



Theme: Next Generation Chemistry

Job Title	Postdoctoral Research Associate in Membrane Proteomics
Project	Wellcome Discovery Award (re)Defining the Nature of the Gram-Negative Outer Membrane
Location	Harwell, Didcot
Grade and salary	£35,500 - £43,500 per annum (depending on experience)
Hours	Full-Time
Contract type perm/FTC duration	3 Years Fixed-Term Contract
Reporting to	Prof. Shabaz Mohammed
Vacancy reference	10313

Introduction

The [Next Generation Chemistry](#) theme at the Rosalind Franklin Institute brings the techniques of organic chemistry to bear on living systems. By investigating natural mechanisms using chemical approaches, scientists can generate fresh insights into complex biology. Professor Ben Davis leads the Next Generation Chemistry theme. For nearly two decades, his research group at Oxford University has focused on improving our chemical understanding of biomolecular structure and function – particularly in proteins and carbohydrates. The manipulation of these biomolecules has a host of potential biotechnological applications, including the development of new disease therapeutics.

The Role

The Rosalind Franklin Institute is a national research centre, funded by the UK government through UK Research and Innovation, dedicated to bringing about transformative changes in life science through interdisciplinary research and technology.

Recently, we were awarded a Wellcome Trust Discovery Award to investigate the nature of the Gram-negative bacteria outer membrane. As part of this project, we are currently looking for a science driven, but community oriented Postdoctoral Research Associate to join our proteomics group. One of the major goals of the role is to improve technologies for the characterisation of membrane proteins initially in terms of discovering the complete protein inventory (including copy numbers) but then rapidly moving towards studying specific protein complex formation and the role of their lipid environment. The PDRA will be charged with creating maps of the membrane proteome for a number of gram-negative bacteria including E. Coli. Furthermore, protein interfaces both to proteins and lipids will be characterised through crosslinking approaches. The PDRA will be embedded within a larger consortium spanning multiple disciplines and institutes including Oxford University and UCL. The successful candidate will have access to a range of state-of-the-art mass spectrometry instrumentation which includes several bespoke mass spectrometers that incorporate most if not all high-performance analysers and activation techniques including an Exploris 480-omnitrap instrument containing UVPD, HCD, IRMPD and several flavours of ExD. The successful candidate will develop approaches to allow the detection of lipid-protein and protein-protein interfaces and their wider impact on the outer membrane.

Role Overview and Responsibilities

We are looking for someone with excellent skills in the following areas:

- Practical experience with several mass spectrometer types including orbitraps.
- Practical experience with several fragmentation approaches utilised in the field of biomolecular mass spectrometry.
- Ability to carry out analytical procedures that are applied for proteome, lipidome and crosslinked protein characterisation to a high degree of precision.
- Ability to analyse quantitative proteomic data with a degree of statistical rigour using common freely available software packages.
- Familiarity with a wide range of chromatographies employed in proteomics and lipidomics.
- Practical experience with hyphenating LCs to mass spectrometers.
- Experience with protein chemistry and standard bioanalytical approaches.
- Practical experience with proteomics mass spectrometry.

The main specific responsibilities of this role will include:

- Hyphenate LCs to a range of state-of-the-art mass spectrometers.
- Characterise a range of protein, lipid and proteolipid samples using a range of mass spectrometers and fragmentation regimes.
- Carry out analytical procedures that are applied for protein crosslinking characterisation to a high degree of precision including sample preparation.
- Analyse quantitative proteomic data with a degree of statistical rigour using common freely available software packages.
- Help to devise then create proteomic methodologies to address protein-protein and protein-lipid complexes.
- Carry out collaborative projects with colleagues and other research groups.
- Act as a source of information and advice to other members of the group on scientific protocols and experimental techniques.
- Contribute to the public engagement in science programme of the Franklin.

Person specification

The table below includes the essential and desirable requirements needed in order to perform the job effectively. Candidates will be shortlisted based on the extent to which they meet these criteria.

	Essential	Desirable
Selection Criteria	<ul style="list-style-type: none"> • Hold a PhD/DPhil or be near completion (i.e. submitted) a PhD/DPhil, in an appropriate field such as Chemistry, Biochemistry or Chemical Biology, Biology, Biomolecular Science, or related subjects. • Practical experience with mass spectrometers. 	<ul style="list-style-type: none"> • Practical experience with several peptide fragmentation approaches • Practical experience with lipid mass spectrometry. • Practical experience of developing and constructing LCMS and nanoLC systems including column packing.

- Practical experience with peptide and lipid centric chromatography.
- Practical experience with software packages utilised in mass spectrometry-based proteomics.
- A responsible nature with a methodical and careful approach when working in the laboratory.
- Experience with project management and demonstrated ability to deliver agreed milestones in a timely manner, adapt to changing priorities.
- Ability to co-ordinate multiple aspects of work to meet deadlines.
- Ability to work as part of a team as well as independently.
- Ability to discuss and coordinate experiments with a variety of colleagues from different disciplines.
- Ability to solve problems using innovative and flexible thinking.
- Excellent organisational and communication skills.
- Ability to travel occasionally for training or dissemination of your work.
- Practical experience with proteomics sample preparation.
- Proficiency in handling large proteomic datasets.

