**Nuffield Department of Medicine**

<table>
<thead>
<tr>
<th>Job title</th>
<th>Computational Biologist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Division</td>
<td>Medical Sciences</td>
</tr>
<tr>
<td>Department</td>
<td>Nuffield Department of Medicine</td>
</tr>
<tr>
<td>Location</td>
<td>NDM Research Building, Old Road Campus, Headington, OX3 7FZ</td>
</tr>
<tr>
<td>Grade and salary</td>
<td>Grade 8: £40,792 - £48,677 p.a</td>
</tr>
<tr>
<td>Hours</td>
<td>Full time</td>
</tr>
<tr>
<td>Contract type</td>
<td>Fixed-term for 2 years in the first instance</td>
</tr>
<tr>
<td>Reporting to</td>
<td>Professor David Mole and Professor Sir Peter Ratcliffe</td>
</tr>
<tr>
<td>Vacancy reference</td>
<td>140423</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Research topic</th>
<th>Genetics and functional genomics of hypoxia pathways in kidney cancer</th>
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</thead>
<tbody>
<tr>
<td>Principal Investigator / supervisor</td>
<td>Professor David Mole and Peter Ratcliffe</td>
</tr>
<tr>
<td>Project web site</td>
<td><a href="https://www.ndm.ox.ac.uk/principal-investigators/researcher/davidmole">https://www.ndm.ox.ac.uk/principal-investigators/researcher/davidmole</a></td>
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<td><a href="https://www.ndm.ox.ac.uk/principal-investigators/researcher/petererratcliffe">https://www.ndm.ox.ac.uk/principal-investigators/researcher/petererratcliffe</a></td>
</tr>
<tr>
<td>Funding partner</td>
<td>The funds supporting this research project are provided by KAU Collaborative Award</td>
</tr>
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|                     | Genetic variation at the 8q24.21 renal cancer susceptibility locus |


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 spin-
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outs, 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: https://www.ndm.ox.ac.uk/working-forndm/aboutndmatheneswan/
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The NDM Research Building and TDI

Situated on the Old Road Campus this new building represents the latest phase in continued development of the Medical Research Campus. This £22M new building allows the development of the Target Discovery Institute and expansion of existing research groups of NDM with research synergies. The building is 5,300 sq m (GIA) laboratory and office space housing some 160 research and support staff.

The NDM Research Building constructed for the Nuffield Department of Medicine includes the Target Discovery Institute (TDI) with many academic partners such as the Department of Cardiovascular Medicine and BHF Centre of Research Excellence (BHF Centre for Cardiovascular Target Discovery), Department of Radiation Oncology and Biology, Ludwig Cancer Institute, Kennedy Institute of Rheumatology, Structural Genomics Consortium and the Department of Chemistry.

TDI research facilities include high-throughput cell-based screening facility, cell-based assay development program, proteomics laboratory, medicinal chemistry and chemical biology programs and containment level three laboratories. There is support space for the scientists including a 90-seat seminar room, advanced IT and AV infrastructure and additional meeting rooms and break out spaces.

Job Description

Overview of the role

The successful applicant will join a world-leading laboratory with a long-standing record of innovation and discovery in the signalling of hypoxia and its role in disease, particularly in cancer. Although hypoxia and activation of HIF (Hypoxia Inducible Factor) are very commonly associated with cancer and an adverse prognosis, the mechanisms remain poorly understood. The advent of next-generation sequencing technologies and pan-genomic analyses have provided a new framework for addressing this problem and our group is at the forefront of their application in this field. In particular, our work focuses on kidney cancer, which forms a paradigm for studying the HIF pathway, since it is constitutively activated following loss of the kidney cancer-specific VHL (von Hippel Lindau) tumour suppressor gene. Importantly, the ‘switching’ of such a major transcriptional pathway entrains both pro- and anti-tumourigenic effects, which are subjected to positive and negative selection through both genetic and epigenetic processes. Specifically our work is starting to dissect how such events modulate the HIF transcriptional response and promote kidney cancer. This work also has implications for understanding how large transcriptional networks impinge on cancer evolution and ultimately on clinical outcome in other types of cancer.

It is envisaged that the post-holder will be a key member of the team, working on the analysis of existing data-sets (e.g. RNA-Seq, ChIP-Seq, Chromatin-conformation assays, GWAS, WES, WGS etc), developing pipelines for the analysis of new datasets (e.g. scRNAseq, target-seq etc), and developing novel approaches to integrating multiple types of high-throughput sequencing data in this context.

