



Candidate Information

Position:	Research Fellow
School/Department:	The Wellcome-Wolfson Institute for Experimental Medicine
Reference:	24/112225
Closing Date:	Tuesday 29 October 2024
Salary:	£39,922 to £41,112 per annum
Anticipated Interview Date:	Monday, 18 November 2024
Duration:	35 Months or until 31 December 2027, whichever is soonest

JOB PURPOSE:

We are seeking an enthusiastic and highly motivated individual to work on a British Heart Foundation funded research project investigating novel therapies aimed at preventing graft failure in coronary artery bypass surgery. Using cellular and molecular biological approaches, the aim of this project is to investigate endothelial cell heterogeneity factors regulating vascular cell connectivity with a particular focus on their regulation and post-translational modification by nitric oxide and ubiquitin. The applicant will work closely with the PI within the Wellcome-Wolfson Institute for Experimental Medicine.

MAJOR DUTIES:

1. To provide assistance to and be actively involved in the existing research programme and to ensure adequate planning and progression of the investigation so that the overall research objectives are met.
2. To investigate the role of signalling pathways, such as nitric oxide (NO) and NOTCH, in mediating endothelial cell (EC) function under fluid shear stress conditions.
3. To examine cell function under shear stress.
4. To examine novel signalling interactions using protein and functional analysis and appropriate in vitro and in vivo models (such as qRT-PCR, western blotting, immunoprecipitation, immunohistochemistry, gene silencing or overexpression).
5. To develop methods to investigate the regulation of EC heterogeneity factors by post-translational modification.
6. To liaise with clinical colleagues to collect and process clinical samples.
7. To design, develop and refine experimental apparatus or experiments in order to obtain reliable data. This includes careful record keeping of experimental protocols and results.
8. Carry out analyses, critical evaluations, and interpretations using methodologies and other techniques appropriate to area of research.
9. Present regular progress reports on research to members of the research group or to external audiences to disseminate and publicise research findings.
10. Assist grant holder in the preparation of scientific manuscripts and generation of preliminary data for funding proposals and applications to external bodies.
11. Carry out routine administrative tasks associated with the research project to ensure that it is completed on time and within budget. These might include organisation of project meetings and documentation, financial control, risk assessment of research activities.
12. Carry out occasional undergraduate supervision and demonstrating duties within the post holder's area of expertise and 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 or about to obtain a PhD in vascular biology, cell/ molecular biology, biomedical science or a closely related area. PhD must have been submitted by the date of appointment
2. Relevant recent hands-on research experience in cell or molecular biology using appropriate model systems.

3. Recent and relevant hands-on experience in molecular cell biology techniques demonstrated through publication or presentation. To include three of the following:
 - Isolation or culture of mammalian cells.
 - Cellular and molecular biology techniques such as western blotting, qPCR, gene knockdown/ overexpression.
 - Appropriate in vitro functional assays.
 - Appropriate in vivo models.
4. Experience teaching/supervising /mentoring postgraduate/ undergraduate/school students and visiting researchers in the laboratory.
5. Methodical approach to project management and meticulous in regards to experimental procedures and record keeping.
6. Sufficient breadth and depth of specialist knowledge in the discipline and of research methods and techniques to work within established research programmes.
7. Highly ambitious, motivated, efficient, organised and show a commitment to, and interest in, research topic.
8. Competent in maintaining knowledge of field of expertise and ability to contribute to method improvement where required.
9. Competent in giving effective and informative oral and poster presentations.
Competent in communicating stipulated research skills essential to the post in CV/job application.
10. Demonstrable intellectual ability and show a clear interest and commitment to this area of research.
11. Commitment to high quality research.
12. Excellent problem-solving skills.
13. Strong ability to work from own initiative and to work independently within the context of a research team.
14. Ability to assess and organise resources.
15. Excellent team working skills
16. Must be prepared to work irregular hours (evenings or weekend) when needed to to progress the research project.
17. Be prepared to work with experimental in vivo models.
18. Be willing to travel to or attend national or international meetings, typically held annually

DESIRABLE CRITERIA:

1. Home Office personal licence
2. Research experience in:
 - Isolation and/or culture of vascular cells.
 - Assessment of nitric oxide, NOTCH, and related signalling pathways.
 - Determination of protein post-translational modification, in particular ubiquitination and Snitrosylation.
 - Simulating fluid shear stress conditions in EC using the Ibidi system or other.
 - Relevant in vitro and in vivo models (such as, proliferation, cell death, tube formation, EC/mural cell (Smooth Muscle or Pericyte) co-culture).
 - A range of cellular and molecular biology techniques (such as, qRT-PCR, manipulation of gene expression, western blotting, immunohistochemistry and imaging).
 - Computing skills in scientific software (such as Image Imaris, Prism or RNA-seq analysis).
 - Working with laboratory animals and relevant in vivo models, such as the Matrigel implant model.
3. High quality manuscript, report and abstract writing experience commensurate with career stage.
4. Experience teaching lab members as well as undergraduate lectures/tutorials/practicals
5. Research project management.
6. Up-to-date knowledge of vascular biology and/ or relevant signalling and disease related pathways.
7. Evidence of having presented at conferences (poster and/or oral presentations).
8. Long term goals in research.
9. Already have a Home Office personal licence or be prepared to work with animals and pass an animal licence training course.

ADDITIONAL INFORMATION:

Informal enquiries can be directed to Dr Aoife Rodgers (aoife.rodgers@qub.ac.uk)