Job description and selection criteria

<table>
<thead>
<tr>
<th>Job title</th>
<th>Molecular Analytics – Group Leader</th>
</tr>
</thead>
<tbody>
<tr>
<td>Division</td>
<td>Medical Science Division</td>
</tr>
<tr>
<td>Department</td>
<td>Nuffield Department of Medicine</td>
</tr>
<tr>
<td>Location</td>
<td>Li Ka Shing Centre for Health Information and Discovery, BDI/TDI, Old Road Campus, Headington, Oxford, OX3 7FZ</td>
</tr>
<tr>
<td>Grade and salary</td>
<td>Grade 10 £53,691 - £62,219 p.a discretionary range up to £67,972</td>
</tr>
<tr>
<td></td>
<td>An appointment at Grade 9 £46,336 - £53,691 p.a will be considered with appropriate adjustment in duties</td>
</tr>
<tr>
<td>Hours</td>
<td>Full time</td>
</tr>
<tr>
<td>Contract type</td>
<td>Fixed-term for 7 years in the first instance</td>
</tr>
<tr>
<td>Reporting to</td>
<td>Prof. Gil McVean</td>
</tr>
<tr>
<td>Vacancy reference</td>
<td>135893</td>
</tr>
</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

**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-for-ndm/aboutndmatheneswan/

**Big Data Institute (BDI)**

The Big Data Institute (BDI) is a state-of-the-art building at Oxford University's Old Road Campus, which opened in April 2017. This interdisciplinary research centre focuses on the analysis of large, complex, heterogeneous data sets for research into the causes and consequences, prevention and treatment of disease. To this end, BDI researchers will develop, evaluate and deploy efficient methods for acquiring and analysing information for large clinical research studies. These approaches will be invaluable in identifying the associations between lifestyle exposures, genetic variants, infections and health outcomes around the globe.

Research is conducted in four themes: genomics, population health, infectious disease surveillance, and methodology (including informatics, statistics, and engineering). Big Data methods could transform the scale (breadth, depth and duration) and efficiency (data
accumulation, storage, processing and dissemination) of large-scale clinical research. The
work of the BDI requires people and projects that span traditional departmental boundaries
and scientific disciplines, supported by technical resources to handle the vast quantities of
data they generate.

Under the leadership of Professor Gil McVean (Director) and Professor Martin Landray
(Deputy Director), the BDI will comprise around 350 researchers (approx. 30 research groups)
drawn from a wide range of departments and will form an analytical hub, deeply connected to
the wider experimental and clinical community in Oxford and beyond.

More information about the Big Data Institute is available at www.bdi.ox.ac.uk.

The NDM Research Building / 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
many academic partners including 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.

Research within the TDI is directed towards the discovery of molecular targets critical for the
development of cancer, infectious immunity and neurodegeneration with a focus on
epigenetics, the ubiquitin system and antigen discovery.

Research facilities within the TDI include high-throughput cell-based screening facility, cell-
based assay development program, mass spectrometry research 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 – Molecular Analytics Group Leader

We seek to recruit a group leader with a substantial track record in molecular analytics, who
is a recognized authority in their field, and who will build and lead a team working on the
development and application of statistical and computational methodology for analysing high
throughput and high dimensional molecular data types. A major emphasis will be to further
develop capabilities in high-throughput (HT) mass spectrometry (proteomics & metabolomics),
high throughput screening (shRNA/siRNA/CRISPR, small compound libraries) and functional
genomics (RNAseq/CHIPseq/ATACseq/single cell). The group leader will drive data analysis
and develop tools to better interpret biological, biomedical and clinical experiments carried
out, at least in part, through collaborative projects involving the Big Data Institute and the
Target Discovery Institute. Where appropriate, integration of such data sets with genomics
(GWAS/WGS) and clinical data to understand biological mechanisms and inform therapy, will
be carried out in collaboration with other groups within Oxford. The position will be
underwritten for seven years and will come with a start-up budget including two associated
bioinformatics posts (grade/level to be decided).
The University has considerable strengths in high-throughput genomics (WHG Ludwig Institute, TDI, WIMM, DPAG), epidemiology (Nuffield Department of Population Health), biomedical statistical methodology (Statistics) and mass spectrometry (MS - TDI, Biochemistry, Chemistry Research Laboratory). World-class research is carried out using both novel methodological development in high-throughput biology (e.g. genomic, high throughput screening, macromolecular complexes, quantitative MS approaches, profiling DNA/protein posttranslational modifications) and targeted, hypothesis-driven research, using material obtained from patient and participant bio-samples and both cellular and animal models. The BDI Molecular Analytics group leader will work in conjunction with researchers in the TDI, BDI, and other institutes and departments drive collaborative research and to transfer skills through training.

