THE UNIVERSITY OF MANCHESTER

PARTICULARS OF APPOINTMENT

FACULTY OF BIOLOGY, MEDICINE & HEALTH

SCHOOL OF BIOLOGICAL SCIENCES

DIVISION OF IMMUNOLOGY, IMMUNITY TO INFECTION, AND RESPIRATORY MEDICINE

RESEARCH ASSOCIATE IN MUCOSAL IMMUNOLOGY

VACANCY REF: BMH-027821

Salary:	Grade 6 £37,174 to £45,413 per annum, depending on relevant experience
Hours:	Full time (1 FTE)
Duration:	Fixed term for 48 months
Location:	Oxford Road, Manchester

Enquiries about the vacancy, shortlisting and interviews:
Name: Dr Madhvi Menon
Email: madhvi.menon@manchester.ac.uk

Are you interested in mucosal immunology? Come join the Menon lab! We have a postdoctoral research associate position available to uncover how lung-infiltrating B cells contribute to chronic lung diseases.

Project summary
B cells are critical mediators of immune responses in the airways through antibody production, antigen presentation, and cytokine secretion. In chronic respiratory diseases, such as chronic obstructive pulmonary disease (COPD), lung-infiltrating B cells expand, persist and associate with disease severity. Despite this, we understand very little about the role they play in modulating the lung microenvironment and disease outcomes. Notably, B cell deficient mice are significantly protected against cigarette smoke (CS)-induced emphysema. Therefore, B cells are important in COPD, but their precise roles in driving disease pathogenesis remain unknown.

Our recent work studying COPD has led to the discovery of significant B cell alterations associated with disease (Manuscript in prep). These data strongly support a role for lung-infiltrating B cells in the pathogenesis of COPD, as follows: (A) Abnormal skewing of B cell subsets in the COPD lung but not blood; expanded plasma cells, double negative memory B cells and immunoglobulin (Ig)G+B cells likely contribute to ongoing inflammation. (B) Accumulation of large B cell aggregates positioned next to airways in COPD patients. (C) Spatial proximity between B cells, T cells and macrophages in the COPD lung, suggesting interactions

between these cell types. (D) Altered gene expression profiles in B cells from COPD patients compared to controls.

Combining insights from previous studies and our preliminary data, we believe there is compelling evidence that strongly implicates a role for B cells in promoting COPD pathogenesis. This project aims to unravel the interplay between lung-infiltrating B cells and the tissue microenvironment in COPD, by utilizing a combination of tissue and blood samples from patients/controls, in vivo disease models, and cutting-edge technologies. Improved understanding of lung-infiltrating B cells in COPD patients could provide novel therapeutic avenues for better disease management.

Menon lab
The Menon lab works across chronic inflammatory diseases, including COPD, Asthma, Long Covid, Rheumatoid Arthritis and Lupus. The excellent links with clinicians at the allied teaching hospitals have transformed access to patient material through cardiothoracic surgery and respiratory/rheumatology clinics. The lab routinely recruits highly characterized patients for lung resections and matched blood samples that underpins the research associated with this post. https://research.manchester.ac.uk/en/persons/madhvi.menon

The Lydia Becker Institute of Immunology and Inflammation provides a creative, inspiring and inclusive environment with wide-ranging expertise and interests. The Postdoctoral Research Associate will join a vibrant centre of 86 personnel and have access to core facilities in cutting-edge genomics, bioinformatics, flow cytometry and imaging, and state-of-the-art laboratory space.

The University of Manchester
The University of Manchester is the largest single-site university in the UK with around 38,000 students and more than 11,000 staff. We aim to become one of the top 25 research universities in the world and are committed to delivering an outstanding teaching and learning experience; contributing to the social and economic success of local, national and international communities; producing the highest calibre graduates; and developing our staff to be amongst the very best of their peers.

To achieve our ambitious goals, we aim to attract and retain the very best people to work across a range of academic disciplines and support functions.

The Faculty of Biology, Medicine and Health (FBMH)
The Faculty of Biology, Medicine and Health brings together a new, integrated structure to deliver a truly translational approach to the life sciences, ensuring smooth research pathways - from pure discovery science through to clinical application and patient care.

With a total annual income of over £300 million, and over 3,000 members of staff, the new Faculty will be comparable in size to a medium-sized UK university. Thirty undergraduate and 90 postgraduate programmes will offer our 11,000 students opportunities to develop the skills and knowledge they need for a successful career.

The Faculty's matrix structure will facilitate interdisciplinary working and enable us to learn from each other and share best practice; and our eight, strategic Research Domains will help to

articulate our research strengths, drive large-scale, collaborative research activities and strengthen relationships with our research and healthcare partners.

The integration of discovery biology, clinical application and patient care within a single Faculty, particularly in a region with notable health inequality, provides us with a real opportunity to have a very significant and positive impact on people's lives.

Our strategic partnerships
The new Faculty will inherit a number of key strategic partnerships that underpin its ambitions to develop ground-breaking research.

