

RESEARCH FELLOW



Job Title:	Research Fellow
Department:	IID
Faculty:	ITD
Location:	Keppel Street
FTE:	1.0
Grade:	G6
Accountable to:	Head of Department through Principal Investigator (PI): Serge Mostowy
Job Summary:	To carry out laboratory research on microbiology and cell biology and prepare manuscripts for submission to scientific journals. The work will involve biochemical, molecular genetic and cell biological approaches and would suit an individual with a background in molecular cell biology and microbial pathogenesis. Previous work experience with the bacterial pathogens and high resolution microscopy is crucial. You should also be prepared to supervise a Research Assistant and to provide guidance and occasional supervision to junior members of the laboratory. There will be an opportunity to gain teaching experience by contributing to courses for graduate students.

GENERAL INFORMATION

The London School of Hygiene & Tropical Medicine

The London School of Hygiene & Tropical Medicine is a world-leading centre for research and postgraduate education in public and global health. Our mission is to improve health and health equity in the UK and worldwide; working in partnership to achieve excellence in public and global health research, education and translation of knowledge into policy and practice.

Founded in 1899, the School has expanded in recent years at its two main sites on Keppel Street and Tavistock Place. Our staff, students and alumni work in more than 150 countries in government, academia, international agencies and health services. Research income has grown to more than £110 million per year from national and international funding sources including UK government and research councils, the European Union, the Wellcome Trust, Gates Foundation and other philanthropic sources. The School's multidisciplinary expertise includes clinicians, epidemiologists, statisticians, social scientists, molecular biologists and immunologists, and we work with partners worldwide to support the development of teaching and research capacity.

Our education provision has expanded to more than 1,000 London-based Master's and Research students, 3,000 studying postgraduate courses by distance learning, and 1,000 each year on short courses and continuous professional development. Our free online courses (MOOCs) are studied by more than 30,000 participants globally.

The School performs well in various global university league tables. In the US News Best Global Universities Ranking 2017, we are ranked sixth in the world (together with Oxford University) in the fields of social sciences and public health. In the 2016 CWTS Leiden Ranking, the School was ranked fifth in the world for research impact across all disciplines, based on the share of institutions' outputs within the top 1% of papers by citation in all areas of science and independent of size of output.

The School was named University of the Year 2016 by Times Higher Education, in recognition of our response to the Ebola epidemic. The School is a member of the M8 Alliance of Academic Health Centres, Universities and National Academies, the Association of Schools of Public Health

in the European Region, and the Consortium of Universities for Global Health.

FACULTY INFORMATION

The Faculty of Infectious and Tropical Diseases encompasses all of the laboratory-based research in the School as well as that on the clinical and epidemiological aspects of infectious and tropical diseases. It is headed by Brendan Wren, who is **Professor of Microbial Pathogenesis**. The range of disciplines represented in the faculty is very broad and inter-disciplinary research is a feature of much of our activity. The spectrum of diseases studied is wide and there are major research groups with a focus on malaria, tuberculosis, HIV/AIDS and other sexually transmitted diseases, vaccine development and evaluation, and vector biology and disease control. The Faculty is organised into four large research departments comprising: Pathogen Molecular Biology, Immunology and Infection, Disease Control, and Clinical Research. There is close interaction between scientists in different research teams. The Faculty has strong overseas links, which provide a basis for field studies and international collaborations in developed and developing countries. The teaching programme includes MSc courses, taught in-house and by distance learning, which are modular in structure, a variety of short-courses and an active doctoral programme (PhD and DrPH). For further information on the Faculty see: <http://www.lshtm.ac.uk/itd/index.html>.

Department of Immunology and Infection (Head: Professor Greg Bancroft)

Research in the Department of Immunology and Infection centres on analysis of the host response to infection at the molecular, cellular and population levels. The goals are to develop a greater understanding of basic mechanisms of immunological protection versus pathology, and to apply this knowledge to the development of immunological interventions and the identification of correlates of immune status. Our work involves application of state-of-the-art cellular and molecular approaches to the in vitro analysis of pathogen-host cell interactions, to in vivo studies in models and to the study of immunity at the population level in disease endemic areas. Main areas of research include the regulation of acute and chronic inflammation; macrophage-pathogen interactions; cellular pharmacology; the production of cytokines during innate and acquired immune responses; T-cell function and antigen recognition; the mechanisms of immunopathology; the development of vaccines; and delivery systems for vaccines and drugs.

