# Candidate Information

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| **Position:** | Postdoctoral Research Fellow |
| **School/Department:** | Wellcome-Wolfson Inst for Experimental Medicine |
| **Reference:** | 21/109275 |
| **Closing Date:** | Thursday 11 November 2021 |
| **Salary:** | £37,467 - £40,927 per annum |
| **Anticipated Interview Date:** | Week Commencing Monday 22 November 2021 |
| **Duration:** | 36 months |

**JOB PURPOSE:**

The Schroeder TEAM is seeking a highly motivated postdoc with expertise in and passion for host-pathogen interaction research for a 3-year BBSRC UK-funded project.

The project builds on the discovery a new glycosyltransferase effector of the respiratory pathogen Legionella pneumophila (Levanova et al. JBC, 2019), the cause of Legionnaires' disease, and will focus on the characterisation of new molecular mechanisms of host subversion and host defence. Set at the interface of microbiology, cell biology and biochemistry, it will involve a wide range of cellular microbiology, molecular biology and biochemistry techniques combined with imaging and proteomics.

The Schroeder Team is based in the Wellcome-Wolfson Institute for Experimental Medicine at Queen's University Belfast, providing state-of-the-art labs and research facilities. The successful candidate will be part of a dynamic, international research community, work with collaborators across campus and abroad, and have ample scientific and personal development opportunities.

The post is suited to an organised, productive and communicative individual with recent hands-on research experience in cellular or molecular microbiology, cell biology or biochemistry or a related discipline with focus on host-pathogen interaction or virulence factor characterisation. Expertise in glycosyltransferase enzymology and/or glycobiology would be desired.

The post holder will have a senior role in the team and as such, successful applicants will, apart from the main focus on research, contribute to supervision, lab management and design of new projects.

**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 fundamental biology of host-pathogen interactions. Techniques may include cell culture, cell signalling analysis, infection models, structural biology, proteomics, microscopy as well as extensive molecular microbiology and biochemistry.
2. Develop and implement, with support, an ambitious personal career development plan in the course of 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 in order to obtain reliable and reproducible data in models of cell signalling, cellular and molecular microbiology.
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 Centre/University, to external audiences nationally and internationally to disseminate and publicise research findings.
7. Prepare, always in consultation with supervisor, material for publication in national and international journals and presentations at 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 lab 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, and in some cases lead, outreach activities on behalf of the group/Centre.
12. Participate in local research-related activities such as journal clubs, training sessions, seminar series etc.
13. Assist in assessment of research communications and data, particularly within the group.
14. Additional research and/or laboratory related duties within the general range of the post and competence of post holder.

**Planning and Organising:**

1. Plan for specific aspects of research programme up to 6 month in advance and 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) were appropriate.
4. Plan 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 lab colleagues topics such as latest research findings/results within the group and field.
3. Travel to, and present at scientific meetings and work in collaborative laboratories when necessary.
4. Build internal contacts and participate in internal networks for the exchange of information and to form relationships for future collaboration.
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 Cellular Microbiology, Molecular Microbiology, Cell biology, Biochemistry or a closely related area.
2. At least 3 years recent relevant research experience in Cellular Microbiology, Molecular Microbiology, Cell biology, Biochemistry or a closely related area with focus on the functional characterisation of proteins/ protein signalling in infectious disease/ host-pathogen interaction including:
   Recent extensive hands-on experience in molecular biology (construction of plasmids, manipulation of bacteria etc.) and mammalian cell culture and at least three of the following:
   1. Cell-based infection assays.
   2. Protein purification and functional characterisation (SDS-PAGE etc.)
   3. Transfections, transductions and/or gene-silencing/editing.
   4. Epifluorescence/confocal and/or super-resolution microscopy.
   5. Proteomics sample preparation and data analysis.
   6. Analysis of protein glycosylation .
3. High-quality original research publications in reputable peer-reviewed journals, commensurate with career stage.
4. Methodical approach to project and data management and meticulous in regards to experimental and safety procedures and record keeping.
5. Highly ambitious, motivated, efficient, organised and show a commitment to, and interest in, research topic.

6. Competent in maintaining knowledge of cutting-edge in field of expertise.
7. Proactive, effective approach to problem-solving.
8. Excellent verbal and written communication skills.
9. Competent in delivering effective and informative oral and poster presentations.
10. Demonstrable experience in competently communicating stipulated research.
11. Strong ability to work from own initiative.
12. Excellent team working skills in multiple internal and external team settings.
13. Leadership qualities.
14. Irregular hours including evening, weekend and other out-of-hours working will be a component of the research at times.
15. Available and willing to travel to national and international meetings and collaborators.

**DESIRABLE CRITERIA:**

1. Experience in bacteria-host interaction or virulence factor characterisation and/or protein glycobiology.
2. Recent relevant experience in any of the following techniques:
   - Use and manipulation of Legionella spp. or other bacterial pathogens
   - Tissue culture (macrophages), infections, siRNA and/or shRNA and/or CRISPR-Cas approaches, generation of stable cell lines
   - Manipulation of protozoa
   - Functional characterisation of proteins
   - Use of bioortholog chemical probes and click-chemistry
   - Structural characterisation of proteins
   - Epifluorescence/confocal or super-resolution microscopy and quantitative image analysis
   - Proteomics sample preparation and data analysis (for example interactomes, post-translational modifications)
3. Experience in general communal lab management.
4. High quality manuscript, grant, report and abstract writing experience.
5. Supervision/mentoring of postgraduate/ undergraduate/school students or visiting researchers in the laboratory
6. Research project management skills.
7. Up-to-date knowledge of fields of cellular microbiology, protein glycosylation and macrophage biology.
8. Experience working in outreach settings.