We are looking to appoint an outstanding Postdoctoral Computational Biologist who will be based at the NDM Research Building on the Old Road Campus, adjacent to the Wellcome
Responsibilities/duties

- The successful applicant will report directly to Professor Mole and Professor Sir Peter Ratcliffe.
- The successful applicant will support the bioinformatic analysis of high-throughput sequencing datasets, working alongside our senior computational biologist and leading molecular cell biologists to address challenging biological questions. Specifically you will be responsible for developing de novo pipelines for the analysis of new types of experiments and for integrating different types of data in novel ways. As such, you will be an integral member of the team and will be expected to liaise with other members, both in developing these pipelines and by providing bioinformatic input into the design of these experiments. Current datasets include, but are not limited to:
  - ChIP-seq analyses of HIF-binding sites
  - RNA-seq analysis of HIF-dependent gene expression
  - DNase-seq/FAIRE/ATAC-seq analysis of DNA accessibility
  - ChIP-seq analysis of histone modification
  - Bisulphite-sequencing analysis of DNA methylation
  - Capture-C analysis of chromatin looping
  - Targeted re-sequencing of non-coding mutations
  - Integration with publically accessible GWAS, WGS and clinical datasets
  - Single cell analysis of material explanted from specific tumour regions.
- The group has its own server, hosted and administered by the Wellcome Trust Centre for Human Genetics, as well as full access to their main computational cluster. You will be expected to liaise with the administrators of these systems to ensure smooth running of the group’s analytical pipelines.
- The successful applicant will assist in the supervision and monitoring of junior members of the group in relation to the computational aspects of their projects. The group encourages all members to be involved in the analysis of their data, many of who have already received formal training.
- Although the position is fully integrated within the oxygen-sensing group, you will be expected to liaise with computational biology groups within the University of Oxford’s Big Data Institute and the Wellcome Trust Centre for Human Genetics.
- You will be expected to participate in research meetings, seminars and training as appropriate (e.g. cancer bioinformaticians seminar series).
- You will be expected to write up your research findings for dissemination amongst the research team. You will participate in the preparation of manuscripts for publication in peer-reviewed journals and present your findings at scientific meetings in the UK and
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overseas. You will help prepare proposals for future research funding when opportunities arise.

• You will act at all times in the interest of the group to ensure probity and Good Laboratory Practice.
• You will conduct yourself with due regard to Data Protection policies.
• You will ensure that work in the laboratory is conducted safely at all times and that work is conducted in accordance with the appropriate health and safety policies.
• You will participate in and support public engagement activities on behalf of the group/Department, working with the Department’s Public Engagement and Communications staff if so required.

Hazard-specific / Safety-critical duties

This job includes the following hazards or safety-critical activities which will require successful pre-employment health screening through our Occupational Health Service before the successful candidate will be allowed to start work:

• Lone Working

Selection criteria

Essential

• Hold or be close to completion of a PhD in a relevant subject (or MSc plus extensive practical experience);
• Evidence of research productivity (e.g. quality research publications in peer reviewed journals, database design, development and deposition, web-based tools, programmes etc.);
• A strong background in quantitative and computational analysis together with highly developed problem solving and reasoning skills.
• A sound working knowledge of LINUX / UNIX operating system and programming skills in one or more of Perl, Python, C++, or Java;
• Experience of using data analysis tools (e.g. R or MATLAB)
• Experience and knowledge of next-generation sequencing techniques (e.g. WGS, RNA-seq, ChIP-seq, DNase-seq, bisulphite-seq, chromatin conformation) and of pipelines for the analysis of these types of data
• Highly motivated with an adaptable approach to work, an ability to learn quickly and the ability to develop new methodologies and techniques independently.
• Good work-time efficiency, organisation and record keeping, able to deliver results to required standard and schedule and an ability to work effectively as a member of a multi-disciplinary team.
• Excellent communication skills, both written and verbal.

Desirable

• Specific bioinformatics skills including:
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- An ability to integrate different types of dataset (e.g. integrated transcriptome analysis of transcription factor binding and gene expression data, integration of transcription factor binding with mutational signatures in cancer)
- Familiarity with publically accessible bioinformatic databases and analysis tools (e.g. TCGA, ICGC, ENCODE).
- Experience in single-cell RNA analysis;
- Able to handle large databases and datasets including relational database management (e.g. MySQL);
- Biological knowledge of transcriptional/molecular/cancer pathways;
- Experience of team working;
- Experience with delivery of teaching/training.

For informal discussions please contact Professor David Mole david.mole@ndm.ox.ac.uk.

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 https://www.ox.ac.uk/about/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.

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 departments.

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

Important information for candidates

Pre-employment screening

Please note that the appointment of the successful candidate will be subject to standard pre-employment screening, as applicable to the post. This will include right-to-work, proof of identity and references. 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/.

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
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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. From 1 October 2017, 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+/

From 1 October 2017, 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

University Club and sports facilities
Membership of the University Club is free for all University staff. The University Club provides 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 www.sport.ox.ac.uk/oxford-university-sportsfacilities.

Information for international staff
The University offers support and advice to international staff, including 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/.

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.
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 to settle into Oxford and to provide them with an opportunity to meet people in the area. See www.newcomers.ox.ac.uk.

Childcare

The University has excellent childcare services with 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.

Family-friendly benefits

The University subscribes to My Family Care service through which staff are eligible to register for emergency back-up childcare and adultcare services, a 'speak to an expert' advice service and a wide range of guides and webinars through a website called the Work+Family space. See: www.admin.ox.ac.uk/personnel/staffinfo/benefits/family/mfc/.

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.

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/.

Additional benefits

Staff can enjoy a range of other benefits and discounts, including free entry to the Botanic Gardens and University colleges, and discounts at University museums. See www.admin.ox.ac.uk/personnel/staffinfo/benefits.