Current research includes the role of acute phase proteins in resistance to infection, homeostasis and inflammatory disease, mechanisms of macrophage activation, control of cytokine synthesis and mammalian lectin interactions (J. Raynes); intracellular trafficking and secretory pathways of cells of the immune system (T. Ward); the role of innate responses in resistance to the bacterial pathogens, *Mycobacterium tuberculosis* and *Burkholderia pseudomallei*, activity and regulation of natural killer cells and their effect on macrophage activation and recruitment, regulation of chemokine receptors during infection and granulomatous tissue responses in the lung against *Cryptococcus neoformans* and *Mycobacterium tuberculosis* (G. Bancroft); longitudinal studies on immune correlates of protection against malaria in Uganda and a cluster-randomized trial on the impact of targeted interventions on malaria transmission in Kenya and Mali (T. Bousema); identification and evaluation of novel drugs and formulations for the treatment of leishmaniasis, malaria, human African trypanosomiasis (sleeping sickness) and American trypanosomiasis (Chagas disease). This research includes projects on miltefosine, AmBisome and topical paromomycin as well as on drug – immune response interactions and PK PD relationships (S Croft); correlates of protection against tuberculosis and studies of BCG vaccination, human CD8+ T-cell responses to mycobacterial antigens and synthetic peptides, use of whole blood assays in immuno-epidemiology (H. Dockrell); innate and adaptive immunity to malaria including activation of natural killer cells, cytokine regulation in clinical immunity and immunopathology, regulation of antibody production and immunoglobulin class switching (E. Riley); induction and regulation of innate and adaptive immune responses to malaria pre-erythrocytic stage and blood stage parasites (J. Hafalla); using anti-malarial antibodies as a marker of malaria exposure & assessment of the use of sero-epidemiology to monitor and target malaria control measures www.seromap.com (C. Drakeley) transmission of *Plasmodium falciparum* malaria including antibody responses to gametocyte-infected erythrocyte surface antigens, effect of gamete antigen variability on transmission, gametocyte sequestration and development and gametocytocidal drug therapy (C. Sutherland); drug discovery for helminthic diseases notably schistosomiasis (Q.

Bickle); impact of concomitant viral, bacterial, protozoal and helminth infections on induction of immune responses and immunopathology and T cell regulation and induction of mucosal immune responses during intestinal nematode infections (H. Helmby); anti-protozoal chemotherapy with focus on anti-leishmanial drug discovery and development including drug combinations and drug delivery systems, anti-leishmanial vaccine development and immunotherapies, models for drug and vaccine development and the role of macrophages in context of anti-leishmanial drug treatment (K Seifert); the identification and evaluation of novel drugs and drug delivery systems for leishmaniasis, trypanosomiasis and malaria, interaction between antiprotozoal drugs and the immune response (V. Yardley)

Host response to vaccination and development of improved vaccine strategies for protection against tuberculosis, growth inhibition assays, T-cell responses and vaccine trial immune monitoring (H. Fletcher) Dissecting red blood cell invasion pathways in the malaria parasite *Plasmodium knowlesi* (R.Moon)

RESEARCH PROGRAMME INFORMATION

The Mostowy group studies the cell biology of bacterial infection, focusing in particular on the rearrangements of septins, a novel component of the host cytoskeleton, during the infection process. We have recently discovered that the host cell employs septins to restrict the motility of *Shigella flexneri* and target them for destruction by autophagy, an important mechanism of innate immune defence. These results provide a new molecular framework to understand the emerging complexity of autophagy, and its ability to achieve specific clearance of intracytosolic bacteria. A major issue is now to fully decipher the underlying molecular and cellular events, and to validate these events analysed *in vitro* during bacterial infection *in vivo* using relevant animal models. This information should provide vital clues towards understanding bacterial disease and for illuminating new therapeutic strategies. We use a multi-disciplinary approach, combining molecular genetics, biochemistry and cell biology, to elucidate the role of septin biology in host defence.

The portfolio of duties outlined below will vary in accordance with the detailed expectations of the role (attached), which may be varied from time to time, and agreed at your annual Performance and Development Review (PDR).

