department of BIOCHEMISTRY

UNIVERSITY OF OXFORD

Summary

Job title	Postdoctoral Research Associate in Solute Carrier structural biology/Drug Design
Division	Medical Sciences
Department	Department of Biochemistry
Location	Dorothy Crowfoot Hodgkin Building, South Parks Road, Oxford
Grade and salary	Grade 7: £39,347 - £40,521 per annum
Hours	Full Time (37.5 hours per week)
Contract type	Fixed Term Contract for up to 3 years in the first instance
Reporting to	Professor Simon Newstead
Vacancy reference	173981
Additional information	You are required to submit a 2-page CV and a supporting statement (of no more than 2 pages with 11 pt font) with your application, outlining how you meet each of the selection criteria for the role (see below for details). Your application will not be processed if you do not include both documents. No other documentation is required – **please do not** submit copies of published works with your application.

Research topic	Using cryo-EM and Biochemistry to understand drug recognition and transport in the SLC15 family of peptide transporters
Principal Investigator / supervisor	Prof Simon Newstead
Project team	Simon Newstead in collaboration with Prof Philip Biggin (Biochemistry, Oxford) and Prof Chris Schofield (Chemistry, Oxford)
Project web site	https://www.bioch.ox.ac.uk/research/newstead
Funding partner	The funds supporting this research project are provided by the BBSRC
Recent publications	1 Lichtinger, S. M. & Biggin, P. C. Tackling hysteresis in conformational sampling: How to be forgetful with MEMENTO. J.

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Chem. Theory Comput. 19, 3705-3720 (2023). https://doi.org:10.1021/acs.jctc.3c00140
2 Lichtinger, S. M., Parker, J. L., Newstead, N. & Biggin, P. C. The mechanism of mammalian proton-coupled peptide transporters. bioRxiv, 2024.2002.2004.578827 (2024). https://doi.org:10.1101/2024.02.04.578827
3 Parker, J. L. et al. Cryo-EM structure of PepT2 reveals structural basis for proton coupled peptide transport in mammals. Sci. Adv. 7, eabh3355 (2021).

The role

We are seeking to appoint a Postdoctoral Research Associate to join Prof Simon Newstead's lab in collaboration with Prof Philip Biggin (Oxford Biochemistry) and Prof Chris Schofield (Oxford Chemistry) to develop a computational pipeline to help design antibiotics with improved uptake into humans. This builds on a substantial body of work already performed by this team using a combination of advanced structural biology, computational techniques, and chemical synthesis. The aim of this post is to establish the mechanistic rules for proton coupling in Peptide Transporters and explore the development of inhibitors and modulators. The successful applicant will work closely with the computational scientist employed in Prof Biggin's lab to develop a computational pipeline for improving antibiotic transport. Chemical synthesis support will be provided by colleagues in Prof Schofield's laboratory. The PDRA will therefore be expected to work very closely with PDRAs in our collaborator laboratories.

Responsibilities

- Exploit state-of-the-art structural biology techniques (cryo-EM & NMR) to investigate how compounds recognised are transported into the cell through the Peptide Transporters.
- To develop and undertake cell-based assays and reconstituted liposome-based assays to understand transporter kinetics and assess the impact of mutations.
- Management of the project in terms of the cryo-EM sample preparation, data collection and data archiving.
- To undertake large scale mammalian tissue culture work to generate sufficient protein for biochemical, biophysical and structural analysis.
- To formulate ideas in a scientifically convincing manner that can be tested by a wide variety of techniques and work synergistically with the computational and chemical PDRAs.
- To develop and expand the remit in an ongoing fashion and to present those ideas to the senior members of the team.
- Collaborate in the preparation of scientific reports and journal articles and present papers, posters and talks.
- To use and contribute to the maintenance of the laboratory, including routine housekeeping roles.
- Act as a source of information and advice to other members of the group on scientific protocols and simulation techniques.
- Represent the research group at external meetings/seminars, either with other members of the group or alone.
- To undertake some limited supervision of junior members of the group (graduate student or undergraduate intern student).

