



## Candidate Information

<b>Position:</b>	Research Assistant
<b>School/Department:</b>	School of Medicine, Dentistry and Biomedical Sciences
<b>Reference:</b>	24/112100
<b>Closing Date:</b>	Friday 23 August 2024
<b>Salary:</b>	£33,785 per annum
<b>Anticipated Interview Date:</b>	Monday 9 September 2024
<b>Duration:</b>	36 months

### JOB PURPOSE:

To be a highly productive, ambitious and collaborative member of a research team led by Dr. Selinda Orr in the Wellcome-Wolfson Institute for Experimental Medicine. This 3 year position will involve working as part of a research programme that is investigating host immune responses to fungal pathogens such as *Aspergillus*, *Candida* and *Rhizopus* species. Immunosuppressed individuals are at risk of developing invasive bloodstream fungal infections and mortality rates are unacceptably high (up to 82% even with treatment). Therefore, the aim of this project is to characterise a novel signalling pathway in response to these fungal pathogens to identify potential immunotherapy targets. The project will utilise *in vitro*, *ex vivo* and *in vivo* models of fungal infection and is based in a highly collaborative team, carrying out basic and clinical research with partners locally, nationally and internationally.

### MAJOR DUTIES:

1. To be actively involved in the existing research programme as directed by the line manager and to ensure adequate planning and progression of the investigation so that the overall research objectives are met.
2. To isolate and culture mouse and human primary myeloid cells and cell-lines.
3. To perform gene silencing or overexpression of candidate genes using lentiviral shRNA knockdown or overexpression or other appropriate technology.
4. To maintain mouse colony records, perform welfare checks and assist with *in vivo* fungal infection experiments.
5. To undertake experimental protocols (eg. cell signalling, cytokine production, fungal killing, *in vivo* infections), either independently or as part of a team, to ensure delivery of experimental data in a timely and rigorous manner. Where possible, these should be done according to existing Standard Operating procedures. Accurate recording of data and information is essential.
6. Analysis of samples using specialist analytical equipment, such as flow cytometer, Western blotting equipment, and interpretation and reporting of results using data analysis programs.
7. Present regular progress reports on research to members of the local research group.
8. Assist in the preparation of material for publication in national and international journals, presentations at international conferences and funding proposals.
9. Maintain and update all general lab SOPs, risk assessments and COSHH forms.
10. Provide technical advice and demonstration to other staff and students on various laboratory techniques and analytical instruments as described above.
11. Carry out routine administrative tasks associated with the research project/s which might include keeping track of finances and risk assessment of research activities.
12. Carry out regular undergraduate supervision under the direct guidance of a member of academic staff.
13. To keep up-to-date with the scientific literature related to the area (academic papers, journals and textbooks) and use this to inform experimental approaches and study design.

### ESSENTIAL CRITERIA:

1. Have a BSc Biology, Biochemistry or a closely related area.
2. Have completed Home Office modules 1-3 (PIL AB)
3. Recent research experience in immunology, biochemistry, or cell biology.

4. Recent extensive hands-on experience in the following:
  1. Isolation and culture of primary human or murine cell types such as macrophages and culture of cell lines.
  2. Assays for innate immune responses including ELISAs and Western blotting.
  3. in vivo infection models
  4. Multi-parameter flow cytometry
  5. RNA processing and RNAseq analysis.
5. A publication record which is commensurate with career stage and experience in regard to both output quantity and quality.
6. Methodical approach to experimental procedures and record keeping.
7. Sufficient breadth and depth of specialist knowledge in the discipline and of research methods and techniques to work within established fungal infection research programmes.
8. Ability to communicate complex information clearly.
9. Ability to build contacts and participate in internal and external networks.
10. Demonstrable intellectual ability and awareness of the scientific literature pertaining to area of interest.
11. Ability to assess and organise resources.
12. Ability to work independently within the context of a research team.
13. Irregular hours including evening, weekend and other out-of-hours working will be a component of the research at times.
14. Human blood and samples handling is required.
15. Working with mice is required.
16. Working with fungal pathogens is required.

**DESIRABLE CRITERIA:**

1. Have or about to obtain a PhD (laboratory work completed) in Immunology, Biochemistry, Cell Biology, or a closely related area.
2. Demonstrated experience in conducting laboratory experiments and procedures, preferably in the field of fungal infections, immune responses or respiratory research.
3. Familiarity with administering i.p, i.t, s.c, i.v. injections to mice and monitoring their health throughout the study duration. Genotyping of mice.
4. Collection of bronchoalveolar lavage fluid, blood samples and tissue samples from mice.
5. Experience teaching/supervising students and visiting researchers in the laboratory.
6. Computing skills especially for software commonly used in biomedical research such as FlowJo, R, and GraphPad Prism.
7. Evidence of having presented at conferences (poster and/or oral presentations).
8. Background or research interests which are compatible with the post.

**ADDITIONAL INFORMATION:**

Informal Enquiries to Prof. Denise Fitzgerald: [d.fitzgerald@qub.ac.uk](mailto:d.fitzgerald@qub.ac.uk)