**Job title**  
Postdoctoral Scientist-Integral Membrane Proteins Group 1

**Division**  
Medical Sciences

**Department**  
Nuffield Department of Medicine, Structural Genomics Consortium (SGC)

**Location**  
Old Road Campus Research Building, Old Road Campus, Roosevelt Drive, Headington, Oxford, OX3 7DQ

**Grade and salary**  
Grade 7: £32,817 - £40,322 per annum

**Hours**  
Full-Time

**Contract type**  
Fixed-term until 31st August 2022 in the first instance.

**Reporting to**  
Professor Liz Carpenter

**Vacancy reference**  
144846

**Additional information**  
This post is a joint position with Boehringer Ingelheim (BI). The post-holder will be based in the SGC labs in Oxford, UK, and will have the opportunity to work in BI labs in Biberach in Germany, with 1 – 2 week visits two or three times a year. This position is funded by Boehringer Ingelheim (BI).

**Research topic**  
Cryo-EM, crystallography and functional studies of human ion channels and solute carriers involved in genetic disease.

**Principal Investigator / supervisor**  
In Oxford, Prof Liz Carpenter, Professor of Membrane Protein Structural Biology and PI for the Integral Membrane Proteins Group 1. At BI: You will be working with the Structural Research Group of Boehringer Ingelheim in Biberach, Germany.

**Project team**  
Integral Membrane Proteins Group 1, SGC, NDM

**Project web site**  
[www.ox.ac.uk/](http://www.ox.ac.uk/)

**Recent publications**  
**Selected recent publications:**  

Dong, Y.Y., (2018) “Structures of DPAGT1 explain glycosylation disease mechanisms and advance TB antibiotic design”. Cell, 175,
The role

The Carpenter group studies the structure and function of a range of human integral membrane proteins associated with genetic disease. You will be joining a team of 14 membrane protein scientists in the IMP-1 group at the SGC, who have considerable experience in structure and function studies of a range of integral membrane proteins. The group works extensively with colleagues at the SGC, including the Biotech, the IMP-2, Research Informatics and Crystallography groups.

In this project you will be responsible for producing the target proteins in insect and mammalian cells, optimize the protein production methods and prepare cryo-EM grids and crystals. There are several projects where purification protocols are already in place, in addition to a range of projects where protein production will need to be optimized. You will determine the structures of these proteins, using both cryo-EM and X-ray crystallography. We have access to electron cryo-microscopes in the OPIC and COSMC facilities in Oxford, as well as the National Cryo-EM facility, eBIC, Oxfordshire. For crystallography we have access to the Diamond Light Source Ltd. These world-class facilities provide ample opportunity of us to rapidly solve structures. You will also use biophysical and biochemical techniques to study protein function and identify novel small molecule binders that could regulate protein function and will be responsible for all aspects of the project from design of experiments, structure determination by cryo-EM and X-ray crystallography, data analysis and preparation of manuscripts, working with your line manager and collaborators.

You will work with both Structural Genomics Consortium (SGC) and Boehringer Ingelheim (BI) colleagues to solve the structures of human ion channels and solute carriers involved in disease, as by understanding the biology of each protein that is mutated in disease will it be possible to provide new medicines. This is an excellent opportunity for you to obtain and to further training in structure determination by cryo-EM and crystallography and will provide an opportunity for you to be involved in a large academic/industrial collaboration to work in both academic and pharma laboratories as you will be working in both the UK and Germany, spending 70% (183 days) of your time in Oxford and 30% (77 days) in Germany. You must be
able to regularly travel and reside in both locations. The projects originate at the SGC and the data you generate will all be publishable without restriction.

Responsibilities

You will take overall responsibility for running and managing a set of ion channel and solute carrier structure and function studies, as agreed between your line manager in the SGC and your collaborators in BI. You will:

- Express and purify ion channels and SLCs for structural studies.
- Maintain cells and perform large scale grow-ups of insect cell and mammalian cell cultures for purification.
- Solve structures of these proteins in a range of conformations, with mutations and in the presence of activators and inhibitors, using cryo-electron microscopy, X-ray crystallography and any other appropriate methods.
- Develop and perform biophysical assays to identify activators and inhibitors.
- Keep accurate, complete and up-to-date records of all experiments performed, using the SGC’s database and electronic notebook system.
- Keep up-to-date with the literature on the proteins and techniques you are using.
- Prepare manuscripts for publication in high quality journals.
- Work closely with the SGC and BI colleagues, sharing information with them and keeping both sets of colleagues updated on your work with regular meetings and reports.
- Interact effectively with the lab head, other members of the Integral Membrane Proteins Group and other groups in the SGC, as well as the lab heads in BI and other colleagues there.
- Carrying out any other relevant duties as may reasonably be associated with the post and which may be required from time to time.

