



UNIVERSITY
of York

Research Associate

- Department:** Biology
- Hours of work:** Full-time, 37 hours per week
- Contract type:** Fixed-term, 36 months
- Salary:** Grade 6, £36,024 - £44,263 per year



Introduction

A full-time postdoctoral research position is available immediately on a fixed term basis for 36 months, to characterise signalling pathways that regulate autophagy, lysosome exocytosis and biomolecular condensates during the lifecycle differentiation and host adaptation of the African trypanosome *T. brucei*. The successful applicant will join a team of researchers in the York Biomedical Research Institute investigating cellular processes in parasites that cause African trypanosomiasis. The position is funded by a MRC Career Development Award to [Dr. Mathieu Cayla](#) who will manage the post.

Our laboratories provide a supportive and collaborative environment in which the PDRA can expand their range and learn new techniques. The Department of Biology is renowned internationally for its research, including biomedical research within the [York Biomedical Research Institute](#). We strive to provide a working environment which allows all staff and students to contribute fully, flourish, and excel. We aim to ensure that there is a supportive and egalitarian culture across all staff, groups and levels. We promote good practice and a strong culture of equality in higher education. Further information can be found on our [website](#).

Main purpose of the role

- To conduct research under the supervision of senior colleagues and to contribute to the production of research
- To assist in the identification and development of potential areas of research and the development of proposals for independent or collaborative research projects

The project aims to reveal how phosphorylation controls autophagy, biomolecular condensates and to characterise the molecular crosstalk between autophagy, lysosome exocytosis and differentiation in *T. brucei*. This will require the use of a wide range of different techniques such as high-throughput live imaging, gene silencing screens, mass spectrometry and murine infection models. Results obtained will provide critical understanding on the molecular composition and regulation of these pathways in *T. brucei* and their roles in differentiation during the parasite's lifecycle.

The experienced PDRA should have a PhD in Molecular Biology, Cell Biology or Microbiology. The PDRA will bring expertise in standard molecular biology, -omics analysis and imaging techniques. In more details, the PDRA should be able to handle pathogens of class 2, and have prior experience with techniques such as sequencing, proteomics data analysis; super resolution microscopy and/or live imaging; and CRISPR/Cas9 mediated precision editing.

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. In detail, this project will entail:

- Validation of high-throughput live imaging system combined with a gene silencing screen of protein kinases
- Autophagy-related proximity labelling, phospho-proteomic and mass spectrometry analysis
- Assays of protein interaction and enzyme activity using biophysical and biochemical approaches
- Generation of mutant cell lines by CRISPR/Cas9 mediated precision editing and phenotypic validation in vitro and in murine model
- Biomolecular condensate mRNA purification, Nanopore sequencing and analysis
- 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 others duties within the scope and grading of the post.

Person specification

	Essential / Desirable
Qualifications	
Undergraduate degree in Biological / Biomedical Sciences or related area	Essential
PhD in Molecular Biology, Cell Biology, Microbiology or equivalent experience	Essential
Knowledge	
Knowledge in molecular parasitology and associated techniques	Essential
Knowledge of a range of research techniques and methodologies	Essential
Has research expertise in an area that will complement and enhance the department's research strategy and goals	Essential
Strong understanding of concepts of cellular differentiation, signalling and protein kinases	Desirable
Knowledge of either C++, Python and/or R	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 in high profile journals 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
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 in murine infection/handling, cell and/or tissue culture and class 2 pathogens handling	Desirable

Experience in molecular cloning and gene editing	Desirable
Experience with -omics and super resolution microscopy and/or live imaging techniques	Desirable
Personal attributes	
Attention to detail and commitment to high quality	Essential
Collaborative ethos	Essential
Interest in and enthusiasm for the subject 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