Research Associate in Chemical Biology in Glycoscience

Department: Chemistry
Hours of work: Full-time | 37 hours a week | Flexibility is available if required
Contract type: Fixed term for up to 36 months
Salary: Grade 6 | £33,309 - £40,927 per year (reduced pro-rata for part-time working)
Introduction

Two postdoctoral research positions are available immediately for up to 36 months to work on the activity-based proteomics and structural enzymology of carbohydrate-active enzyme systems in glycobiology. The work is funded by an ERC-Synergy grant to York, Barcelona and Leiden, and is based in York with extensive collaboration with Synergy-team members in all the laboratories. You will be supervised by Professor Gideon Davies and will work in the ERC-Synergy team in the York Structural Biology Laboratory, within the Department of Chemistry.

More details on the research and publications of Professor Davies can be found at: https://www.york.ac.uk/chemistry/staff/academic/d-g/gdavies/

All applicants are encouraged to read work from our group (and ERC collaborators), at a minimum:


The Department

The Department of Chemistry is one of the UK's leading Chemistry departments and we are renowned internationally for our research. This is combined with a commitment to teaching and outstanding student satisfaction, and we have been recognised consistently for our family-friendly policies and are proud of our Athena Swan Gold Award.

We strive to provide a working environment which allows all staff and students to contribute fully, flourish, and excel. We aim to ensure that there is a supportive and egalitarian culture across all staff groups and levels. We promote good practice and a strong culture of equality in higher education. Further information can be found on our website.

Main purpose of the role

To conduct and contribute to the production of research, under the supervision of senior colleagues, in a project theme in the area of chemical and structural biology, applied to enzymes that synthesise and degrade glycans. The goal is to harness activity-based tools to inhibit and understand enzymes in the glycosciences at 3-D structural and cellular levels. In collaboration with Leiden and Barcelona the positions will study key enzyme systems involved in glycan biosynthesis (glycosyltransferases) and degradation (glycosidases) both at a fundamental level and in the sphere of medical glycoscience (targets are diverse glycosyltransferases, human genetic disease glycosidases, pathogenic virus and bacterial proteins).

Key responsibilities

Between them, the two positions must cover the following responsibilities:

- Mammalian and insect cell gene expression and protein production for structural and kinetic analyses
- Enzyme production using both bacterial and fungal / yeast expression systems
• Enzyme kinetics, including enzyme inhibition kinetics and determination of substrate specificity
• Ligand-bound structure solution by X-ray crystallography: crystallisation, data collection and structure solution / refinement / deposition
• Single particle CryoEM using the in-house Glacios system and eBIC
• To keep up-to-date, in a pro-active manner, with scientific literature in the field of carbohydrate-active enzymes, carbohydrate chemistry and glycobiology and help percolate this information through to the group
• Supervise Bachelor and Master level project students in the group
• To work closely with international collaborators, notably in Leiden and Barcelona

(Role holders will also be required to undertake some or all of the duties below)

• To conduct individual and collaborative research projects, duties to include: analysis and interpretation of research data; use of appropriate research techniques and methods; writing up of research results and dissemination through publications, seminar and conference presentations and public engagement and outreach activities; contributing to the identification of possible new areas of research
• To contribute to the preparation of research proposals and applications to external bodies
• To undertake appropriate organisational and administrative activities connected to the research project, including conference organisation, and the development of promotional or educational material including website maintenance and development
• To develop and initiate collaborative working internally and externally, duties to include: the building of internal contacts and participation in internal networks; collaboration with colleagues on joint projects as required; participation in and identification of external networks in order to share information and identify potential opportunities for collaboration and possible sources of funding; attendance at and contribution to relevant meetings
• To provide guidance to other staff and students, as required, as well as coordinating the work of small research teams
• To assist with undergraduate teaching in own area of expertise.
## Person specification

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<tr>
<th>Qualifications</th>
<th>Essential/Desirable</th>
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<tbody>
<tr>
<td>First degree in Chemistry, Biochemistry, Biology or related</td>
<td>Essential</td>
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<tr>
<td>PhD in Biochemistry, Molecular Biology, Structural or Chemical Biology or related area or equivalent experience</td>
<td>Essential</td>
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<tr>
<th>Knowledge</th>
<th>Essential/Desirable</th>
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<tr>
<td>Knowledge of carbohydrate-active enzymes, including structures and mechanisms, to engage in high quality research</td>
<td>Essential</td>
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<td>Knowledge of a range of modern structural biology research techniques and methods</td>
<td>Essential</td>
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<td>Knowledge of enzyme kinetics, including inhibition methods</td>
<td>Essential</td>
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<tr>
<td>Has research expertise in an area that will complement and enhance the department’s research strategy and goals</td>
<td>Essential</td>
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<tr>
<td>Knowledge of activity-based probe methods and applications</td>
<td>Desirable</td>
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<tr>
<th>Skills, abilities and competencies</th>
<th>Essential/Desirable</th>
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<tr>
<td>Skill in gene expression for protein production (preferably insect/mammalian cell)</td>
<td>Essential</td>
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<td>Highly developed communication skills to engage effectively with a wide-ranging audience, both orally and in writing, using a range of media</td>
<td>Essential</td>
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<td>Ability to write up research work for publication in high profile journals and engage in public dissemination</td>
<td>Essential</td>
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<td>Ability to develop research objectives, projects and proposals for own and joint research, with the assistance of a mentor if required</td>
<td>Essential</td>
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<td>Competency to conduct individual and collaborative research projects</td>
<td>Essential</td>
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<td>Ability to identify sources of funding and contribute to the process of securing funds, with collaborators if required</td>
<td>Essential</td>
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<td>Competency to make presentations at conferences or exhibit work in other appropriate events</td>
<td>Essential</td>
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<tr>
<td>Skill in enzyme analysis (kinetics, inhibition)</td>
<td>Desirable</td>
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<td>Skill in protein X-ray crystallography, including ligand analysis or CryoEM</td>
<td>Desirable</td>
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**Experience**

- Experience of undertaking, publicly evidenced, high quality research commensurate with experience  
  **Essential**
- Experience of gene expression for protein purification  
  **Essential**
- Experience of carrying out both independent and collaborative research  
  **Essential**
- Experience of writing up research work for publication  
  **Essential**
- Ability to work as part of a team and also to work independently using own initiative  
  **Essential**
- Experience of enzyme kinetics, including inhibition  
  **Desirable**
- Experience of X-ray crystallography or CryoEM  
  **Desirable**

**Personal attributes**

- Interest in carbohydrate chemistry, structural enzymology, 3-D structure, chemical biology and carbohydrate-active enzymes  
  **Essential**
- Enthusiasm to host and supervise Bachelor and Master level project students  
  **Essential**
- Attention to detail and commitment to high quality  
  **Essential**
- Collaborative ethos  
  **Essential**
- Positive attitude to colleagues and students  
  **Essential**
- Willingness to work proactively with colleagues in other work areas/institutions  
  **Essential**
- Ability to plan and prioritise own work in order to meet deadlines, including using initiative to plan research programmes  
  **Essential**
- Commitment to personal development and updating of knowledge and skills  
  **Essential**
- Commitment to and understanding of equality, diversity and inclusion issues  
  **Essential**