JOB DESCRIPTION

Main Activities and Responsibilities

KNOWLEDGE GENERATION

1. To undertake high quality research & scholarship, including contributing to drafting major grant proposals and/or leading on drafting small grant proposals;
2. To contribute to peer-reviewed publications, including as lead author;
3. To make a contribution to research degree student supervision, as appropriate to qualifications and experience;
4. To manage small grants or elements of larger grants, ensuring compliance with good practice in relation to the conduct of research, the ethics policy and other relevant School policies.
5. To take initiative in the planning of research
6. To help with directing the work of a small research team
7. To identify and develop suitable techniques for the collection and analysis of data
8. To conduct data analysis
9. To ensure the validity and reliability of data
10. To maintain highly accurate and complete records of all findings

11. To submit publications to refereed journals
12. To collaborate with other allied scientists in LSHTM and elsewhere in London and abroad, as appropriate
13. To participate in Group research meetings and internal seminars
14. To contribute to the smooth running of the Group's laboratories and facilities with other scientists, technicians and students
15. To present findings to colleagues and at conferences
16. To provide guidance to staff and research students
17. To undertake any other duties commensurate with the grade of the post as directed by the line manager/supervisor

EDUCATION

1. To contribute to the delivery of high quality, research-informed teaching and assessment in relation to your specific subject and within the broader area covered by your department and disciplinary field;
2. To contribute to the improvement of the quality of the School's education, by participating in the development of new and updated learning and teaching materials or approaches.

INTERNAL CONTRIBUTION

1. To undertake activities that support the Department, Faculty or the School;
2. To participate in the School's PDR process.

EXTERNAL CONTRIBUTION

1. To demonstrate good external citizenship by contributing to learned society/conference events, journal and grant reviews etc;

PROFESSIONAL DEVELOPMENT & TRAINING

1. To keep up to date with the latest research/thinking in your academic field and with changes to pedagogic practice within the School and more generally;
2. Where the length and nature of the position permits, to register for and complete a doctoral degree (if not already acquired);
3. To undertake and successfully complete the mandatory training required by the School appropriate to the role.

GENERAL

All academic staff are free within the law to question and test received wisdom, and put forward new ideas and controversial or unpopular opinions, to enable the School to engage in research and promote learning to the highest possible standards.

All staff at LSHTM are also expected to:

1. Act at all times in the School's best interests;
2. Treat School staff, students and visitors with courtesy and respect at all times;
3. Comply fully with School policies, procedures and administrative processes relevant to the role, including when acting as Principal Investigator, accepting academic, managerial,

financing and ethical responsibility for a project

4. Uphold and support the School's values (as set out in the School Strategy document);
5. Act as ambassadors for the School when hosting visitors or attending external events.

The above list of duties is not exclusive or exhaustive and the role holder will be required to undertake such tasks as may reasonably be expected within the scope and grading of the role.

Role descriptions should be regularly reviewed to ensure they are an accurate representation of the role.

[JAN 2017]

PERSON SPECIFICATION

This form lists the essential and desirable requirements needed by the post holder to be able to perform the job effectively.

ESSENTIAL CRITERIA:

1. PhD or equivalent research in microbiology, cell biology, bacterial pathogenesis, host-pathogen interactions or a closely related discipline
2. Practical experience in a broad range of techniques including plasmid and strain construction, mutagenesis strategies, DNA and RNA preparation and analysis, and protein expression and purification methods
3. Practical experience within a research environment and publication track record in relevant and refereed journals
4. Proven experience with different microscopy techniques
5. Proven experience in working with cell biology tools, and molecular genetics
6. Practical experience working with animal models of infection
7. Ability to conduct a detailed review of recent literature
8. Ability to help direct the work of a small research team and motivate others to produce a high standard of work
9. Ability to organize own work with minimal supervision and willingness to work as part of a team
10. Excellent oral communication skills and the ability to deal with a wide range of people
11. Excellent written communication skills including an ability to write scientific English clearly and succinctly for publication
12. Excellent organizational skills and attention to detail; ability to prioritise, plan ahead and manage a high volume of work to meet deadlines, both prescribed and self-imposed
13. Proven skills at problem-solving and overcoming obstacles
14. Computer literate with a good knowledge of different computer programs with experience in data presentation and statistical analyses
15. Ability to develop and apply new concepts

DESIRABLE CRITERIA

1. Extensive knowledge of molecular biology and the genetic manipulation of bacteria
2. Excellent laboratory skills
3. Proven ability to present data and process microscopy images and movies
4. Proven ability to apply creativity and originality in the workplace
5. Flexible and dedicated attitude to work
6. Discipline and regard for confidentiality and security at all times
7. Willingness to undertake any necessary training for the role
8. Willingness to travel both within the United Kingdom and abroad to conduct research and attend conferences
9. An open, flexible and positive approach to working in a constantly changing environment
10. The post holder should be prepared to work unsociable hours as work demands from time to time

SALARY AND CONDITIONS OF APPOINTMENT

The post is based in London and is funded until 15th April 2019. The salary will be on the Academic Grade 6 scale in the range £38,533 to £43,759 per annum (inclusive of London Weighting). The post will be subject to the LSHTM terms and conditions of service. Annual leave entitlement is 30 working days per year, pro rata for part time staff. In addition to this there are discretionary "Director's Days". Membership of the Pension Scheme is available.

