



## Candidate Information

<b>Position:</b>	Research Fellow
<b>School/Department:</b>	Wellcome Wolfson Institute for Experimental Medicine (QUB) / School of Medicine (UU)
<b>Reference:</b>	21/109245
<b>Closing Date:</b>	Monday 25 October 2021
<b>Salary:</b>	£34,304 - £40,927 per annum.
<b>Anticipated Interview Date:</b>	Wednesday 3 November 2021
<b>Duration:</b>	12 months

### JOB PURPOSE:

A Postdoctoral Research Fellow position for a PhD with training in molecular cell biology/innate immunity/virus-host interactions/airway epithelium or in related fields is available in Prof. Ultan Power's group. This is part of a large Wellcome Trust Strategic award, called Breathing Together, involving 8 UK and 1 Australian institutions (<http://breathingtogether.co.uk/>). The successful applicant will study the relative consequences of respiratory syncytial virus (RSV) and/or aeroallergen exposure of paediatric airway epithelium derived from infants with wheeze/asthma and/or atopy compared with healthy infants. To do so, we are exploiting our novel models of virus-infected well-differentiated primary paediatric airway epithelium cultures (see, Villenave et al, PNAS 109:5040-45, 2012; Guo-Parke et al, Am J Resp Crit Care Med 188:842-51, 2013; Groves et al, PLoS ONE 13:e0201328, 2018) The project was designed to generate a greater understanding of factors implicated in the development of pre-school wheeze. As airway epithelium plays a central role in determining infant responses to inhaled infections or allergens, understanding how it develops in health and disease will provide major insights into the development of wheeze/asthma. This project, therefore, seeks to determine what triggers wheeze/asthma and whether or not we can predict which infants will progress to develop disease. The successful candidate will work in partnership with members of the Power group and the wider Breathing Together team, plan and perform experiments, and will be involved in the supervision and training of junior lab members.

### MAJOR DUTIES:

1. If required, develop the skills for culturing well-differentiate primary paediatric airway epithelial cells (WD-PAECs) (both nasal and bronchial).
2. If required, develop skills for RSV culture and titration.
3. Design and execute experiments to study virus/aeroallergen interactions with WD-PAECs, in collaboration with our Breathing Together project partners.
4. Characterise the innate immune responses to virus/aeroallergens in WD-PAECs (e.g., ELISA, Luminex, RT-qPCR).
5. Undertake experimental protocols to ensure delivery of experimental data in a timely and rigorous manner and within budget. Where possible, these should be done according to existing Standard Operating Protocols (SOPs) and Good Laboratory Practice-like standards.
6. Prepare and maintain clear laboratory records of methods, sample details and results, both in lab books and in appropriate electronic forms and databases.
7. Operate analytical instruments appropriately, and when required, contribute to the development of new or improved methods/techniques to meet the requirements/milestones of the project.
8. Provide training to and supervision of other members of the Power group in related projects, as required, including PhD, MSc and BSc students.
9. Present regular progress reports on research to members of the research group or to external collaborators on the Breathing Together project.
10. Prepare, in consultation with Prof. Power, material for publication in national and international journals and presentations at international conferences.
11. Assist Prof. Power in the preparation of funding proposals and applications to external bodies.
12. Read academic papers, journals and textbooks to keep abreast of developments in own specialism and related disciplines.

13. Undertaken development/training courses as necessary to keep knowledge and skills up to date and relevant for subject specialism. Apply working knowledge of theory and practice, sharing this knowledge with others as appropriate.
14. Comply with Health and Safety procedures affecting self and other and ensure Health and Safety practices and abidance to SOPs by lab members are maintained to the highest standards.
15. Carry out any other duties appropriate to the post, as may be reasonably requested by the supervisor.

**Planning and Organising:**

1. Plan for specific aspects of research programme. Timescales range from 1-6 months in advance and contribute to research group planning.
2. Carry out without supervision a range of tasks related to the project and proper functioning of the Power laboratory.
3. Prioritise own work within the general project plan to ensure project targets and deadlines are met.
4. Plan to ensure that reagents, consumables, equipment and resources are available for experiments so that unnecessary delays are avoided.
5. Coordinate and liaise with other members of the research group over work progress.

**Resource Management Responsibilities:**

1. Ensure research resources are used in an effective and efficient manner to avoid unnecessary wastage.
2. Provide guidance and supervision as required to support staff and any students who may be assisting with research.
3. Where appropriate, carry out training of laboratory staff.

**Internal and External Relationships:**

1. Liaise on a regular basis (daily/weekly) with supervisor, work colleagues, University staff, and students.
2. Liaise with Breathing Together project collaborators at other institutions as needed to ensure efficient progression of the project.
3. Attendance and involvement at seminars and research meetings within WWIEM and in other research centres within the University as appropriate.
4. Support the School's outreach programme by contributing to public open days, etc.

**ESSENTIAL CRITERIA:**

1. PhD in cell biology, innate immunity, virology, or equivalent subject.
2. At least 3 years relevant research experience to include: a wide range of laboratory techniques appropriate to study host/pathogen interactions, such as excellent cell culture capabilities, fluorescent microscopy, biochemistry, and/or virology.
3. Well-developed understanding of relevant regulations and procedures including Health and Safety requirements and of COSHH regulations.
4. Ability to communicate complex information clearly.
5. Ability to interact with collaborators, both internally and externally.
6. Ability to prioritise own work within a general plan to meet deadlines.
7. Ability to carry out practical laboratory tasks to a consistently high standard.
8. Ability to keep accurate records and provide reports on project progress.
9. Demonstrable ability to train junior staff and students and allocate work.
10. Analytical and problem-solving skills.
11. Ability to work in a team and independently.
12. Due to the nature of the projects, flexibility of working hours will be required.

**DESIRABLE CRITERIA:**

1. PhD in molecular cell biology, virus/host interaction, asthma/wheeze, respiratory epithelium, or similar subjects.
2. Experience with culturing primary airway epithelial cells, in particular well-differentiated primary airway epithelial cell cultures; virology, in particular respiratory viruses, such as RSV; innate immunity, in particular chemokine/cytokine responses to infection and/or allergens; respiratory diseases, such as wheeze/asthma.
3. Understanding of Good Laboratory Practice.