# 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** | Selective targeting of proteases for the treatment of chronic airways disease. |
| **Value / what is covered?** | Eligible students may compete for a Department of the Economy (DfE), Northern Ireland studentship which would be fully funded for three years, covering 100% of the UK/EU postgraduate tuition fee (currently £4,407 per annum) and a living stipend (currently £14,777 per annum). Applications from self-funding non-UK/EU nationals are also welcome, although, if successful, these applicants would, in addition to their living/maintenance costs, have to cover the additional costs associated with the international tuition fee (currently £21,300 per annum). |
| **Awarding body** | This PhD project is eligible for consideration for a Department of the Economy (DfE), Northern Ireland studentship. Self-funding students also welcome to apply. |
| **Number of studentships** | 1 |
| **\*Summary descriptive text / Example of research project** | Cystic fibrosis (CF) and chronic obstructive pulmonary disease (COPD) are both progressive airways diseases associated with cycles of infection and inflammation, lung tissue destruction and pulmonary decline. Intensive management needs and frequency in hospitalization give rise to significant treatment costs (UK £4.7 bn & USA $42.6 bn pa). New therapies targeting some of the specific cellular processes associated with these diseases could help improve both lung function and quality of life which would also reduce hospital admissions.  Lung damage is associated with impaired clearance mechanisms due to disease-specific triggers of airways dehydration. In normal airways, the epithelial sodium channel (ENaC) is predominantly silent however a protease-antiprotease imbalance present in chronic lung disease can cause a dysregulation of ENaC leading to increased Na+ absorption, airways dehydration, thickened mucus and impaired mucociliary clearance (MCC). As restoration of normal airway clearance mechanisms would serve to reduce the risk/number of life-limiting cycles of infection and lung injury, inhibition of ENaC represents an attractive therapeutic strategy for repiratory medicine, independent of etiology of disease.  We have already shown, using primary human CF bronchial epithelial cells, that first-in-class, highly selective, sub-nanomolar inhibitors, some of which are currently being developed as drug candidates, are highly effective inhibitors of ENaC signaling leading to an increase in airway surface liquid. The objective of this study is to see if similar beneficial effects can be observed using primary human airway epithelial cells derived from COPD donors. This project will conduct further mechanistic studies on ENaC and airways hydration, but also aims to explore other potential therapeutic benefits to include impact on inflammation and airway remodeling (fibrogenesis) as well as suppression of signaling pathways which could potentially reduce the muco-secretory/obstructive phenotype associated with COPD. Importantly, these studies directly align to the strategic research interests of the Martin group, and a collaborative relationship with an industry partner and provide opportunity for the successful applicant to benefit from the significant expertise of the research group. |
| **\*Supervisor(s)** | The project will be primarily supervised by Professor Lorraine Martin, School of Pharmacy, Queen's University Belfast. Details and online profile are provided below.  <https://pure.qub.ac.uk/en/persons/lorraine-martin> |
| **\*Eligibility / residence Status** | For DfE Awards, eligibility restrictions apply.  Self-funders: no restrictions. |
| **Country** | School of Pharmacy, Medical Biology Centre, Queen's University Belfast, Northern Ireland, UK, BT9 7BL. |
| **\*Start date and duration** | 1st October 2021 |
| **\*Faculty** | Medicine, Health & Life Sciences (MHLS) |
| **\*Research centre / School** | School of Pharmacy |
| **Subject area** | Chronic airways diseases to include protease biochemistry & airway physiology. |
| **Candidate requirements / Key skills required for the post** | Applicants should have a 1st or high 2.1 (>67%) honours degree (or equivalent) in a relevant subject. Relevant subjects include Biochemistry, Pharmaceutical Biotechnology, Molecular Biology, Physiology, Biological/Biomedical Sciences 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  **For international applicants:** Evidence of an IELTS\* score of 6.0, with not less than 5.5 in any component, or an equivalent qualification acceptable to the University is required. |
| **\*Deadline for applications** | For student eligibile for consideration of a DfE award please see the school website for details of closing dates.  Open call for candidates able to self-fund. |
| **\*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>  If you need further information on the project, please email Prof. Lorraine Martin at [l.martin@qub.ac.uk](mailto:l.martin@qub.ac.uk) |
| **Relevant links / more information** | General information about the research activities at the School of Pharmacy, Queen's University Belfast are available at the link below:  [Professor Lorraine Martin\_School of Pharmacy, QUB](https://pure.qub.ac.uk/portal/en/persons/lorraine-martin(60b109e2-c34a-47f6-8ec7-7eda01dbdb20).html)  <http://www.qub.ac.uk/schools/SchoolofPharmacy/Research/PostgraduatePositions/>  <http://www.qub.ac.uk/schools/SchoolofPharmacy/Research/> |
| **Keywords for search filters** | lung, respiratory, airways, COPD, proteases, cell biology, molecular biology, biochemistry, electrophysiology, |
| **Training provided through the research project** | The successful applicant will join a well-resourced, multi-disciplinary team focussed on collaborative, translational research. The project will include use of gold standard *ex vivo* models of primary human airways epithelial cells cultured at air-liquid interface and will offer expert training in a wide range of biochemical, electrophysiological, protein biochemistry and imaging techniques. |
| **Expected impact activities** | Students are expected to present at a minimum of one national and international meeting during their training and make a contribution to internationally excellent research outputs. Engagement with industry partners and participation in our on-going school’s outreach programme on lung health and/or science festivals will be encouraged. |