# 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** | Novel enzyme inhibitors for chemical biology and drug discovery |
| **Value / what is covered?** | 3-years (fully funded) |
| **Awarding body** | DfE |
| **Number of studentships** | 1 |
| **\*Summary descriptive text / Example of research project** | Glycosylation is the most common posttranslational modification of proteins. Central to this process is a family of enzymes called glycosyltransferases, Nature’s glycosylation reagents. Redirecting protein glycosylation with small molecular glycosyltransferase inhibitors is an attractive and powerful approach with many potential applications, from bioengineering of therapeutic antibodies to antibacterial drug discovery.  The Wagner group has a long-standing track record in glycosyltransferase inhibitor development, including the discovery of a novel class of allosteric inhibitors ([Nat Chem Biol 2010](about:blank); [J Med Chem 2012](about:blank), [J Biol Chem 2013](about:blank), [J Biol Chem 2015](about:blank)), and drug-like covalent inhibitors (Bioorg Med Chem 2017, [Bioorg Med Chem 2018](about:blank)).  Building on this previous work, you will in this project apply the latest inhibitor design concepts in medicinal chemistry to develop novel glycosyltransferase inhibitors with suitable properties for applications in cell culture and whole organisms. You will also evaluate your inhibitor candidates in biochemical assays and, in collaboration with internal and external partners, advanced biological systems, e.g., for antibody engineering and antibacterial drug discovery.  The project will provide extensive multidisciplinary training at the chemistry/biology interface and is ideally suited for a student with a strong background in organic synthesis, who wants to significantly expand their experimental skill set. |
| **\*Supervisor(s)** | Professor Gerd Wagner |
| **\*Eligibility / residence Status** | UK/EU |
| **Country** | Northern Ireland |
| **\*Start date and duration** | 1 October 2021 |
| **\*Faculty** | MHLS |
| **\*Research centre / School** | Pharmacy |
| **Subject area** | Chemistry, Medicinal Chemistry, Organic Chemistry, Chemical Biology, Pharmacy, Pharmaceutical Sciences |
| **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 Chemistry, Pharmacy, Pharmaceutical Sciences, Biochemistry, Biological/Biomedical Sciences, Engineering, or a closely related discipline. Students who have a 2.2 honours degree and a Masters 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** | tbd |
| **\*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.  [https://dap.qub.ac.uk/portal/user/u\_login.php](about:blank) |
| **Relevant links / more information** | [https://www.qub.ac.uk/schools/SchoolofPharmacy/Research/find-a-phd-supervisor/dr-gerd-wagner.html](about:blank)  [http://www.qub.ac.uk/schools/SchoolofPharmacy/Research/PostgraduatePositions/](about:blank)  [http://www.qub.ac.uk/schools/SchoolofPharmacy/Research/](about:blank) |
| **Keywords for search filters** | organic synthesis, medicinal chemistry, chemical biology, carbohydrate chemistry, glycobiology, glycosyltransferase, multidisciplinary |
| **Training provided through the research project** | Students will receive in-depth training in a broad range of scientific techniques in medicinal chemistry and chemical biology, including rational inhibitor design, advanced organic synthesis (carbohydrate chemistry, nucleotides, heterocyclic chemistry), protein biochemistry, enzymology, and assay development. The project is highly collaborative: it will give you the opportunity to work with both internal and external partners and to experience different research environments. It will also provide an ideal opportunity for you to acquire transferable and generic skills such as time/project management and organisational skills, and experience in commercialisation and science outreach. |
| **Expected impact activities** | It is anticipated that inhibitors developed in this project will create opportunities for knowledge transfer, translation, and commercialisation, e.g., in the areas of antibody engineering and drug discovery. The project will also offer an opportunity for the student to contribute to a range of outreach activities such as the regular delivery of science workshops for school children and lay audiences. |