**Job description and selection criteria**

<table>
<thead>
<tr>
<th><strong>Job title</strong></th>
<th>Postdoctoral Researcher – Ubiquitin &amp; Protease Biology group / TDI MS Laboratory</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Division</strong></td>
<td>Medical Science Division</td>
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<tr>
<td><strong>Department</strong></td>
<td>Nuffield Department of Medicine</td>
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<tr>
<td><strong>Location</strong></td>
<td>Target Discovery Institute (TDI), NDM Research Building, Headington, Oxford, OX3 7FZ</td>
</tr>
<tr>
<td><strong>Grade and salary</strong></td>
<td>Grade 7: £31,604 – £38,833 per annum</td>
</tr>
<tr>
<td><strong>Hours</strong></td>
<td>Full time</td>
</tr>
<tr>
<td><strong>Contract type</strong></td>
<td>Fixed-term for 2 years in the first instance</td>
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<tr>
<td><strong>Reporting to</strong></td>
<td>Principal Investigator</td>
</tr>
<tr>
<td><strong>Vacancy reference</strong></td>
<td>134654</td>
</tr>
<tr>
<td><strong>Research topic</strong></td>
<td>Ubiquitin protease biology – early target discovery</td>
</tr>
<tr>
<td><strong>Principal Investigator / supervisor</strong></td>
<td>Professor Benedikt Kessler</td>
</tr>
<tr>
<td><strong>Project team</strong></td>
<td>TDI Mass Spectrometry Laboratory / Ubiquitin Proteolysis Group</td>
</tr>
<tr>
<td><strong>Project web site</strong></td>
<td><a href="http://www.tdi.ox.ac.uk/prof-benedikt-kessler">www.tdi.ox.ac.uk/prof-benedikt-kessler</a></td>
</tr>
<tr>
<td><strong>Funding partner</strong></td>
<td>The funds supporting this research project are provided by a ITEN grant (Pfizer)</td>
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</tbody>
</table>
Introduction

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-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
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](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-for-ndm/aboutndmatheneswan/](https://www.ndm.ox.ac.uk/working-for-ndm/aboutndmatheneswan/)

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.
Nuffield Department of Medicine

Job description

Overview of the role

To reinforce the Ubiquitin Proteolysis research team within the TDI Mass Spectrometry Laboratory, we seek a highly motivated individual for the role of a postdoctoral researcher. Our research group has a biological interest in the ubiquitin-proteasome system, a critical regulator of the turnover of most proteins in the cell. The objective is to develop multi-dimensional –omics technology to discover aberrant functions of the UPS in human disease, in particular in oncology / immuno oncology, and how this can be exploited for the development of novel therapeutics.

The main responsibility of this post is to help establishing multi-omics approaches (e.g. proteomics, ubiquitomics, but also genomics/CRI/SPR/CAS9) to discover components of the ubiquitin system (deubiquitylating enzymes / ubiquitin conjugating enzymes) that control the stability and the lifespan of proteins encoded by critical oncogenes, tumor suppressor and immunomodulatory genes. Genetic and biochemical methods will then be used to validate the role of these ubiquitin-dependent processes in modulating the stability and turnover of these targets. We are particularly interested in targeting deubiquitylating enzymes (DUBs) by studying their activity and selectivity profile, in vitro and in living cells, and how they control the ubiquitylation status of critical onc/o-suppressor/immunomodulatory genes. In addition, the effects on viability, proliferation, migration, invasiveness and metabolism by manipulating protein levels of critical onco-/suppressor/immunomodulatory gene products through these DUBs in cancer cell models will be evaluated using genetic and where possible chemical incapacitation of the selected DUBs.

Responsibilities/duties

- To develop assays to examine the role of DUBs and E3 ubiquitin ligases in controlling the ubiquitylation status of critical oncogenes and tumor suppressor genes.
- To develop proteomics & mass spectrometry based discovery assays, proteomics, ubiquitomics for discovering UPS components in controlling the turnover of oncogenes/tumor suppressor genes
- To develop CRISPR/siRNA based screens for discovering UPS components in controlling the turnover of oncogenes/tumor suppressor/immunomodulatory genes
- To perform experiments examining deubiquitylase (DUB activity profiles using molecular probes)
- To perform research work using cell culture, animal tissue and human patient derived specimens
- To prepare mass spectrometry (MS) samples from a variety of biological sources (i.e. patient tissue biopsies, cell cultures, blood, peripheral blood mononuclear cells (PBMCs), urine and cerebrospinal fluid CSF)
Nuffield Department of Medicine