Appropriate applicants will play a role in defining strategy and scientific priorities for a collaborative research programme between the institutes. Applicants must have a proactive and adaptable approach to work and a willingness to tackle a variety of tasks and projects in parallel. An excellent research track record in the fields of high throughput and high dimensional data analytics such as mass spectrometry, genomics data interpretation software development & application and the ability to attract external funding will be required for this position.

Responsibilities/duties

- To establish an internationally competitive research programme in statistical and computational methodology for molecular phenotyping, with application to biomedical research
- To define, initiate and implement a strategy for long-term, interdisciplinary research programmes that foster collaboration between the BDI and TDI.
- To establish a team of specialists focused on the development of tools for robust re-use and interpretation of data types such as mass spectrometry (proteomics & metabolomics), high throughput screening (shRNA, siRNA, CRISPR/CAS9 and small compound library) and functional genomics (RNAseq, single-cell), ATACseq, ChIPseq).
- To work on collaborative projects within the University to establish and deliver molecular phenotyping for patient cohorts, model systems and other experimental designs.
- To help organise and deliver training in methodology for analysing high throughput molecular phenotypes, in collaboration with other groups within the University (e.g. WHG, CBRG, Oncology).
- To establish links among researchers and institutes with relevant interdisciplinary research programmes, helping to develop standards for data storage, management, processing and analysis.
- To supervise graduate students, postdocs and research collaborators.

Education and Training

- To attend appropriate scientific seminars, training opportunities and meetings within the University, involving other informatics groups, the CBRG and groups within the TDI including the HT and the Mass Spectrometry Laboratory groups.
- To participate in the education and training of other staff as necessary and appropriate in form of training courses, workshops and seminars.
- To advise researchers on best practice for the analysis of different data types.
General Responsibilities

- To develop an internationally competitive research programme on the analytics of high throughput molecular phenotyping and to help secure funding as principal investigator and co-applicant.
- Generate research income and actively promote the research area.
- To present work and represent group/institution at local, national and international meetings and lead seminars to disseminate research findings.
- To publish results in peer-reviewed journals in order to disseminate research outcomes to advance knowledge in the specialist area. Regularly write research articles for prestigious international journals, book chapters, and reviews.
- To release and maintain software.
- To establish and carry out collaborations with researchers across the BDI-TDI and Old Road Campus.
- To ensure good laboratory practice and act within the interest of the department.
- To be accountable for the personal professional conduct of team members and within projects.
- To adhere to University Equal Opportunities and Data Protection policies.
- To participate in and support public engagement and widening access activities of the Department and the University. This is anticipated to be not more than 2 days per year.
- To act as an authority in areas of specialism to external industry, universities and research councils.
- To expand and further develop existing internationally competitive research programmes.
- To chair committees and/or working groups.

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.

Selection criteria

Essential

- A PhD in computer science, statistics, bioinformatics, biology, chemistry, biochemistry or analytical chemistry.
- An internationally competitive track record in the research area of multi-dimensional data analysis, including method development and applications.
- Expertise in high throughput molecular phenotyping such as mass spectrometry (proteomics and metabolomics) and/or functional genomics (transcriptomics / RNAseq / ChIPseq / ATACseq / single-cell), recognised at an international level through publications, presentations and prizes.
- The ability to communicate results clearly and effectively and to discuss scientific ideas both within the work environment and at the national / international level.
- Proven contribution to the field of multi-dimensional analytics by providing a method, research tool or workflow that is widely used.
- An active interest in leading team science and supporting scientific research.
- Excellent record keeping and use of tools to support efficient software development.
- The ability to build up an expert team of informatics specialists.
- Experience in developing and delivering training in methodology.
Desirable

- Experience in data handling and analysis of high-throughput technologies such as shRNA / siRNA / CRISPR and small compound screens.
- Expertise in metabolomics data analysis.
- Previous experience with big data technologies including mathematical and statistical algorithms for big data.
- Experience with establishing training programmes in bioinformatics & big data analytics.
- Experience of management and strategic leadership.

Please note that the appointment of the successful candidate will be subject to standard compulsory pre-employment screening, such as right to work checks.

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/.

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. 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**

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](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 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/](http://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/](http://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](http://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/](http://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](http://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.

**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)