation and/or mini <i>viva</i>.</p>
Expected impact activities	<p>The technologies developed in this project have significant potential to overcome the substantial limitations currently associated with the use of innate immune agonists to active an anti-cancer immune response. This therapeutic strategy will allow systemic delivery of the targeted therapy with therapeutic efficacy in both the primary and metastatic setting and provides a novel treatment option for hard to treat cancers such as triple negative breast, ovarian and pancreatic cancers.</p>