Selection criteria

Essential selection criteria

1. Possess a PhD/DPhil or be near completion of a PhD/DPhil in Biochemistry, Structural Biology, Chemistry or related subject and preferably with a strong structural component.
2. Previous experience with eukaryotic membrane protein structural biology and biochemistry.
3. Previous experience with mammalian or insect recombinant expression systems.
4. Be able to demonstrate competence and success in their thesis research (and postdoctoral work if appropriate), e.g. as judged by publication in high quality peer-reviewed journals. Evidence will be sought of a deep understanding of the applicant's previous fields of research and evidence of independent intellectual and practical contributions to previous research projects.
5. Excellent communication skills, including the ability to write for publication, present research proposals and results, and represent the research group at meetings.
6. Have demonstrable/proven teamwork skills

Desirable selection criteria

1. Experience of using a range of biophysical techniques to understand protein function.
2. Have some experience with single particle cryo-EM on membrane protein samples.
3. Be familiar with the application of solution NMR methods as applied to understand protein dynamics.
4. Show an ability to work supportively in a laboratory environment, and to supervise and educate junior co-workers.

Pre-employment screening

Standard checks

If you are offered the post, the offer will be subject to standard pre-employment checks. You will be asked to provide: proof of your right-to-work in the UK; proof of your identity; and (if we haven't done so already) we will contact the referees you have nominated. If you have previously worked for the University we will also verify key information such as your dates of employment and reason for leaving your previous role with the department/unit where you worked. You will also be asked to complete a health declaration so that you can tell us about any health conditions or disabilities for which you may need us to make appropriate adjustments.

Please read the candidate notes on the University's pre-employment screening procedures at: https://www.jobs.ox.ac.uk/pre-employment-checks

Hazard-specific / Safety-critical duties

This job includes hazards or safety-critical activities. If you are offered the post, you will be asked to complete a health questionnaire which will be assessed by our Occupational Health Service, and the offer of employment will be subject a successful outcome of this assessment.

The hazards or safety-critical duties involved are as follows:

- Lone Working
- Work in hot or cold environments
- Working with Ionising Radiation
- Regular manual handling

- Work with any substance which has any of the following pictograms on their MSDS:

About the University of Oxford

Welcome to the University of Oxford. We aim to lead the world in research and education for the benefit of society both in the UK and globally. Oxford's researchers engage with academic, commercial and cultural partners across the world to stimulate high-quality research and enable innovation through a broad range of social, policy and economic impacts.

We believe our strengths lie both in empowering individuals and teams to address fundamental questions of global significance, while providing all our staff with a welcoming and inclusive workplace that enables everyone to develop and do their best work. Recognising that diversity is our strength, vital for innovation and creativity, we aspire to build a truly diverse community which values and respects every individual's unique contribution.

While we have long traditions of scholarship, we are also forward-looking, creative and cutting-edge. Oxford is one of Europe's most entrepreneurial universities and we rank first in the UK for university spin-outs, and in recent years we have spun out 15-20 new companies every year. We are also recognised as leaders in support for social enterprise.

Join us and you will find a unique, democratic and international community, a great range of staff benefits and access to a vibrant array of cultural activities in the beautiful city of Oxford.

For more information, please visit www.ox.ac.uk/about/organisation.

Department of Biochemistry

The Department of Biochemistry in Oxford was established in 1920 and is now one of the largest in Europe. Situated in an attractive area close to the University Parks and River Cherwell, the Department is housed in the University Science Area and is currently undergoing a major expansion programme centred on the recently completed and award-winning New Biochemistry Building. The Science Area includes the Radcliffe Science Library and the Natural History Museum, and is conveniently located for easy access to the town centre and colleges.

The department includes research laboratories working in the areas of Cell Biology, Development and Genetics; Chromosomal and RNA Biology; Infection and Disease Processes; Microbiology and Systems Biology; and Structural Biology and Molecular Biophysics. It is particularly well equipped with an extensive computer network, all the basic hardware essential in today's research, together with an excellent range of state-of-the-art specialist equipment.

