# 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** | **Development of a saRNA nano-vaccine for Prostate Cancer** |
| **Value / what is covered?** |  |
| **Awarding body** |  |
| **Number of studentships** |  |
| **\*Summary descriptive text / Example of research project** | Treatment options for castrate resistant prostate cancer (CRPC) are primarily palliative. Clinically relevant immune-cell stimulated tumour-associated antigens (TAAs) have been identified that negatively correlate with treatment outcome. Nucleic acid vaccination holds tremendous potential, possessing both prophylactic and therapeutic application. Of these, RNA vaccines are much more potent than DNA vaccines, with smaller quantities stimulating greater immune responses. RNA-based vaccines have the advantage of low manufacturing cost, inducing B and T cell responses, high specificity, high stability, absence of anti-vector immunity, lower reactogenicity and lacking the ability to be integrated into the host cells genome. The main disadvantage of using RNA as a vaccine is the requirement for cytoplasmic delivery to host cells and generating a strong long-lasting immunity. This project is designed to overcome these limitations by using our patented non-immunogenic drug delivery system (RALA) to improve cytoplasmic delivery and to enhance the immune response by delivering both saRNA encoding TAAs for CRPC and B cell activating CpG adjuvants. The end-point will determination of a candidate RALA/saRNA vaccine that will elicit both prophylactic and therapeutic immune responses to CRPC tumours that can then be further developed towards the clinic.  This projects forms part of an exciting collaborative partnership between Professor McCarthy, a nucleic acids drug delivery expert and CEO of Phion Therapeutics and Dr Jonathan Coulter, a prostate cancer expert in translational medicine. The student will benefit from training in both an academic and industry setting including placements in Phion Therapeutics. 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. |
| **\*Supervisor(s)** | Professor Helen McCarthy & Dr Jonathan Coulter |
| **\*Eligibility / residence Status** | Home |
| **Country** |  |
| **\*Start date and duration** | September 2021 |
| **\*Faculty** | Medicine Health and Life Sciences |
| **\*Research centre / School** | School of Pharmacy |
| **Subject area** | 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. 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://www.qub.ac.uk/schools/SchoolofPharmacy/Research/ResearchThemes/>  NanomedicineandBiotherapeutics/  <https://www.qub.ac.uk/schools/SchoolofPharmacy/Research/find-a-phd-supervisor/professor-helen-mccarthy.html>  https://www.qub.ac.uk/schools/SchoolofPharmacy/Research/find-a-phd-supervisor/dr-jonathan-coulter.html  [www.phiontx.co.uk](http://www.phiontx.co.uk) |
| **Keywords for search filters** | RNA, Vaccines, Prostate Cancer, Nanomedicine, Drug Delivery |
| **Training provided through the research project** | Right from the start the PhD student will be using academic research designed to have an industrial purpose with real world impact. This dual approach spans:  1) Research Skills: the academic supervisors will ensure excellent training in nanoparticle analysis, prostate cancer techniques, in vitro and in vivo skills. Further training with industrial regulators and awareness of a typical data package required for pre-clinical development will give the student a unique perspective.  2) 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 *viva*. However at each of these meetings, the industrial supervisor will also be present ensuring that the data records and presentations are also suitable for industrial purposes.  3) Additionally, there will be opportunities to present at both academic and industrial sectors, networking and negotiating, personal development on courses for animal licenses, GLP, advanced statistics, regulatory issues and placements with Phion where the student will work alongside current Phion employees. Phion labs are located in QUB further enhancing a truly integrative approach |
| **Expected impact activities** | Impact activities include but are not restricted to presenting the research to academic and industry peers through scientific conferences and students from different disciplines through the Graduate School. The student will also engage with patients , clinicians and key stake holders through a series of webinars/focus groups to understand how they can feed and shape the research plan. Other impact activities relate to commercialisation though IP protection processes, competitor analysis and engagement with industrial vaccine partners. |