Theme: Next Generation Chemistry

Job Title	PDRA in Biomolecule Chemistry and Cellular Chemical Biology
Project	Next Generation Chemistry - Post Translational Mutagenesis
Location	Harwell, Didcot
Grade and salary	From £37,500 per annum (depending on skills and experience)
Hours	Full Time (37.5 hours per week)
Contract type perm/FTC duration	3 Years Fixed-Term Contract
Reporting to	Prof. Ben Davis
Vacancy reference	10335

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.

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The Role
The Rosalind Franklin Institute (the Franklin) 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.

Within the Davis group in the Next Generation Chemistry theme, one of the aims is to develop new synthetic chemical methods to edit complex biomolecules as a form of post-translational mutagenesis. Specifically, this project will develop new methods for the manipulation of complex protein [see e.g. *Nature,* **2020***, 585,* 530], sugar [see e.g. *Nature*, **2016**, *540*, 574] and lipid [*J. Am. Chem. Soc.* **2014**, *136*, 566-569, *Cell* **2018**, *175*, 1045-1058] substrates. Within this theme, you will expand on these discoveries and develop new methods for chemical manipulation of biomolecules in ever more complex environments to probe fundamental biology and medicine. The post, reports to the Franklin's Theme Lead for Chemistry (Ben Davis), as well as key academic collaborators and will work alongside other researchers in the Franklin and at partner university institutes including at the University of Oxford (where some groups, such as the Davis group, are jointly based).

Whilst the role is a Postdoctoral Research level and requires candidates to hold a PhD/DPhil (or equivalent), we may consider candidates who are close to completion of their PhD/DPhil qualification, in which case the initial appointment will be made at £36,500 per annum (to be increased on completion of the PhD/DPhil qualification).

Responsibilities
You will:

- Embrace the primary project of the role, namely developing new chemistries that may be applied to complex protein and/or sugar and/or lipid architectures and characterizing their consequences chemically, structurally, and functionally.
- Collaborate with industrial and academic partners (especially on fundamental biological consequences).
- Collaborate with other researchers on design hypotheses.
- Work with other themes and researchers to develop the burgeoning Franklin environment to be as suitable as possible for such work, especially partners in omics and synthetic biology.
- Develop the scientific scope of the project, formulate relevant research questions, conduct individual research, analysing detailed and complex qualitative and/or quantitative data from a variety of sources, and generate original ideas by building on existing concepts.
- Work together with the surrounding facilities to ensure efficient processes at the Franklin and Harwell environment.
- Publish research articles in leading academic journals.
- Present findings at national and international meetings/conferences.
- Take a formal or informal role (as required) in the supervision of research students, including recruitment, mentorship, and career development.
- Raise research funds through grant applications and manage own area of a larger research budget.
- Participate in and support the public engagement and widening access activities of the Franklin.
- Any other duties that come up in the normal running of the facility and that can be reasonably requested of the post-holder.

This post may require occasional travel for training and dissemination of your work.

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	• Hold or be close to completion of a PhD/DPhil (or equivalent experience) in Chemistry, Biochemistry or Chemical Biology, Biology, Biomolecular Science, or related subjects. • Experience with project management and demonstrated ability to deliver agreed milestones in a timely manner, adapt to changing priorities. • Experience with developing routinely usable methods. • Experience with devising research questions and to develop strategies to address them. • Experience in synthetic methods applied to biomolecules and functional application.	• Experience with general biophysical techniques such as SPR, ITC, fluorescence, etc. • Experience in synthetic chemical methodology. • Expert knowledge of protein expression, purification, and characterisation. • Expert knowledge of structural methods. • Expert knowledge in biocatalysis and/or enzyme methods. • Expert knowledge of diverse imaging methods. • Expert knowledge of cell biology and associated methods. • Knowledge of biological chemistry and bioinformatics.

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- A demonstrated aptitude for protein and/or sugar and/or lipid chemistry and associated methods.
- Ability to work both independently and as part of a team.
- Strong organisational and communication skills.
- Ability to discuss and coordinate experiments with a variety of colleagues from different disciplines.

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.

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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-EPSRC.

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.

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Recruitment Process

Inclusion and Reasonable Adjustments
Our approach to working is collaborative, welcoming, and encourages diversity in all its forms. We are committed to creating an inclusive environment where every applicant has an equal opportunity to showcase their talents and abilities. This includes making adjustments for candidates with specific needs. Please contact us at recruitment@rfi.ac.uk to discuss your requirements confidentially.

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 successful at interview, we would like to obtain two professional/academic references at the offer stage. 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. Ben Davis
Science Director
View Profile

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