MRC Brain Network Dynamics Unit
Department of Pharmacology
University of Oxford

Job description and selection criteria

Job title	Postdoctoral Neuroscientist
Division	Medical Sciences
Department	MRC Brain Network Dynamics Unit, Department of Pharmacology
Location	Mansfield Road, Oxford OX1 3QT
Grade and salary	Grade 7: £30,434–£36,309 per annum
Hours	Full time
Contract type	Fixed-term for 48 months, funded by Medical Research Council
Reporting to	Professor Peter J Magill
Vacancy reference	117796
Additional information	INTERNAL APPLICANTS ONLY This post is available from 1 April 2015

Committed to equality and valuing diversity

The University of Oxford holds a Bronze Athena Swan award. The Athena Swan programme supports good employment practices for women in Science, Engineering and Technology (SET).

Introduction

The University

The University of Oxford is a complex and stimulating organisation, which enjoys an international reputation as a world-class centre of excellence in research and teaching. It employs over 10,000 staff and has a student population of over 21,000.

Most staff are directly appointed and managed by one of the University's 130 departments or other units within a highly devolved operational structure - this includes 5,900 'academic-related' staff (postgraduate research, computing, senior library, and administrative staff) and 2,820 'support' staff (including clerical, library, technical, and manual staff). There are also over 1,600 academic staff (professors, readers, lecturers), whose appointments are in the main overseen by a combination of broader divisional and local faculty board/departmental structures. Academics are generally all also employed by one of the 38 constituent colleges of the University as well as by the central University itself.

Our annual income in 2010/11 was £919.6m. Oxford is one of Europe's most innovative and entrepreneurial universities: income from external research contracts exceeds £376m p.a., and more than 70 spin-off companies have been created.

For more information please visit www.ox.ac.uk

Medical Sciences Division

The Medical Sciences Division is an internationally recognised 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 www.medsci.ox.ac.uk

Department of Pharmacology

The Department of Pharmacology is based in the University's science area in the centre of Oxford. The Department houses around 180 researchers, postgraduate students and support staff, and has excellent facilities. The members of the Department, associated staff and visiting scientists are all engaged in the investigation of basic questions concerning the interaction of chemical substances with biological systems.

Research in the Department is focused on cell signalling, cardiovascular pharmacology, ion channel and molecular pharmacology and neuropharmacology. In many of these areas the Department plays a leading role in the international pharmacological community. The research of the Department has consistently been given a very high ranking in the Government's assessments of research in Universities and was rated first in the UK for Pre-Clinical Sciences in the 2008 Research Assessment Exercise.

For more information please visit: www.pharm.ox.ac.uk

Medical Research Council Brain Network Dynamics Unit at the University of Oxford

The MRC Brain Network Dynamics (BNDU) opens on 1 April 2015, and is directed by Professor Peter Brown. The BNDU operates over two sites at the University of Oxford (Department of Pharmacology and Nuffield Department of Clinical Neurosciences) and is uniquely multidisciplinary, integrating exceptional research programmes that span clinical, experimental and computational neuroscience. The collective goal of the BNDU is to understand and exploit the moment-to-moment interactions between nerve cells that are critical for brain functions, with a special focus on the brain circuits underlying movement and memory. In achieving this, the BNDU aims to develop and deliver novel therapies that specifically target the disturbed circuit interactions arising in disease.

BNDU Mission Statement:

Our ultimate goal is to develop Recurrent Brain Computer Interfaces that selectively and strategically target circuit malfunctions in neurological and psychiatric disorders. To realise this, we will define the cellular basis of network dynamics and their disturbance at the levels of microcircuits, scale up from these insights to explain systems behaviour and phenotype, and develop and implement spatio-temporally patterned neuronal manipulation for therapy.

For more information please visit: www.mrcbndu.ox.ac.uk.

Overview of the role

This Postdoctoral Neuroscientist will develop, execute and analyse a combination of *in vivo* voltammetric, electrophysiological and behavioural experiments in rodents as part of a scientific programme that is designed to elucidate the function and dysfunction of basal ganglia neurons. In addition to having a PhD (or MD) or equivalent qualification in a relevant biological science discipline, candidates should have a promising track record of original research in their particular field of neuroscience. Candidates are also expected to have some technical expertise with *in vivo* voltammetry and electrophysiology, and to provide evidence of creative and critical thinking as applied to the development and execution of a focused and cohesive programme of research.

The post holder will be part of the Magill Group, and will be based at the MRC Brain Network Dynamics Unit (BNDU), Department of Pharmacology. The Magill Group uses a multidisciplinary approach to elucidate the function and dysfunction of the basal ganglia, employing innovative electrophysiological, anatomical, behavioural and genetics-based techniques. The proposed research will take full advantage of the intellectual environment, capital equipment, technical expertise and excellent infrastructure in place in the BNDU, and there will be ample opportunity to work in partnership with other BNDU groups.

This is a fixed-term post of 48 months, with an initial probationary period, to start on 1 April 2015 or as soon as possible thereafter. This post is a University Grade 7 (07S) position with a starting salary of between £30,434 and £36,309 per annum (commensurate with experience). This appointment is to conduct research and provide specialist expertise related to the research programme outlined above, which is dependent on a time-limited external research grant of 48 months (provided by the Medical Research Council) and for which there is no expectation that the work will continue beyond the availability of that external funding.