Staff Benefits

- 25 days holidays, plus Bank holidays, and Christmas holiday shutdown
- Generous pension scheme (employer's contribution currently up to 18%)
- Group Life Assurance (also known as Group Life Insurance)
- Hub building with state-of-the-art laboratories
- Training and development opportunities for staff at all levels
- Bus pass discount scheme and good transport links to Oxford and surrounding area
- Access to employee discount platform (Perkbox)
- Occupational Health and Wellbeing support including
- Employee Assistance (24/7 support and counselling)
- Health Cash Plan
- Subsidised canteen
- Cycle to Work Scheme
- Free on-site parking
- A beautiful campus location set in stunning Oxfordshire with social and sports clubs open to staff

Reflecting the world we live in

Our underlying aim is to produce the best science for research today, and this means resolutely embracing a diverse team, who have a wide range of experiences, skills and knowledge to push forward on the innovative work our institution delivers. Both our work and our institution are better for it.

We are proud that our science teams reflect a wide range of both national and international expertise. With support given for sponsorship and relocation to the UK.

For further information, [view our equality, diversity and inclusion policy](#).





Adventure - Our projects, by their nature, carry significant risk, combined with significant pay-off in scientific, economic, and patient benefits if successful. Risk is mitigated by engaging experts from across disciplines and working together to approach large challenges.

Engagement - Our projects are not conceived of or delivered by one organisation alone, they engage multiple partners across academia and industry and there is demonstrable support for their development by these communities.

Novelty - Our technologies will be novel in their application and design, offering tools to the academic and industrial communities which enable significant new research potential and economic benefit.

Utility - Our technologies will be sought after by both academic and industrial communities, and access will be opened to as wide as possible, ensuring that the research benefits are maximised.

Partnerships & Collaborations

Our Funders

The Institute operates as an independent charity, with funding provided by the UK government through [UK Research and Innovation](#), managed by [UKRI-EP SRC](#).

Our Partners

The Institute has been formed by a group of ten university partners from across the UK, Diamond Light Source, and the research council UKRI-STFC.

- University of Oxford
- University of Birmingham
- Diamond Light Source
- University of Cambridge
- University of Edinburgh
- Imperial College London
- Kings College London
- University of Leeds
- University of Manchester
- University of Southampton
- University College London (UCL)
- STFC-UKRI

Collaborations

Developing our technologies is best done hand in hand with the communities who will use them – we are keen to collaborate in the development stage of our technologies, to bring both test questions and technical expertise. [For more information on the types of collaborations that we are looking for at the Franklin please visit our collaborations webpage.](#)

Our Location

The Hub at Harwell

The heart of the Rosalind Franklin Institute is the new hub building located at [Harwell Campus](#). The 5300m² hub building at Harwell will be a flagship new addition to the campus, with four storeys of world leading scientific capability, complementing existing facilities at Harwell and at the partner spokes. The hub is the focal point for the Institute, and the heart of life sciences at Harwell Campus. The world leading technology hosted at the hub is matched by the innovative design of the building itself – unique in its experimental capabilities.

Harwell Campus

Harwell Campus is Europe's largest Science and Innovation Campus. With a heritage of 75 years at the forefront of UK innovation and discovery, The Campus continues to drive scientific advancements to the benefit of the UK economy and to improve the human condition, centered around an open innovation community and culture. The contribution that Harwell makes to the UK is significant - leading in research and achieving commercial success in key global markets, including Life Sciences, Space, Energy, Supercomputing, AI and Big Data. With 6,000 people employed across +200 public, private, and academic organisations, and an estimated Gross Value Added (GVA) of over £1billion, Harwell provides job creation and economic growth that benefits the whole country.



Recruitment Process

How to apply

To apply for our vacancies you need to create an account. To register please visit our [website](#)

To browse all available employment opportunities at the Franklin please visit our current vacancies page [here](#)

Acknowledging your application

Once you have submitted your application you will receive an automatic email confirmation. You can check the progress of your application or change your contact details at any time by logging into your account. For any questions regarding applications please contact recruitment@rfi.ac.uk

Outcome of applications

We aim to provide an update on the status of your application within 6 weeks of the closing date of the vacancy. We may receive a large volume of applications for our vacancies, so it might not always be possible to respond individually to every application.

References

If you are shortlisted for an interview, we would like to obtain two professional/academic references as part of your application process. Please ensure your referees' contact details are up to date while applying.

Applicants should refer to our [Candidate Privacy Policy](#)

Informal enquiries can be addressed to recruitment@rfi.ac.uk



Prof. Shabaz Mohammed
Deputy Science Director
[View Profile](#)