# PGR Studentship Information Template 2021 entry

* Please complete the template with as much information as possible.
* \*fields are essential.
* If you have information that does not have a label, please create a new row in the table for it.

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| **\*Title of studentship** | MICRONEEDLE-MEDIATED CHEMICAL & ELECTROCHEMICAL RAPID INJECTION SYSTEMS |
| **Value / what is covered?**  |  |
| **Awarding body** |  |
| **Number of studentships** |  |
| **\*Summary descriptive text / Example of research project**  | The COVID-19 pandemic has greatly enhanced the need for self-administration of injectables at home, away from healthcare settings, where transmission could have dire consequences. Microneedle arrays are minimally-invasive devices that painlessly, and without drawing blood, penetrate the skin’s *stratum corneum* barrier. This allows delivery of a range of substances that would otherwise not be able to move into or across the skin. Though microneedles have significant potential as intradermal vaccine delivery systems, most microneedle designs are capable of only slow delivery of relatively low doses, meaning their utility is limited. Our Group has pioneered high-dose delivery from microneedles. In this exciting new interdisciplinary project, we will combine novel microneedle systems with chemical and electrochemical propellants so as to deliver high drug doses as rapidly as with a conventional needle and syringe. Such systems will be low-cost, self-disabling, readily disposable and used at home by patients, without the need for skilled healthcare workers. This will reduce NHS costs and minimise spread of COVID-19 and other respiratory pathogens in healthcare settings whilst improving health-related-quality-of-life for patients worldwide. In this project, the student will design and characterise novel microneedle systems using a range of innovative techniques. The student will work at the cutting edge of developments in a leading research Group, thus greatly enhancing their employability. |
| **\*Supervisor(s)** |  Professor Ryan Donnelly |
| **\*Eligibility / residence Status** | UK/EU/International |
| **Country** | Northern Ireland |
| **\*Start date and duration**  | 1 October 2021 |
| **\*Faculty** | MHLS |
| **\*Research centre / School** | Pharmacy |
| **Subject area** | Stimuli-responsive drug delivery |
| **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 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/>[https://pure.qub.ac.uk/portal/en/persons/ryan-donnelly(7f46a524-c3a4-46a9-b347-834f0a3640f2).html](https://pure.qub.ac.uk/portal/en/persons/ryan-donnelly%287f46a524-c3a4-46a9-b347-834f0a3640f2%29.html) |
| **Keywords for search filters** | Microneedles, stimuli-responsive drug delivery |
| **Training provided through the research project** | This interdisciplinary project will provide training in a range of analytical methods, design and assessment of novel delivery systems 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 |