<table>
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<tr>
<th><strong>Job title</strong></th>
<th>Postdoctoral Researcher in Pathogen Dynamics</th>
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<td><strong>Division</strong></td>
<td>Medical Sciences</td>
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<td><strong>Department</strong></td>
<td>Nuffield Department of Medicine</td>
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<tr>
<td><strong>Location</strong></td>
<td>Big Data Institute, Li Ka Shing Centre for Health Information and Discovery, Old Road Campus, Headington, Oxford, OX3 7LF</td>
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</table>
| **Grade and salary** | Grade 8: £40,792 - £48,677 per annum  
*Whilst the role is a grade 8 (£40,792 - £48,677 p.a.) position, we would be willing to consider candidates with potential but less experience who are seeking a development opportunity, for which an initial appointment would be at grade 7 (£32,236 - £39,609 p.a.) with the responsibilities adjusted accordingly. This would be discussed with applicants at interview/appointment where appropriate.* |
| **Hours**      | Full time                                    |
| **Contract type** | Fixed-term for two years in the first instance. |
| **Reporting to** | Group Leader                                |
| **Vacancy reference** | 137350                                      |
| **Additional information** | Funded by the US National Institutes of Health and the Li Ka Shing Foundation |
| **Research topic** | Phylogenetics in a large universal test and treat trial |
| **Principal Investigator / supervisor** | Christophe Fraser |
| **Project team** | David Bonsall, Tanya Golubchik Matthew Fraser, Lucie Abeler-Dörner (all part-time on this and on other projects) |
| **Project website** | [https://www.hptn.org/research/studies/hptn071](https://www.hptn.org/research/studies/hptn071)  
| **Funding partner** | The funds supporting this research project are provided by the US National Institutes of Health and the Li Ka Shing Foundation |
The trial will be unblinded early next year |
**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](http://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](http://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.
Big Data Institute

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/

Oxford Big Data Institute (BDI)

The Big Data Institute (BDI) is a state-of-the-art building at Oxford University's Old Road Campus. When it opens in early 2017, this interdisciplinary research centre will focus 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 will be conducted in 4 general 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.

For more information please visit: http://www.bdi.ox.ac.uk/
Big Data Institute

Job Description
Overview of the role

This is an exciting opportunity to conduct phylogenetic research on one of the largest HIV genomic data sets collected in Africa to date. You will report to Professor Christophe Fraser, and be based in the Pathogen Dynamics group at the new Oxford Big Data Institute. You will work on the phylogenetics sub-study of the large HPTN 071 (PopART) intervention trial, which aims to tackle the HIV epidemic in Zambia and South Africa.

In this cluster randomized trial, funded by an international consortium, investigators are testing the hypothesis that HIV transmission can be substantially reduced by a combination of prevention measures delivered to people’s houses, including universal testing and immediate treatment to prevent transmission. The trial is taking place in 21 communities, comprising 1.2 million people, and where adult HIV prevalence ranges from 15% to 30%. Applicants can read about the trial and some earlier modelling work here:


http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0084511

The phylogenetics sub-study (“PopART Phylo”) has collected over 8000 blood samples from HIV-positive PopART participants that are currently sequenced by our sequencing group here in Oxford. PopART Phylo will use phylogenetic methods to examine patterns of HIV transmission on a population level in selected HPTN 071 communities representing all three arms of the trial. This study will provide key insights into the source of new infections in these communities and will identify factors associated with HIV transmission. These include the role of acute and early HIV infection (a period of raised infectiousness after infection) in transmission, the role of transmission due to partnerships occurring outside of the trial, the role of people of specific sex and age groups, and the role of transmitted drug resistance. The results will help guide future studies and public health prevention programs that build on the results of the HPTN 071 trial to optimize community-based approaches for HIV prevention.

PopART Phylo is also a member the PANGEA consortium (www.pangea-hiv.org). PANGEA (Phylogenetics and Networks for Generalised HIV Epidemics in Africa) uses modern molecular epidemiology and phylodynamics of HIV sequences to study transmission dynamics in HIV epidemics in Southern Africa. Understanding how and in which groups of a population the virus is spread will not only help to monitor epidemics, but also enable policy makers to design intervention programmes and assess their impact.

You will work in a team with two PopART modelers and the PANGEA team consisting of one project manager and two phylogenetics/phyldynamics/bioinformatics researchers to analyse the PopART Phylo and other PANGEA sequence data and answer questions relevant to the PopART trial and the PANGEA collaboration. The approach being used is multidisciplinary, combining viral genomics, bioinformatics, statistics, modelling,
Phylogenetics, and statistical genetics. You will develop innovative methods, combining statistical genetics, phylogenetics and/or phylodynamics, and mathematical modelling.

You will be an integral member of the Pathogen Dynamics group based at Oxford, led by Christophe Fraser. Members of the group study the dynamics of several human infectious diseases using both modelling and pathogen genetics. You will provide guidance to less experienced members of the research group, including postdocs, research assistants, and PhD and project students. The post offers substantial opportunities for career development.

Responsibilities

- Develop and adapt statistical analysis methods, simulation methods, and computer code for analysis of viral genetic data.
- Perform analyses, including active management of programs on high performance cluster.
- Test hypotheses and analyse data from a variety of public and confidential sources, reviewing and refining working hypotheses.
- Contribute to bioinformatics pipelines and data management, and occasionally provide support to other members of the group.
- Actively manage collaboration with colleagues working on PopART and PANGEA, both within the Pathogen Dynamics group at Oxford and more broadly.
- Regularly write research articles for peer-reviewed journals and reviews. Present papers at international conferences and represent the research group at external meetings/seminars, either with other members of the group or alone.
- Contribute ideas for new projects related to viral genetics and HIV-1 molecular epidemiology and phylodynamics, and develop ideas for generating research income.
- 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.
- Share responsibility for shaping the research group's plans and agree clear task objectives, organise, and delegate work to other members of the team and coach other members of the group on specialist methods for statistical inference, phylogenetics, and phylodynamics (grade 8 only).
- Manage own academic research and administrative activities. This involves small scale project management, to co-ordinate multiple aspects of work to meet deadlines (grade 8 only).
- Raise research funds through grant applications, and manage own area of a larger research budget (grade 8 only).
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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
- Travel outside of Europe or North America on University Business

Selection criteria

Essential

- PhD in infectious disease epidemiology, pathogen dynamics, phylodynamics, statistical genetics, applied computing, statistics, applied mathematics, data sciences, or relevant quantitative science, together with relevant experience in genetics or statistics
- Possess sufficient specialist knowledge in genetics or pathogen dynamics, clinical virology, epidemiology or simulation science to work within established research programmes
- Ability to manage own academic research and associated activities, and to work to deadlines
- Ability to work in a collaborative project with multiple investigators and overlapping research strands
- Previous experience of contributing to scientific publications or presentations
- Excellent communication skills, including the ability to write for publication, present research proposals and results, and represent the research group at meetings
- Experience of coding, including scientific algorithm development

Desirable

- Experience of coding in python and R
- Experience in statistical analyses
- Experience of analysing pathogen genomes
- Proven interest in HIV epidemiology and/or biology, or other infectious diseases
- Willingness to travel to stakeholder meetings and conferences in Africa and North America
- Experience of working in a multidisciplinary team
- Excellent publication record
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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.
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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.
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**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](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**

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/reimbursement&loanscheme](http://www.admin.ox.ac.uk/personnel/permits/reimbursement&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](http://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](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 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](http://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/disability/staff](http://www.admin.ox.ac.uk/eop/disability/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.