Working alongside six local NHS Trusts, the Faculty will be a key member of the Manchester Academic Health Science Centre (MAHSC) - a federation of equal partners that unites leading healthcare providers with world-class academics and researchers. It aims to be a global centre for the delivery of applied health research and education and provide leadership for our local and regional health systems.

It will also play a leading role in Health Innovation Manchester (HInM), which was launched in September 2015, as part of the UK Government's decision to devolve health and social care responsibilities to Greater Manchester. HInM offers a unique opportunity to bring together health and social care, academic and life science related business resources across the region to deliver an innovative health ecosystem that can help accelerate innovation into our local health and social care systems, enhance our global scientific standing and act as a magnet for inward investment.

Key partnerships in the charitable sector include Cancer Research UK; Diabetes UK; and the Wellcome Trust; and the Faculty will also have research and funding links to a number of commercial organisations including Unilever, AstraZeneca, GlaxoSmithKline and Boots, who will help us to bring new drugs and products to the market.

Working for the University of Manchester
The University of Manchester strives to make our community a welcoming, caring and enthusiastic one, fuelling ambition with opportunities and support to help us all achieve our personal and professional goals.

Our diverse job opportunities include an attractive benefits package with family-friendly policies that provide for flexible working. We care deeply about career and personal development, offering a structured induction programme for new staff, an annual performance and development review, staff training for all career stages and mentoring opportunities to support your career development.

We have a genuine commitment to equality of opportunity for our staff and students, and are proud to employ a workforce that reflects the diverse community we serve.

As a global institution, situated at the heart of a lively, culturally diverse city, we welcome applicants of all nationalities. To help international job applicants plan for life in the UK, we have put together some useful information on passports and visas, travel to the UK, accommodation and a number of other practical considerations.

MANCHESTER 1824
The University of Manchester

Overall Purpose of the Job
We have an opening for a highly creative and motivated researcher with a strong background in immunology. The candidate (funded by a UKRI Future Leaders Fellowship) is expected to investigate the role of lung-infiltrating B cells in COPD and other chronic lung diseases, and present results to general and specialised audiences. They will address the following research questions:
1) What are the molecular and functional profiles of COPD-associated lung-infiltrating B cells?
2) How do interactions between B cells and the lung microenvironment influence disease outcomes?
3) Can we ameliorate disease by targeting novel pathways driving B cell dysfunction?
4) Do common mechanisms of B cell dysfunction exist across chronic lung diseases?

Key Responsibilities, Accountabilities or Duties
The candidate is expected to be highly engaged, curious, and a team player. The range of duties will include:

- Be involved in the assessment of student knowledge and supervision of projects
- Assist in the development of student research skills
- Develop research objectives and proposals for own or joint research, with the assistance of a mentor if required
- Conduct individual and collaborative research projects
- Write up research work for publication
- Continually update knowledge and understanding in field or specialism
- Translate knowledge of advances in the subject area into research activity
- Deal with routine communication using a range of media
- Communicate complex information, orally, in writing and electronically
- Prepare proposals and applications to external bodies, e.g. for funding and contractual purposes
- Communicate material of a specialist or highly technical nature
- Liaise with colleagues and students
- Build internal contacts and participate in internal networks for the exchange of information and to form relationships for future collaboration
- Join external networks to share information and identify potential sources of funds
- Manage own research and administrative activities, with guidance if required
- Work with colleagues on joint projects, as required
- Collaborate with academic colleagues on areas of shared research interest.
- Attend and contribute to relevant meetings
- Use new research techniques and methods
- Use initiative and creativity to identify areas for research, develop new research methods and extend the research portfolio

- Use creativity to analyse and interpret research data and draw conclusions on the outcomes
- Contribute to collaborative decision making with colleagues in areas of research
- Use research resources, laboratories and workshops as appropriate
- Plan and manage own research activity in collaboration with others
- Balance with help the competing pressures of research and administrative demands and deadlines
- Be aware of the risks in the work environment and their potential impact on their own work and that of others

Person Specification

Essential

- Have, or be about to obtain, a relevant PhD in immunology or relevant field
- Specialist knowledge in the discipline (mucosal immunology and/or lymphocyte biology) and/or experience in relevant techniques (in vivo models, in vitro culture systems, single-cell sequencing, spatial transcriptomics, bioinformatics) will be considered a strong merit
- Excellent communication and interpersonal skills
- Excellent time management and organisational skills
- Ability to work independently and as part of a team
- Ability to liaise confidently and effectively with a range of individuals
- Flexible approach to dealing with research problems as they arise
- Willingness to learn and develop
- Ability to present in both written and oral publications
- Ability to meet deadlines
- Strong journal publication record
- The ability to evaluate complex data
- Ability to contribute to broader management and administrative processes
- Ability to assess and organise resources
- Understand equal opportunity issues as they may impact on areas of research content
- The research requires highly interdisciplinary work involving teams of contributors; therefore, team players that are motivated to help each other are highly encouraged to apply