Pre-employment screening

All offers of employment are made subject to standard pre-employment screening, as applicable to the post.

If you are offered the post, you will be asked to provide proof of your right-to-work, your identity, and we will contact the referees you have nominated. You will also be asked to complete a health declaration (so that you can tell us about any health conditions or disabilities so that we can discuss appropriate adjustments with you), and a declaration of any unspent criminal convictions.

We advise all applicants to read the candidate notes on the University’s pre-employment screening procedures, found at: [www.ox.ac.uk/about/jobs/preemploymentscreening/](http://www.ox.ac.uk/about/jobs/preemploymentscreening/).

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 (OHS), and the offer of employment will be subject a successful outcome of this assessment.

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

- Working at heights
- Night working (11pm-6am)
• Work with any substance which has any of the following pictograms on their MSDS:

• Travel outside of Europe or North America on University Business
• Regular manual handling - lifting centrifuge rotors and working extensively with large grow-ups which involved moving large numbers of 1L flasks.

Selection criteria

Essential selection criteria
• PhD or be close to completing your PhD in a relevant area of protein science and biochemistry, either awarded, submitted for final examination or close to submission.
• Proven experience in protein expression and purification with integral membrane proteins, or other challenging proteins, including optimization of protein stability and production.
• Proven experience in academic and/or industrial laboratories in structural and function studies for challenging proteins.
• Experience in solving structures of proteins using either X-ray crystallography or cryo-EM techniques.
• Highly self-motivated, well-organised and flexible with strong planning and problem solving skills.
• Excellent oral, presentation and written communication skills.
• A proven record in preparation of high quality research publications, including a demonstrable ability to write first-author publications for leading journals.
• Ability to work independently and as part of a team, and to collaborate with colleagues and collaborators from industry on a range of projects.
• Willingness to work both in Oxford, UK and Biberach, Germany, spending approximately 50% of your time in each place.

Desirable selection criteria
• Experience in using and optimizing expression in insect cells, yeast and/or mammalian expression systems.
• Experience in performing biophysical and/or biochemical assays, preferably on membrane proteins.
• Grid preparation for cryo-EM and/or crystallisation for integral membrane proteins.
• Structure determination for integral membrane proteins, and/or large complexes.
• Experience working in a high-throughput environment, with tight timelines.

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. Income from external
research contracts in 2016/17 exceeded £564m and we rank first in the UK for university spinouts, with more than 130 companies created to date. 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.

Medical Sciences
The Medical Sciences Division is an internationally recognized centre of excellence for biomedical and clinical research and teaching. We are the largest academic division in the University of Oxford.

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: www.medsci.ox.ac.uk

Nuffield Department of Clinical Medicine (NDM)...fostering your career in science
The Nuffield Department of Clinical Medicine (NDM) is one of the largest departments of the University of Oxford and is part of the Medical Sciences Division, with responsibility for a significant part of the teaching of clinical students within the Medical School.

NDM has significant financial turnover and complexity, resulting from its diverse research portfolio, its geographical spread and its close links with NHS funding and strategic teams involved in the development and delivery of increasingly integrated clinical research platforms. For more information please visit: http://www.ndm.ox.ac.uk/home

The Nuffield Department of Clinical Medicine has been presented with a Departmental Athena SWAN Silver award in recognition of the commitment made to promote gender equality through our organisational and cultural practices and our efforts to improve the working environment for both men and women. For more information please see our Departmental Athena SWAN pages: www.ndm.ox.ac.uk/working-for-ndm/aboutndmatheneswan/.

Structural Genomics Consortium (SGC)
The Structural Genomics Consortium (SGC), a not-for-profit, public-private partnership funds pre-competitive research that contributes to new hypotheses in understanding and treating human disease, and the subsequent identification of new targets for drug discovery. The SGC supports pioneering research at the University of Oxford (UK), University of Toronto (Canada), University of Campinas (Brazil), and University of North Carolina (USA). The reagents and knowledge related to human proteins that the SGC supports are made openly accessible to researchers around the world to accelerate the discovery of new medicines in order to bring potentially life-saving drugs to market faster and at a lower cost.

SGC Oxford, a part of the Nuffield Department of Clinical Medicine, receives funding from public, charitable and private sector organisations such as the European Commission, UK Research Councils, Wellcome Trust, and pharmaceutical companies. Research in SGC Oxford is focused on the production and characterisation of the 3-dimensional structures of soluble and integral membrane proteins, the discovery of selective chemical probes that can modulate
protein function, and the development of target enabling packages that transform genetic hits into starting points for drug discovery. SGC Oxford shares its research outputs through collaborations with researchers worldwide.