- To express & purify Ubiquitin variants for probe generation and ubiquitin processing enzymes for inhibition & cleavage assays
- To perform complex proteomics and mass spectrometry data analysis
- To be responsible with others for the biological safety of the laboratory
- To perform laboratory tests in order to produce reliable and precise data to support scientific investigations
- To keep detailed record of all activities and to consolidate data from various projects within the group, interpret the results and to present them to other team members, including external collaborators

Education and Training

- To be prepared to supervise undergraduate students and co-supervise D.Phil (Ph.D.) students
- To attend and present in appropriate scientific seminars, training opportunities and meetings within the research team, in the Centre and University
- To participate in the education and training of other staff as necessary and appropriate

General Responsibilities

- To act at all times in the interests of the Institute to ensure good laboratory practice
- To actively contribute to team work and play a role as active team player
- To be accountable for personal professional conduct within the project
- To undertake such other duties as may be required from time to time that are commensurate with the grade and responsibilities of this post
- To ensure that work in the laboratory is conducted safely and, in particular, that work is undertaken using appropriate safety procedures and in the dedicated areas
- To accord due regard to the University Equal Opportunities and Data Protection policies
- To participate in and support the public engagement and widening access activities of the Department and the University. This is anticipated to be not more than 2 days per year

All employees will have to ensure that their work in the laboratory is conducted safely at all times and, in particular, that work is undertaken following the appropriate health and safety policies and procedures for the particular area, without compromise to their own safety or that of others who may be affected.
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:

- Working at heights
- Night working (11pm-6am)
- Lone Working
- Work in hot or cold environments
- Regular manual handling
- Working with blood, human products and human tissues
- Work with any substance which has any of the following pictograms on their MSDS:
- Travel outside of Europe or North America on University Business

Selection criteria

Essential

- Ph.D. degree in biology, biochemistry, chemistry, biotechnology or similar
- Familiarity with biochemistry techniques (e.g. Immunoblotting, immunoprecipitation, pull-down, \textit{in vitro} enzymatic activity assays)
- Experience in handling cells, tissue culture, transfection experiments
- Exposure to Chemical Biology, handling of small molecule inhibitors, peptides
- Experience in sample preparation for mass spectrometric analysis (Proteomics and/or Metabolomics, and exposure to mass spectrometry data analysis)
- Basic knowledge in protein chemistry, expression, separation/purification methods
- A responsible nature with a methodical and careful approach to working in the laboratory independently
- The ability to communicate results clearly and effectively and to discuss scientific ideas both within the work environment

Desirable

- To assist in operating HPLC and mass spectrometry instrumentation
- Expertise in 1D (2D) electrophoresis, and FPLC & HPLC
- Experience in MS data analysis and statistics (i.e. MaxQuant, Perseus, and Prism).
- Basic knowledge of operating an HPLC and mass spectrometer (LC-MS)
Nuffield Department of Medicine

- Chemical Biology: expertise in aspects of organic chemistry (peptide synthesis / small compound purification via flash chromatography / HPLC)
- Knowledge of CRISPR/CAS9 gene editing in tissue culture models

Related bibliography

- Molecular basis of USP7 inhibition by selective small-molecule inhibitors (Oct 2017; Nature)
- A Linear Diubiquitin-Based Probe for Efficient and Selective Detection of the Deubiquitinating Enzyme OTULIN (Sep 2017; Cell Chemical Biology)

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)
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/.

**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/revisedejra/revaim/.

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

Form 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.
Nuffield Department of Medicine

Benefits of working at the University

University Club and sports facilities

The University Club provides social, sporting and hospitality facilities. It incorporates a bar, café and sporting facilities, including a gym. 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-sports-facilities.

Information for international staff (or those relocating from another part of the UK)

If you are relocating to Oxfordshire from overseas, or elsewhere in the UK, the University’s International Staff website includes practical information related to moving to and settling in Oxford such as advice on immigration, relocation, accommodation, or registering with a doctor.

See: www.internationalstaffwelcome.admin.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 (www.admin.ox.ac.uk/personnel/staffinfo/benefits/family/mfc/) and staff are eligible to register for emergency back-up childcare and adultcare services, a 'speak to an expert' phone line and a wide range of guides and webinars through a website called the Work + Family space.

Disabled staff

We are committed to supporting members of staff with disabilities or long-term health conditions. Please visit www.admin.ox.ac.uk/eop/disab/staff for further details including information about how to make contact, in confidence, with the University’s Staff Disability Advisor.
Nuffield Department of Medicine

**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/).

**Other benefits**

Staff can enjoy a range of other benefits such as free visitor access to the University’s colleges and the Botanic Gardens as well as a range of discounts. See [www.admin.ox.ac.uk/personnel/staffinfo/benefits](http://www.admin.ox.ac.uk/personnel/staffinfo/benefits).