Responsibilities/duties

The overall purpose of this post is to conduct original research, provide specialist expertise, and communicate empirical discoveries, as part of a scientific programme that is designed to elucidate the function and dysfunction of basal ganglia neurons in rodents.

The post holder will report to Professor Peter J Magill or his delegated Deputy. The post holder will not be expected to line-manage anyone.

Main duties and responsibilities of the post holder:

1. Deliver a focused programme of research that uses voltammetric, electrophysiological and behavioural analyses to elucidate the function and dysfunction of basal ganglia neurons. This will include the design, execution and reporting of his/her own experiments and, when appropriate, the introduction and development of new approaches and technologies in pursuit of the scientific goals of the programme.
2. Conduct voltammetric and electrophysiological experiments in anaesthetised and behaving mice to analyse the function and dysfunction of basal ganglia neurons.

3. Undertake *in vivo* analyses of the function and dysfunction of basal ganglia neurons using advanced genetics-based approaches (including optogenetics, pharmacogenetics and other viral vector-mediated cell labeling/manipulation techniques), with a view to combining them with voltammetric and/or electrophysiological recordings.
4. Analyse and interpret data generated from the voltammetric, electrophysiological and behavioural studies, ensuring that scientific data is of the highest quality and in a form for further mining, publication, archiving and presentation.
5. Communicate the results of the experiments in the form of original research papers for publication in international peer-reviewed journals, as well as in the form of presentations at scientific meetings and lectures/seminars within the BNDU and at other institutions.
6. Collaborate on projects with other groups within the BNDU, and with external collaborators, as appropriate.
7. Undertake the training and supervision of students, technical staff, other host group members, and visiting scientists in his/her areas of expertise when appropriate.
8. The key responsibilities of the post holder include: (1) Make effective contribution to science of host group; (2) Work with foresight and imagination; (3) Ensure good level of productivity by managing own workload and delivering relevant scientific results; (4) Communicate effectively with supervisor in scientific and administrative matters; (5) Adhere to statutory regulations, eg Health & Safety, Animals (Scientific Procedures) Act, IT/data security; and (6) Assist supervisor in carrying out host group's public engagement and communication activities.

Job description

Research topic	Neurobiology of the basal ganglia
Principal Investigator / supervisor	Professor Peter J Magill
Project team	See: www.mrcbndu.ox.ac.uk/magill-group
Project web site	www.mrcbndu.ox.ac.uk
Funding partner	Medical Research Council
Recent publications	See: www.mrcbndu.ox.ac.uk/publications
Technical skills	Electrophysiology in vivo, voltammetry in vivo, behavioural training/analysis of rodents

Selection criteria

Essential

- *Education, qualifications and training:* PhD (or MD) or equivalent qualification in a relevant area of biological research.
- *Previous work experience*: Laboratory experience with *in vivo* voltammetric and electrophysiological techniques as applied to the scientific investigation of the nervous system.
- *Knowledge:* Expertise in the analysis and interpretation of voltammetric and electrophysiological data.
- *Research profile:* Demonstrable record of originality, creativity and productivity in neuroscience research.
- *Research delivery:* Evidence of executing a focused and cohesive programme of research.
- *Personal skills/qualities:* The post holder should be capable of independent decision making and collaboration with research colleagues.

Desirable

- Postdoctoral research experience.
- Experience of analysing rodent behaviour and/or of the behavioural training of rodents.
- Experience of working with wildtype and genetically-altered mice.

- Experience with the use of MATLAB software.
- Experience of optogenetics, pharmacogenetics or similar approaches.
- Track record of research on the basal ganglia.
- Experience of advising and training junior members of a research team and/or interacting with external collaborators.
- Published at least one original research paper as a first author.
- Evidence of problem solving skills, and using personal initiative to generate and pursue own ideas through research.
- Evidence of giving invited talks and seminars to research groups.

Working at the University of Oxford

For further information about working at Oxford, please see:
www.ox.ac.uk/about_the_university/jobs/research/

Work-life balance and family-friendly policies at the University of Oxford

The University aims to support all employees with parental or caring responsibilities to ensure that they are able to balance work and family life.

This website (http://www.admin.ox.ac.uk/eop/parentsandcarersinformation/) provides a hub of information for all parents and carers, with links to university policies, procedures and guidance, as well as details of the facilities and benefits offered to mothers, fathers and guardians of children. In addition, the website highlights university policies, as well as external sources of guidance. You are advised to read the university policies in full; and to see respective guidance on the Personnel Services website for full details. Views expressed on external websites are not necessarily endorsed by the University of Oxford.

How to apply

If you consider that you meet the selection criteria, click on the **Apply Now** button on the 'Job Details' page and follow the on-screen instructions to register as a user. You will then be required to complete a number of screens with your application details, relating to your skills and experience. When prompted, please provide details of two referees and indicate whether we can contact them at this stage. You will also be required to upload a CV and supporting statement, addressing the selection criteria above. Your application will be judged solely on the basis of how you demonstrate that that you meet the selection criteria outlined above and we are happy to consider evidence of transferable skills or experience which you may have gained outside the context of paid employment or education.

Please save all uploaded documents to show your name and the document type.

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

Should you experience any difficulties using the online application system, please email recruitment.support@admin.ox.ac.uk

To return to the online application at any stage, please click on the following link www.recruit.ox.ac.uk

Please note that you will be notified of the progress of your application by automatic e-mails from our e-recruitment system. **Please check your spam/junk mail** regularly to ensure that you receive all e-mails.