



UNIVERSITY
of York

Research Associate in Mycobacterial Biochemistry & Microbiology

Department: Chemistry

Hours of work: Full time | 37 hours per week

Contract type: Fixed term until October 2028

Salary: Grade 6 | £37,694 - £46,049 per year



Introduction

The York Bioenergetics Lab (bioenergetics.site) works to understand how bacteria transduce energy to maintain themselves, grow, and power processes such as infection or biotransformation. The Lab is seeking a PDRA to further its research into *Mycobacterium tuberculosis* and the wider mycobacteria group. *M. tuberculosis* is the world's deadliest pathogen, causing devastating disease for which treatments are poorly tolerated and extended in duration; additionally, antibiotic resistance is growing. The position is funded as part of Professor Jamie Blaza's UKRI Future Leader fellowship project until October 2028.

The lab uses resonance Raman spectroscopy to measure the electron occupancy of cytochromes as they power cells *in vivo*, allowing the response of the cells to new bioenergetic-targeting antibiotics to be measured (e.g. Harrison et al., 2025, *Nature Communications*). Supporting spectroscopy, the lab uses extensive membrane protein biochemistry and cryo-EM.

The PDRA will continue our work leveraging our bioenergetic expertise to understand how mycobacteria are affected by new antibiotics such as Q203, bedaquiline, and derivatives. Several projects are now at an advanced state and ready to be progressed to completion.

The candidate will work in the collegial and supportive environment of the York Structural Biology Laboratory, a collection of 10 academic groups. They will be a member of the Department of Chemistry, known for its strength at the biology-chemistry interface and world-leading efforts in EDI.

Main purpose of the role

- To carry out research under the supervision of Professor Jamie Blaza to understand mycobacterial bioenergetics and how it is affected by new drugs against tuberculosis, such as bedaquiline
- To work as part of an effective research team carrying out wider work on a number of organisms and metabolic pathways.
- To assist in the identification and development of potential areas of research and the development of proposals for independent or collaborative research projects.

Key responsibilities

(Role holders will be required to undertake some or all of the duties below)

- To conduct individual and collaborative research projects, duties to include: analysis and interpretation of research data; use of appropriate research techniques and methods; writing up of research results and dissemination through publications, seminar and conference presentations and public engagement and outreach activities; contributing to the identification of possible new areas of research.
- To contribute to the preparation of research proposals and applications to external bodies.
- To undertake appropriate organisational and administrative activities connected to the research project, including conference organisation, and the development of promotional or educational material including website maintenance and development.
- To develop and initiate collaborative working internally and externally, duties to include: the building of internal contacts and participation in internal networks; collaboration with colleagues on joint projects as required; participation in and identification of external networks in order to share information and identify potential opportunities for collaboration and possible sources of funding; attendance at and contribution to relevant meetings.

- To provide guidance to other staff and students, as required, as well as coordinating the work of small research teams.
- To assist with undergraduate teaching in own area of expertise.
- All staff have a statutory responsibility to take reasonable care of themselves, others, and the environment and to prevent harm by their acts or omissions. All staff are therefore required to adhere to the University's Health, Safety & Emergency Procedures.

The above list of duties is not exhaustive and is subject to change. The post holder may be required to undertake other duties within the scope and grading of the post.

Person specification

	Essential / Desirable
Qualifications	
Undergraduate degree in biochemistry, microbiology, or related area	Essential
PhD in biochemistry, microbiology, related area or equivalent experience	Essential
Knowledge	
Knowledge in biochemistry & microbiology to engage in high quality research	Essential
Knowledge of bioenergetics	Essential
Knowledge of antibiotic action	Desirable
Skills, abilities and competencies	
Highly developed communication skills to engage effectively with a wide ranging audience, both orally and in writing, using a range of media	Essential
Ability to write up research work for publication and engage in public dissemination	Essential
Ability to develop research objectives, projects and proposals for own and joint research, with the assistance of a mentor if required	Essential
Competency to conduct individual and collaborative research projects	Essential
Ability to identify sources of funding and contribute to the process of securing funds, with collaborators if required	Essential
Ability to communicate research effectively	Essential
Competency to make presentations at conferences or exhibit work in other appropriate events	Essential
Experience	
Experience of carrying out both independent and collaborative research	Essential
Experience of writing up research work for publication	Essential
Ability to work as part of a team and also to work independently using own initiative	Essential

Experience of culturing and genetically modifying bacteria	Essential
Experience of protein purification	Essential
Experience of culturing and genetically modifying mycobacteria specifically	Desirable
Experience of membrane protein purification specifically	Desirable
Personal attributes	
Attention to detail and commitment to high quality	Essential
Collaborative ethos	Essential
Interest in and enthusiasm for the subject matter of the project(s)	Essential
Positive attitude to colleagues and students	Essential
Willingness to work proactively with colleagues in other work areas/institutions	Essential
Ability to plan and prioritise own work in order to meet deadlines, including using initiative to plan research programmes	Essential
Commitment to personal development and updating of knowledge and skills	Essential
Commitment to the values of equality, diversity and inclusion	Essential