Applications should be made on-line via our website at <http://jobs.lshtm.ac.uk>. Applications should also include the names and email contacts of 2 referees who can be contacted immediately if shortlisted. Online applications will be accepted by the automated system until 10pm of the closing date. Any queries regarding the application process may be addressed to jobs@lshtm.ac.uk. Please quote reference **ITD-IID-2018-02**.

The supporting statement section should set out how your qualifications, experience and training meet each of the selection criteria. Please provide one or more paragraphs addressing each criterion. The supporting statement is an essential part of the selection process and thus a failure to provide this information will mean that the application will not be considered. An answer to any of the criteria such as "Please see attached CV" will not be considered acceptable. Please note that if you are shortlisted and are unable to attend on the interview date it may not be possible to offer you an alternative date.

ASYLUM AND IMMIGRATION STATEMENT

The School will comply with the Immigration, Asylum and Nationality Act 2006, which requires all employees to provide documentary evidence of their legal right to work in this country prior to commencing employment. Candidates will be required to bring their passport (and visa if applicable) to interview so that it can be copied and verified.

Applications from candidates who require sponsorship to work in the UK will be considered alongside other applications. Applicants who do not currently have the right to work in the UK will have to satisfy UK Visas & Immigration regulations before they can be appointed.

Further information about Certificate of Sponsorship and eligibility to work in the UK, can be found at: www.ukba.homeoffice.gov.uk/employers/points.

Date compiled: March 2017

Academic Expectations: Research Fellow

Examples of expected types of activities are listed; the selection of activities will vary from year to year and not all activities in each category would necessarily be done in any one year. The statement in each shaded heading summarises the general expectations for contributions in each category.

<i>Knowledge generation: Independent contributions and a clear trajectory towards excellence as an academic researcher</i>
<i>Research and scholarship</i> <ul style="list-style-type: none">• Undertaking research• Working with PIs to draft grant proposals and/or leading writing of small grants, work packages or sections of larger proposals or personal fellowship applications• Contributing to peer-reviewed outputs, including as first author, as expected by the subject area/discipline in terms of types of output• Poster/oral presentations at relevant conferences, translation of research findings into educational materials• Social media contributions such as twitter, blogs, web-based media or webinars <i>Doctoral degree supervision</i> <ul style="list-style-type: none">• For RFs with Doctorate, some contribution to doctoral degree supervision is encouraged (eg specialist skills training; ad hoc advice; advisory committees). RFs without a Doctorate may also advise in areas of specialist knowledge¹ <i>Research management, leadership and support</i> <ul style="list-style-type: none">• Effective management of own time and activities• Management of small research grants or elements of larger grants, including management of data collection and relationships with research collaborators, support to grants management <i>Professional development</i> <ul style="list-style-type: none">• Courses and other professional development activities, referenced to RDF• To register for and complete a doctoral degree (if not already acquired), if contract and funding source permit;
<i>Education: Basic competence in teaching and assessment</i>
<i>Teaching and assessment</i> <ul style="list-style-type: none">• Research-informed teaching and assessment contributions (e.g. contributions to modules, MSc project supervision) <i>Educational development and innovation</i> <ul style="list-style-type: none">• Contributing to the development of new educational materials, learning opportunities or assessments approaches <i>Education leadership and management</i> <ul style="list-style-type: none">• None expected <i>Professional development</i> <ul style="list-style-type: none">• Participation in professional development activities referenced to UKPSF (e.g. HEA, PGCILt, preparation for doctoral degree supervision, shadowing more experienced colleagues)
<i>Internal contribution: Contributions to School functioning and development</i>
<i>Internal citizenship</i> <ul style="list-style-type: none">• Contributing to at least one Department, Faculty, School, or Centre event or special interest group in any one year;• Supporting external School collaborations/partnerships (beyond own research or education role) where relevant <i>School leadership and management roles</i> <ul style="list-style-type: none">• None expected

¹ Such RFs are expected to be registered for a doctorate

<i>External contribution: Contribution beyond the School</i>
<i>External citizenship</i> <ul style="list-style-type: none">• Contributing to learned society/conference events, journal and grant reviews etc <i>Knowledge translation and enterprise: not expected but options include:</i> <ul style="list-style-type: none">• Collecting evidence of research impact for impact case studies (e.g. policy records, correspondence with policy makers, media highlights)• Engaging with policy/practice/industry/NGO communities and the general public• Supporting MOOCs/OERs or other (e.g. educational) outreach