For more information please visit: http://www.thesgc.org/scientists/groups/oxford/

How to apply

Before submitting an application, you may find it helpful to read the ‘Tips on applying for a job at the University of Oxford’ document, at http://www.ox.ac.uk/about_the_university/jobs/research/

If you would like to apply, click on the Apply Now button on the ‘Job Details’ page and follow the on-screen instructions to register as a new user or log-in if you have applied previously. Please provide details of two referees and indicate whether we can contact them now.

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

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

All applications must be received by midday 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).

Should you experience any difficulties using the online application system, please email recruitment.support@admin.ox.ac.uk. Further help and support is available from www.ox.ac.uk/about_the_university/jobs/support/. 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 e-recruitment system 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: www.admin.ox.ac.uk/councilsec/compliance/gdpr/privacynotices/job/. The University’s Policy on Data Protection is available at: www.admin.ox.ac.uk/councilsec/compliance/gdpr/universitypolicyondataprotection/.

The University's policy on retirement

The University operates an Employer Justified Retirement Age (EJRA) for all academic posts and some academic-related posts. The University has adopted an EJRA of 30 September before the 69th birthday for all academic and academic-related staff in posts at grade 8 and above. The justification for this is explained at: www.admin.ox.ac.uk/personnel/end/retirement/acrelretire8/+.

For existing employees, any employment beyond the retirement age is subject to approval through the procedures: www.admin.ox.ac.uk/personnel/end/retirement/acrelretire8/+.

There is no normal or fixed age at which staff in posts at grades 1–7 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.
Benefits of working at the University

**Employee benefits**

University employees enjoy 38 days’ paid holiday, generous pension schemes, travel discounts, and a variety of professional development opportunities. Our range of other employee benefits and discounts also includes free entry to the Botanic Gardens and University colleges, and discounts at University museums. See [www.admin.ox.ac.uk/personnel/staffinfo/benefits](http://www.admin.ox.ac.uk/personnel/staffinfo/benefits).

**University Club and sports facilities**

Membership of the University Club is free for all University staff. The University Club 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](http://www.club.ox.ac.uk) and [www.sport.ox.ac.uk/oxford-university-sports-facilities](http://www.sport.ox.ac.uk/oxford-university-sports-facilities).

**Information for staff new to Oxford**

If you are relocating to Oxfordshire from overseas or elsewhere in the UK, the University’s Welcome Service website includes practical information about settling in the area, including advice on relocation, accommodation, and local schools. See [www.welcome.ox.ac.uk](http://www.welcome.ox.ac.uk). There is also a visa loan scheme to cover the costs of UK visa applications for staff and their dependents. See [www.admin.ox.ac.uk/personnel/permits/reimburse&loanscheme/](http://www.admin.ox.ac.uk/personnel/permits/reimburse&loanscheme/).

**Family-friendly benefits**

With one of the most generous family leave schemes in the Higher Education sector, and a range of flexible working options, Oxford aims to be a family-friendly employer. We also subscribe to My Family Care, a service that provides practical advice and support for employees who have caring responsibilities. The service offers a free telephone advice line, and the ability to book emergency back-up care for children, adult dependents and elderly relatives. See [www.admin.ox.ac.uk/personnel/staffinfo/benefits/family/mfc/](http://www.admin.ox.ac.uk/personnel/staffinfo/benefits/family/mfc/).

**Childcare**

The University has excellent childcare services, including five University nurseries as well as University-supported places at many other private nurseries. For full details, including how to apply and the costs, see [www.admin.ox.ac.uk/childcare/](http://www.admin.ox.ac.uk/childcare/).

**Disabled staff**

We are committed to supporting members of staff with disabilities or long-term health conditions. For further details, including information about how to make contact, in confidence, with the University’s Staff Disability Advisor, see [www.admin.ox.ac.uk/eop/disab/staff](http://www.admin.ox.ac.uk/eop/disab/staff).

**Staff networks**

The University has a number of staff networks including the Oxford Research Staff Society, BME staff network, LGBT+ staff network and a disabled staff network. You can find more information at [www.admin.ox.ac.uk/eop/inpractice/networks/](http://www.admin.ox.ac.uk/eop/inpractice/networks/).

**The University of Oxford Newcomers’ Club**

The University of Oxford Newcomers' Club is an organisation 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](http://www.newcomers.ox.ac.uk).