For more information please visit: http://www.bioch.ox.ac.uk/

The University of Oxford is a member of the Athena SWAN Charter and holds an institutional Bronze Athena SWAN award. The Department of Biochemistry is strongly committed to equality and valuing diversity and we operate a flexible working policy for all staff. The Department holds a departmental Silver Athena SWAN award to recognise advancement of gender equality: representation, progression and success for all.

Medical Sciences Division

The Medical Sciences Division is an internationally recognized centre of excellence for biomedical and clinical research and teaching, and the largest academic division in the University of Oxford. It includes 15 clinical departments and 5 non-clinical departments.

World-leading programmes, housed in state-of-the-art facilities, cover the full range of scientific endeavour from the molecule to the population. With our NHS partners we also foster the highest possible standards in patient care.

For more information please visit: http://www.ox.ac.uk/divisions/medical_sciences.html

How to apply

Applications are made through our online recruitment portal. Information about how to apply is available on our Jobs website https://www.jobs.ox.ac.uk/how-to-apply.

Your application will be judged solely on the basis of how you demonstrate that you meet the selection criteria stated in the job description.

As part of your application you will be asked to provide details of two referees and indicate whether we can contact them now.

You will be asked to upload a CV and a supporting statement. The supporting statement must explain how you meet each of the selection criteria for the post using examples of your skills and experience. This may include experience gained in employment, education, or during career breaks (such as time out to care for dependants)

Please upload all documents **as PDF files** with your name and the document type in the filename.

All applications must be received by **midday** UK time on the closing date stated in the online advertisement.

Information for priority candidates

A priority candidate is a University employee who is seeking redeployment because they have been advised that they are at risk of redundancy, or on grounds of ill-health/disability. Priority candidates are issued with a redeployment letter by their employing department(s).

If you are a priority candidate, please ensure that you attach your redeployment letter to your application (or email it to the contact address on the advert if the application form used for the vacancy does not allow attachments).

If you need help

Application FAQs, including technical troubleshooting advice is available at: https://staff.web.ox.ac.uk/recruitment-support-faqs

Non-technical questions about this job should be addressed to the recruiting department directly, please email recruitment@bioch.ox.ac.uk

To return to the online application at any stage, please go to: www.recruit.ox.ac.uk.

Please note that you will receive an automated email from our online recruitment portal to confirm receipt of your application. **Please check your spam/junk mail** if you do not receive this email.

Important information for candidates

Data Privacy

Please note that any personal data submitted to the University as part of the job application process will be processed in accordance with the GDPR and related UK data protection legislation. For further information, please see the University's Privacy Notice for Job Applicants at: https://compliance.admin.ox.ac.uk/job-applicant-privacy-policy. The University's Policy on Data Protection is available at: https://compliance.admin.ox.ac.uk/data-protection-policy.

The University's policy on retirement

The University operates an Employer Justified Retirement Age (EJRA) for very senior research posts at **grade RSIV/D35 and clinical equivalents E62 and E82** of 30 September before the 70th birthday. The justification for this is explained at: https://hr.admin.ox.ac.uk/the-ejra.

For **existing** employees on these grades, any employment beyond the retirement age is subject to approval through the procedures: https://hr.admin.ox.ac.uk/the-ejra.

There is no normal or fixed age at which staff in posts at other grades have to retire. Staff at these grades may elect to retire in accordance with the rules of the applicable pension scheme, as may be amended from time to time.

Equality of opportunity

Entry into employment with the University and progression within employment will be determined only by personal merit and the application of criteria which are related to the duties of each particular post and the relevant salary structure. In all cases, ability to perform the job will be the primary consideration. No applicant or member of staff shall be discriminated against because of age, disability, gender reassignment, marriage or civil partnership, pregnancy or maternity, race, religion or belief, sex, or sexual orientation.

