

Research Associate in Immunology

Department: Hull York Medical School

Hours of work: Full time | 37 hours a week | 1 FTE

Contract type: 3 years fixed term

Salary: Grade 6 | £38,448 - £46,049 per year

Introduction

This is an exciting position funded by the Advanced Research and Invention Agency (ARIA) under the supervision of Dr Ioannis Kourtzelis (<https://orcid.org/0000-0003-3006-8885>). This project is part of the Sustained Viral Resilience programme and is based on a collaboration between groups at the Universities of York, Cambridge, Birmingham, University College London, King's College London and Queen Mary, University of London. This position will be based at York. Anticipated start date for this position is March-April 2027. The end date for the current phase of funding is 31 May 2030.

Vaccines dramatically reduced disease burden in the 20th century, but they fail to keep pace with the challenges today's viruses present. To address this, we need a new class of medicines that can target viral infections with far greater precision, accuracy, and durability.

Trained immunity is the phenomenon in which the immune system uses this memory to stay primed, leaving innate immune cells better prepared to fight a broad range of pathogens. However, the precise epigenetic changes that create this protective state remain largely unmapped, and there's a dearth of meaningful attempts to engineer them as a therapeutic.

This consortium will analyse large epigenetic datasets to identify the specific epigenetic changes that underpin sustained viral resilience. CRISPR-guided epigenetic editors will be delivered by engineered lipid nanoparticles, to write those protective changes directly into specific cells, without altering the underlying DNA sequence. The aim of this project is to characterise the effects of 'sustained innate immunoprophylactics' (SIIPs) that are based on engineered lipid nanoparticles targeting lung - mediated immune regulation. This approach will be centred on characterising the effect of novel innate immune modulators on trained immunity in the lung. The postdoctoral-level researcher will become a central part of a team of researchers working both independently and together with a range of collaborators based at different Universities. The post-holder should be familiar with macrophage biology and lung immunology and will be expected to lead the project in relation to animal studies and interact with other partners within an ARIA-funded consortium. The post will be a springboard for development of further skills in immunology and its application in antiviral immune responses.

We place huge value and have a strong track record in professional development of our lab members. Support will be provided through strong mentoring, integration within the greater research community, and access to appropriate training opportunities.

Applicants are expected to show a commitment to diversity, equality and inclusion, and work in line with the School's values of – everyone counts, pursuing excellence, socially responsible and collaborative. This includes undertaking mandatory equality and diversity training and adhering to the principles outlined in the UK Medical School's Charter on So-Called 'Conversion Therapy' and the British Medical Association (BMA) racial harassment charter for medical schools.

Main purpose of the role

- To conduct research under the supervision of senior colleagues and to contribute to the production of research.
- To assist in the identification and development of potential areas of research and the development of proposals for independent or collaborative research projects.
- To assist in the training and development of other team members.

Key responsibilities

(Role holders will be required to undertake some or all of the duties below)

- To conduct individual and collaborative research projects, duties to include: analysis and interpretation of research data; use of appropriate research techniques and methods; writing up of research results and dissemination through publications, seminar and conference presentations and

public engagement and outreach activities; contributing to the identification of possible new areas of research.

- To contribute to the preparation of research proposals and applications to external bodies.
- To undertake appropriate organisational and administrative activities connected to the research project, including conference organisation, and the development of promotional or educational material including website maintenance and development.
- To develop and initiate collaborative working internally and externally, duties to include: the building of internal contacts and participation in internal networks; collaboration with colleagues on joint projects as required; participation in and identification of external networks in order to share information and identify potential opportunities for collaboration and possible sources of funding; attendance at and contribution to relevant meetings.
- To provide guidance to other staff and students, as required, as well as coordinating the work of small research teams.
- To assist with undergraduate teaching in own area of expertise.
- All staff have a statutory responsibility to take reasonable care of themselves, others, and the environment and to prevent harm by their acts or omissions. All staff are therefore required to adhere to the University's Health, Safety & Emergency Procedures.

The above list of duties is not exhaustive and is subject to change. The post holder may be required to undertake other duties within the scope and grading of the post.

Person specification

	Essential / Desirable
Qualifications	
Undergraduate degree in Immunology, Biomedicine or related topic	Essential
PhD in Immunology, Lung Immunology, or equivalent experience	Essential
Expertise in working with mice	Essential
Significant postdoctoral research experience	Desirable
Knowledge	
Knowledge in immunology and its application in the lung to engage in high quality research	Essential
Knowledge of a range of research techniques and methodologies	Essential
Has research expertise in an area that will complement and enhance the department's research strategy and goals	Essential
Knowledge of understanding of lung macrophages shape host immune regulation	Desirable
Skills, abilities and competencies	
Highly developed communication skills to engage effectively with a wide ranging audience, both orally and in writing, using a range of media	Essential
Ability to write up research work for publication in journals and engage in public dissemination	Essential
Ability to develop research objectives , projects and proposals for own and joint research, with the assistance of a mentor if required	Essential
Competency to conduct individual and collaborative research projects	Essential
Ability to identify sources of funding and contribute to the process of securing funds, with collaborators if required	Essential
Competency to make presentations at conferences or exhibit work in other appropriate events	Essential
Experience	
Experience of carrying out both independent and collaborative research	Essential
Experience of writing up research work for publication	Essential
Ability to work as part of a team and also to work independently using own initiative	Essential

Experience in mouse handling; designing, performing, analysing in vivo experiments	Essential
Experience with cellular immunology laboratory techniques (e.g. flow cytometry, immunofluorescent staining and confocal microscopy, etc)	Essential
Experience with cell culture and molecular cell biology techniques (e.g. RNA extraction, qRT-PCR, gene knockdown, western blotting)	Essential
Experience with in vivo imaging	Desirable
Experience with <i>in vitro</i> models of macrophage differentiation and function (including iPSC).	Desirable
Experience with mouse in vivo imaging (IVIS)	Desirable
Personal attributes	
Attention to detail and commitment to high quality	Essential
Collaborative ethos	Essential
Interest in and enthusiasm for the subject matter of the project(s)	Essential
Positive attitude to colleagues and students	Essential
Willingness to work proactively with colleagues in other work areas/institutions	Essential
Ability to plan and prioritise own work in order to meet deadlines, including using initiative to plan research programmes	Essential
Commitment to personal development and updating of knowledge and skills	Essential