IMPERIAL

Research Associate in Immunometabolism & Cellular Physiology

Department/Division/Faculty:	Infectious Disease/Adult Infectious Disease/Medicine
Campus/Location:	Hammersmith
Job Family/Level:	Research Associate* (Research salary scale
Responsible to:	Dr Rachel Lai
Line management for:	N/A
Key working Relationships (Internal):	Dr Alice Denton (Department of Immunology & Inflammation)
Key Working Relationships (External):	Dr Helena Cochme (MRC-LMS) Professor David Thomas (Cambridge) Dr Max Gutierrez (Crick) Dr Jack Green (Manchester)
Contract type:	Full time – Fixed term (48 months)

Research Programme

Supported by funding from the BBSRC, we are seeking a highly motivated and talented post-doctoral research associate to join the team in the group of Dr Rachel Lai at Imperial College London. This role will investigate how metabolic rewiring and cellular ion fluxes govern innate immune responses and inflammation.

The position is available full-time, starting January 2027 (or as soon as possible thereafter) and is available for 48 months.

Macrophages are essential sentinels of the innate immune system, rapidly responding to cellular danger to orchestrate host defence. While critical for protection, dysregulated macrophage activation drives a wide spectrum of severe inflammatory diseases. Classical immune activation requires a complex convergence of biophysical and biochemical inputs, including acute metabolic shifts, ionic fluxes and oxidative stress. However, efforts to therapeutically target these pathways are hampered by an incomplete understanding

of how a cell integrates these distinct physical stress signals. This project aims to define the precise physiological checkpoints that dictate the transition from cellular homeostasis to a proinflammatory state.

Purpose of the Post

The Lai group is based in the Section of Adult Infectious Disease within the Department of Infectious Disease and encompasses scientists at all levels of experience. We are looking for candidates who can thrive in this dynamic and highly collaborative environment. The appointed candidate is expected to lead studies that aim to understand how metabolic and ionic shifts govern macrophage activation, including experimental planning and execution, data analysis and presentation, and the writing of manuscripts. Working closely with project partners across a multi-institutional team, the appointee will contribute to this project by developing biological assays and tools to understand the precise cellular mechanisms that mediate innate immune responses.

Key Responsibilities

- To actively participate in the research programme of the Lai Group and engage and collaborate across members of the wider research team and with collaborators
- To take initiatives in the planning of research
- To conduct own scientific work with appropriate supervision
- To direct the work of a small research team, provide day-to-day supervision to undergraduate, Masters students and potentially PhD students
- To undertake data analysis and presentation
- To train members of the team in relevant techniques
- To identify and develop suitable techniques, and apparatus, for the collection and analysis of data
- To maintain accurate and complete records of all findings, ensuring the validity and reliability of data at all times
- To provide guidance to staff and students within the Lai Group and those of their collaborators
- To contribute to the smooth running of the Group's laboratories and facilities
- To write reports for submission to research funders and contribute to bids for research grants
- To present findings to colleagues and at conferences
- To submit publications to peer-reviewed journals
- To attend relevant trainings, workshops and conferences as necessary
- To develop contacts and research collaborations within the College and the wider community
- To collaborate with other allied scientists within Imperial College and nationally/internationally
- To promote the reputation of the Group, the Department and the College

- To provide guidance to visiting members of the group
- To comply with the College, Division, and Unit safety practices and to attend courses on safety when appropriate
- To undertake appropriate administration tasks
- Where Imperial or funder conditions necessitate, you will be required to complete timesheets for your work on projects in a timely manner.
- Any other duties as may be deemed reasonable by Head of group as well as Head of Division/Department/Section

Person Specification

Requirements Candidates/post holders will be expected to demonstrate the following:	**Essential (E)/ Desirable (D)**
Education	
Hold a PhD in Immunology, Physiology, Cell Biology, or a closely related discipline *Candidates who have not yet been officially awarded their PhD will be appointed initially as Research Assistant	E
Experience	
Practical experience in working with primary macrophages or cell culture models	E
Practical experience in working with small animal model or holds a personal license	D
Practical experience studying immunometabolism or cellular physiology	E
Practical experience measuring cellular ion fluxes or transporter/channel activity	D
Practical experience with mass spectrometry-based proteomics or metabolomics	D
Practical experience with functional immunology and biochemical assays	E
Experience of effective collaboration and undergraduate/postgraduate supervision	E
Experience with bioinformatics or advanced computational analysis of -omics datasets	D
Experience in writing reports to publication standard	E
Experience in a multidisciplinary research environment	E
Knowledge	
Knowledge of innate immunity and macrophage biology	E
Knowledge of immunometabolism	E

Knowledge of cellular ion fluxes or membrane transport mechanisms	D
Knowledge of mass spectrometry-based methods and omics data analysis	D

Skills & Abilities

Evidence of ability to conduct research independently, from the planning stages to execution and write-up	E
Ability to work independently and as part of a multidisciplinary team, including working collaboratively with cross-site project partners	E
Creative approach to problem-solving and a desire to pro-actively seek novel solutions to scientific problems	E
Excellent written communication skills and the ability to write clearly and succinctly for publication	E
Excellent verbal communication skills, with the ability to present complex data to a wide range of audiences	E
Demonstrated ability to learn new software programs or analytical pipelines for data processing	E
Ability to direct the work of a small research team and a willingness to share knowledge with other members of the group daily	E
Ability to organise own work with minimal supervision and prioritise in response to deadlines	E
Active involvement with the daily running and functioning of the laboratory	E
Flexible attitude towards work, including the ability to self-analyse and to receive and provide constructive criticism	E
Willingness to undertake any necessary training and professional development for the role	E
Willingness to travel both within the United Kingdom and abroad to conduct research, collaborate with partners, and attend conferences	E
Willingness to work out of normal working hours (including weekends) if the requirements of the project demand	E

Further Information

Please note that job descriptions cannot be exhaustive, and the post-holder may be required to undertake other duties, which are broadly in line with the above key responsibilities.

Our values are at the root of everything we do and everyone in our community is expected to demonstrate Imperial:

- Respect
- Collaboration
- Excellence

- Integrity
- Innovation

Employees are also required to comply with all Imperial policies and regulations.

We are committed to equality of opportunity, to eliminating discrimination and to creating an inclusive working environment for all. We encourage candidates to apply irrespective of age, disability, marriage or civil partnership status, pregnancy or maternity, race, religion and belief, gender reassignment, sex, or sexual orientation. You can read more about our commitment on our webpages.

Imperial is a proud signatory to the San-Francisco Declaration on Research Assessment (DORA), which means that in hiring and promotion decisions, we evaluate applicants on the quality of their work, not the journal impact factor where it is published. For more information, see https://www.imperial.ac.uk/research-and-innovation/about-imperial-research/research-evaluation/

Imperial believes that the use of animals in research is vital to improve human and animal health and welfare. Animals may only be used in research programmes which are ultimately aimed towards finding new treatments and making scientific and medical advances, and where there are no satisfactory or reasonably practical alternatives to their use. Imperial is committed to ensuring that, in cases where this research is deemed essential, all animals in our care are treated with full respect, and that all staff involved with this work show due consideration at every level. Find out more about animal research at Imperial.

[October 2026]