The University's Policy on Information Security Awareness

The information security awareness training is **compulsory** for all University staff; and as part of our responsibility as a Department, **ALL** employees of the Department will be required to complete the online information security awareness module, which provides a combination of information, case studies and links to additional resources relating to information security. You will be expected to complete this course as part of your induction process, on your first day working in the Department of Biochemistry. This training will also need to be completed in order to successfully complete your probationary period.

In order to ensure that we are compliant and up-to-date with the information security awareness training, we need to ensure that all staff members have completed the latest course, which may be accessed from the Information Security's website by using the following link:

https://www.infosec.ox.ac.uk/guidance-policy/training-and-awareness

You will also be required to undertake this course on an annual basis, in order to satisfy the security awareness training requirements of the University's Information Security Policy.

Benefits of working at the University

Employee benefits

University employees enjoy 38 days' paid holiday, generous pension schemes, flexible working options, travel discounts including salary sacrifice schemes for bicycles and electric cars and other discounts. Staff can access a huge range of personal and professional development opportunities. See https://hr.admin.ox.ac.uk/staff-benefits

Employee Assistance Programme

As part of our wellbeing offering staff get free access to Health Assured, a confidential employee assistance programme, available 24/7 for 365 days a year. Find out more https://staff.admin.ox.ac.uk/health-assured-eap

University Club and sports facilities

Membership of the University Club is free for University staff. It offers social, sporting, and hospitality facilities. Staff can also use the University Sports Centre on Iffley Road at discounted rates, including a fitness centre, powerlifting room, and swimming pool. See www.club.ox.ac.uk and https://www.sport.ox.ac.uk/.

Information for staff new to Oxford

If you are relocating to Oxfordshire from overseas or elsewhere in the UK, the University's Welcome Service includes practical information about settling in the area, including advice on relocation, accommodation, and local schools. See https://welcome.ox.ac.uk/

There is also a visa loan scheme to cover the costs of UK visa applications for staff and their dependants. See https://staffimmigration.admin.ox.ac.uk/visa-loan-scheme

Family-friendly benefits

We are a family-friendly employer with one of the most generous family leave schemes in the Higher Education sector. Our Childcare Services team provides guidance and support on childcare provision, and offers a range of high quality childcare options at affordable prices for staff. In addition to 5 University nurseries, we partner with a number of local providers to offer in excess of 450 full time nursery places to our staff. Eligible parents are able to pay for childcare through salary sacrifice, further reducing costs. See https://childcare.admin.ox.ac.uk/. We also subscribe to the Work+Family Space, a service that provides practical advice and support for employees who have caring responsibilities for dependants of all types. See https://hr.admin.ox.ac.uk/my-family-care

Supporting disability and health-related issues (inc menopause)

We are committed to supporting members of staff with disabilities or long-term health conditions, including those experiencing negative effects of menopause. Information about the University's Staff Disability Advisor, is at https://edu.admin.ox.ac.uk/disability-support. For information about how we support those going through menopause see https://hr.admin.ox.ac.uk/menopause-guidance

Staff networks

The University has a number of staff networks including for research staff, BME staff, LGBT+ staff, disabled staff network and those going through menopause. Find out more at https://edu.admin.ox.ac.uk/networks

The University of Oxford Newcomers' Club

The University of Oxford Newcomers' Club is run by volunteers that aims to assist the partners of new staff settle into Oxford, and provides them with an opportunity to meet people and make connections in the local area. See www.newcomers.ox.ac.uk.

Research staff

The Researcher Hub supports all researchers on fixed-term contracts. They aim to help you settle in comfortably, make connections, grow as a person, extend your research expertise and approach your next career step with confidence. Find out more https://www.ox.ac.uk/research/support-researchers/researcher-hub

Oxford's Research Staff Society is a collective voice for our researchers. They also organise social and professional networking activities for researchers. Find out more https://www.ox.ac.uk/research/support-researchers/connecting-other-researchers/oxford-research-staff-society