



## Candidate Information

<b>Position:</b>	Research Assistant
<b>School/Department:</b>	Wellcome-Wolfson Inst for Experimental Medicine
<b>Reference:</b>	23/111064
<b>Closing Date:</b>	Monday 24 July 2023
<b>Salary:</b>	£30,619 per annum
<b>Anticipated Interview Date:</b>	Tuesday 8 August 2023
<b>Duration:</b>	Fixed term for 5 months

### JOB PURPOSE:

To join the inflammasome biology research team led by Dr Rebecca Coll in the Wellcome-Wolfson Institute for Experimental Medicine. We study the fundamental biology of inflammasome signalling pathways to inform the development of novel treatments for inflammatory diseases.

This short-term position will be focused on examining the function of CARD16 in human myeloid cells. It will involve the culture of human induced pluripotent stem cell (hiPSC) macrophages and primary macrophages, activation of inflammasomes and other innate immune receptors, and a variety of assays to assess cell signalling. This position is suited to an ambitious, productive, and collaborative individual.

### MAJOR DUTIES:

1. To be actively involved in the existing CARD16 research programme as directed by the supervisor and to ensure adequate planning and progression so that the overall research objectives for the project are met.
2. Cell culture of hiPSC-derived macrophages, hiPSC-derived microglia, primary human monocyte-derived macrophages, and human cell lines (HEK293T, THP-1).
3. Inflammasome assays including: pyroptosis (LDH), ELISAs for cytokine release, Western blotting (cleaved caspase-1, GSDMD, IL-1b), and fluorescence microscopy to detect ASC specks.
4. Flow cytometry for characterisation of iPSC-derived macrophages and ASC speck formation.
5. Assays for innate immune cell signalling including Western blotting for signalling pathways e.g., MAPK, NF-kB.
6. Perform siRNA in primary human macrophages and transfection of plasmids in HEK293Ts.
7. Co-immunoprecipitation assays and microscopy to analyse CARD16 localisation and interactions.
8. Measure gene expression using qRT-PCR.
9. Carry out analysis, critical evaluation, and interpretation using methods and techniques appropriate to area of research.
10. Prepare and maintain adequate laboratory records of methods, sample details and results in a timely fashion.
11. Maintain up-to-date knowledge of the field of inflammasomes and iPSC-derived myeloid cells.
12. Present regular progress reports on research to members of the research group or to external audiences to disseminate and publicise research findings.
13. Prepare, in consultation with supervisor, publications for leading international journals.
14. Carry out routine administrative tasks associated with the research project to ensure that project milestones are completed on time and within budget. These will include organisation of project meetings and documentation, financial control, and risk assessment of research activities.

### ESSENTIAL CRITERIA:

1. Degree in immunology, biochemistry, cell biology, molecular biology, or a relevant biomedical science.

2. Significant hands-on experience in the following:
  - Culture of human iPSC-derived macrophages and iPSC-derived microglia.
  - Flow cytometry for macrophage characterisation.
  - Isolation and culture of primary human macrophages and use of siRNA in these cells.
  - Assays for measuring innate immune signalling pathways including Western blotting, ELISAs, cell death assays, and ASC speck formation assays.
  - qRT-PCR for gene expression.
3. Methodical approach to project management and meticulous in regard to experimental procedures and record keeping.
4. Highly ambitious, motivated, efficient, and organised.
5. Up-to-date knowledge in the field of inflammasome and innate immune signalling pathways.
6. Strong interpersonal skills.
7. Ability to communicate complex information clearly.
8. Competent in giving effective and informative oral and poster presentations.
9. Demonstrable intellectual ability.
10. Strong ability to work from own initiative.
11. Excellent problem-solving skills.
12. Excellent teamwork skills.
13. Must be prepared to work irregular hours including evening, weekend and other out-of-hours work on an ad-hoc basis as required.
14. May be required to travel for training, meetings, and conferences on an ad-hoc basis as required.

**DESIRABLE CRITERIA:**

1. Postgraduate qualification in a relevant area.
2. Experience in co-immunoprecipitation assays, and molecular biology techniques such as cloning and CRISPR/Cas9 gene editing.
3. Knowledge of and training in the Human Tissue Act.
4. Original research publications in peer-reviewed journals commensurate with career stage.
5. Experience teaching/supervising undergraduate students and visiting researchers in the laboratory.
6. Research project management experience.
7. Ability to assess and organise resources.