Candidate Information

Position:	Research Fellow in Microbiome and Antimicrobial Resistance analysis, SBS
School/Department:	School of Biological Sciences
Reference:	24/111940
Closing Date:	Monday 24 June 2024
Salary:	£37,841 to £40,134 per annum
Anticipated Interview Date:	Thursday 4 July 2024
Duration:	22 months

JOB PURPOSE:

The School of Biological Sciences and Institute for Global Food Security at Queen's University Belfast is currently seeking to appoint an exceptional microbiologist with bioinformatics experience to the post of Research Fellow. The appointee will join the AMR & One Health Lab, a team of interdisciplinary researchers working in veterinary and human microbiology, animal science, and bioinformatics.

The successful candidate will primarily work within a multidisciplinary team undertaking research focused on unravelling the consequences of the withdrawal of prophylactic ZnO from pig diets on antimicrobial resistance (AMR), post-weaning diarrhoea (PWD) and the microbiome as part of a BBSRC funded project. The post holder will work with Dr. Linda Oyama, Prof Ilias Kyriazakis and Prof Chris Creevey and project partners based at The Roslin Institute, University of Edinburgh, Scotland's Rural College (SRUC), Animal and Plant Health Agency (APHA) UK and ABNeo to identify differences in structural and functional microbial communities within the intestine associated with ZnO supplementation. Such understanding will lead to the development of strategies that manipulate intestinal microbial communities in at-risk piglets. Using shotgun metagenomic sequencing from a farm trial, the post holder? will characterise the local microbiota and identify which consortia are associated with reduced PWD and better growth. They will use novel culturomics approaches to isolate beneficial microbes from ZnO-supplemented groups, to identify microbiota-based solutions which may be exploited to enhance resilience during weaning. The candidate will also provide additional assistance in project work, developing output related to assessing the impact of ZnO supplementation on the abundance, diversity and transmissible antimicrobial resistance genes in the gut microbiome by analysing faecal and ileal microbiomes. Priority will be given to candidates with research interests and expertise in bioinformatics, microbiology and animal science. Findings from this study will be shared with the relevant industry and stakeholders through knowledge exchange events.

MAJOR DUTIES:

1. To undertake research under supervision of the principal investigator and co-investigator within the specific research project.
2. Plan, execute and report on microbiological analysis related to project aims.
3. To implement and run the computational workflows necessary for understanding the microbial community profiles of gut microbiome samples associated with strategies for understanding antimicrobial resistance in farmed animals, especially in swine.
4. Design, develop and refine computation and analytical methodologies to obtain reliable data and data interpretation.
5. Carry out statistical analyses, critical evaluations, and interpretations using methodologies and other techniques appropriate to area of research.
6. Communicate orally and through e-mail effectively to line manager and other partners involved in the project.
7. Present regular progress reports on research to members of the research group or to external audiences to disseminate and publicise research findings.
8. Prepare, in consultation with project investigators, material for publication in high quality journals and presentations at international conferences.
9. Carry out routine administrative tasks associated with the research project/s to ensure that project/s?? are completed on time and within budget. These might include organisation of project meetings and documentation, financial control, risk assessment of research activities.

10. Carry out occasional undergraduate supervision, demonstrating or lecturing duties within the post holder's area of expertise and under the direct guidance of a member of academic staff.
11. Assist grant holders in the preparation of funding proposals and applications to external bodies.
12. Aid effective team working within the group led by the principal investigator.

ESSENTIAL CRITERIA:

1. Have or be about to obtain* a PhD in a relevant area (biological sciences, microbiology, animal science veterinary science). (*must be obtained within 3 months of commencement of employment)
2. Significant demonstratable research experience in computational approaches for the analysis of high-throughput DNA sequencing data from microbial communities including shotgun metagenomic and 16S rDNA microbiome analysis.
3. Experience in antimicrobial resistance surveillance and quantification research using genomic data.
4. Demonstratable experience in the use of Linux command-line systems for bioinformatics analyses.
5. Experience of using programming skills in appropriate languages and software e.g. R.
6. Experience of peer-reviewed publication in a relevant area of research.
7. Experience of presenting to the scientific community i.e., conference talks.
8. Experience of working in a team.
9. Ability to contribute to broader management and administrative processes.
10. Methodical approach to project management and meticulousness in regard to analytical procedures and record keeping.
11. Sufficient breadth and depth of specialist knowledge in the discipline and of research methods and techniques to work within established research programmes.
12. Ability to communicate complex information clearly.
13. Ability to assess and organise resources.
14. Demonstrable intellectual ability.
15. Irregular hours including evening, weekend and other out-of-hours work may be a component of the research at times.
16. Must be willing to travel to national and international meetings and collaborative laboratories as required on an ad-hoc basis.

DESIRABLE CRITERIA:

1. At least 3 years demonstratable research experience in anaerobic microbial culturing, biochemical phenotyping and molecular biology analysis.
2. Experience in the analysis of high-throughput DNA sequencing data for the purpose of identifying microbiome changes post intervention/treatment.
3. Experience in the sampling and analysis of gut microbial communities.
4. Experience of supervising undergraduates and/or postgraduate students.
5. Peer reviewed publications or preprints in the area of AMR and livestock microbiome research.
6. Knowledge of the challenges and approaches towards mitigating AMR burden and transmission in livestock.

ADDITIONAL INFORMATION:

Informal enquiries may be directed to Sharon Huws - s.huws@qub.ac.uk