



Candidate Information

Position:	Research Fellow in Wellcome-Wolfson Inst for Experimental Medicine
School/Department:	The Wellcome-Wolfson Institute for Experimental Medicine
Reference:	21/109049
Closing Date:	Monday 30 August 2021
Salary:	£33,797 - £40,322 per annum.
Anticipated Interview Date:	Wednesday 29 September 2021
Duration:	36 Month Fixed-Term Contract

JOB PURPOSE:

To be a highly productive, ambitious, and collaborative member of the Inflammasome Biology research team led by Dr Rebecca Coll located at the Wellcome-Wolfson institute for Experimental Medicine. The position will involve working as part of a BBSRC-funded research programme to characterise the fundamental biology of the inflammasome sensor NLRP3.

We have identified temperature as a novel environmental regulator of inflammasome signalling. This project will investigate the temperature-dependent mechanisms of inflammasome regulation using a range of pharmacological and biochemical approaches. The project will use cellular thermal shift assays and cutting-edge advanced quantitative mass spectrometry techniques to study NLRP3 protein-protein interactions. In addition, it will develop several cell-based models of the NLRP3 autoinflammatory disease Familial Cold Autoinflammatory Syndrome (FCAS) including patient-derived induced pluripotent stem cells (iPSCs).

The post is a senior role in the team and as such, successful applicants will have responsibilities in independent research, supervision, planning, day-to-day lab management, collaborations, and outreach. The post is suited to a highly ambitious individual and is available for 3 years.

MAJOR DUTIES:

1. Develop, plan, and deliver an area of personal research and expertise, and/or undertake research under supervision within a research programme aimed at uncovering the fundamental biology of inflammasomes. Techniques include cell culture of primary and immortalized myeloid cells and hiPSCs, protein-protein interaction assays, and inflammasome activity assays
2. Develop and implement, with support, a highly ambitious personal career development plan during the post.
3. Maintain up-to-date knowledge of the field of interest at the cutting edge and communicate same to the group.
4. Design, develop and refine experimental models to obtain reliable and reproducible data in models of inflammasome activity.
5. Carry out analyses, critical evaluations and interpretations of experimental data and the literature using methodologies and other techniques appropriate to area of research.
6. Present regular progress reports on research to members of the research group, other groups within the Institute/University, to external audiences nationally and internationally to disseminate and publicise research findings.
7. Prepare material for publication in national and international journals, and presentations at national and international conferences.
8. Assist grant holder in the preparation of funding proposals by generating preliminary data and applications as well as project progress reports to external bodies.
9. Carry out routine administrative tasks associated with the research projects/group to ensure that projects are completed on time and within budget and that the group functions efficiently. These might include organisation of project/group meetings and documentation, financial control, stock management/procurement, risk assessment of research activities and development of SOPs. Carry out routine administrative tasks associated with the day-to-day running of the research group in a communal laboratory setting.
10. Carry out school/undergraduate/post-graduate student and visiting researcher training and supervision, demonstrating, tutoring, or lecturing duties within the post holder's area of expertise and under the guidance of a member of academic staff.
11. Participate in outreach activities on behalf of the group/Institute.
12. Participate in local research-related activities such as journal clubs, training sessions, Institute seminar series etc.

13. Assist in assessment of research communications and data, particularly within the group.
14. Additional research and/or laboratory related duties including outreach activities, within the general range of the post and competence of post holder.

Planning and Organising:

1. Plan for specific aspects of research programme. Timescales range from 1-18 months in advance and may contribute to overall research group planning.
2. Plan for access to, and use of, research resources, laboratories, and workshops where appropriate.
3. Plan own day-to-day activity within framework of the agreed research programme as well as communal activities (e.g. meetings) where appropriate.
4. Plan up to 1.5 years in advance to meet deadlines for grant applications, journal publications and to prepare presentations and papers for conferences and meetings.
5. Coordinate and liaise with other members of the research group and collaborative research groups regarding work progress and stock management
6. Assist in training other group members on effective planning and organisation.

Resource Management Responsibilities:

1. Ensure research resources are used in an effective and efficient manner including liaising with vendors and collaborators.
2. Provide guidance as required to support staff and any post-graduate/under-graduate students and visiting researchers who may be assisting with work of the group.

Internal and External Relationships:

1. Liaise on a regular basis with supervisor, colleagues, students, and collaborators.
2. Communicate appropriately and effectively with laboratory colleagues topics such as latest research findings/results within the group and field.
3. Build internal contacts and participate in internal networks for the exchange of information and to form relationships for future collaboration.
4. Travel to, and present at scientific meetings and work in collaborative laboratories when necessary.
5. Join external networks to share information and ideas and help develop and maintain external collaborations, as appropriate.
6. Contribute to the School's outreach programme by developing links with local community groups, industries etc.

ESSENTIAL CRITERIA:

1. Have a PhD in Immunology, Biochemistry, Cell Biology, or a closely related area.
2. At least 3 years recent, hands-on, research experience in immunology, protein biochemistry and/or cell biology.
3. Recent extensive hands-on experience in at least three of the following:
 1. Culture of mouse and human primary myeloid cells and cell lines.
 2. Assays for innate immunity /inflammasome signalling including ELISAs, Western blotting and cell death such as LDH release.
 3. Co-immunoprecipitation assays.
 4. Proximity ligation assays (PLA).
 5. Cellular thermal shift assays (CETSA).
 6. Immunofluorescence microscopy and confocal microscopy.
4. Recent high-quality original research publications in reputable peer-reviewed journals, commensurate with career stage
5. Methodical approach to project management and meticulous in regard to experimental procedures and record keeping.
6. Highly ambitious, motivated, efficient, organised and show a commitment to, and interest in, research topic.
7. Competent in maintaining knowledge of cutting-edge in field of expertise.
8. Competent in giving effective and informative oral and poster presentations.
9. Competent in communicating stipulated research skills essential to the post in CV/job application.
10. Strong ability to work from own initiative.
11. Excellent team working skills in multiple internal and external team settings.
12. Excellent problem-solving skills.
13. Irregular hours including evening, weekend and other out-of-hours working will be a component of the research at times.
14. Must be willing to travel to national and international meetings and collaborative laboratories.
15. Human blood handling is required.

DESIRABLE CRITERIA:

1. Experience in iPSC culture, isolation of primary human monocytes from buffy coats/whole blood, flow cytometry, or mass spectrometry projects.
2. High quality grant, manuscript, ethics application, report, and abstract writing experience.
3. Knowledge of and training in the Human Tissue Act.
4. Productive PhD/postdoctoral experience as evidenced by a strong publication record commensurate with career stage.
5. Experience supervising /mentoring postgraduate/ undergraduate/school students and visiting researchers in the laboratory.
6. Research project management.
7. Computing skills especially for software commonly used in biomedical research such as FlowJo, R, and GraphPad Prism.
8. Experience working in outreach settings.