UNIVERSITY OF LEICESTER

Job Summary

Job Title: Research Assistant
Grade: 6
Salary: £33,662 to £38,448, pro rata (0.9 FTE)
Department: Division of Molecular and Cell Biology / LISCB, School of Biological and Biomedical Sciences
Hours/Contract: 33.75 hours per week (0.9 FTE); fixed term for 12 months
Job Family: Teaching & Research
Reference: 14242

Role Purpose

To carry out research into X chromosome inactivation (XCI) and X-linked gene regulation in embryonic stem cells as part of a Wellcome-funded project led by Dr Yolanda Markaki.

Resources Managed

No budgetary or line management responsibilities. Responsible for the appropriate use of laboratory equipment, consumables, microscopy and high-performance computing resources, and may provide day-to-day guidance to project students.

Main Duties and Responsibilities
• To carry out analyses, tests and critical evaluations using agreed techniques, novel approaches and/or models including; • Culture, maintain and differentiate human pluripotent (embryonic) stem cells, using established differentiation models to study the onset and maintenance of X chromosome inactivation. • Carry out RNA FISH, immunofluorescence and super-resolution fluorescence microscopy, and quantify the imaging data using Fiji. • Develop and apply RNA-seq workflows in a high-performance computing environment, including read alignment, BAM processing, variant calling and allele-specific expression analysis. • Carry out differential expression analysis and X-linked gene annotation, and combine the transcriptomic data with published XCI classifications, genomic position and transcription factor information, using R and reproducible workflows. • Record, analyse and interpret results; present findings at lab meetings and conferences; and contribute to publications and reports to the funder. • Keep accurate laboratory and data records in line with data management and health and safety requirements, give day-to-day guidance to project students, and carry out other duties appropriate to the grade. • To contribute to the development or choice of techniques, critiques, approaches, models and research methods. • To summarise findings, record, and disseminate where appropriate to members of the research group • To contribute to research outputs such as co-authored journal articles/technical papers/book chapters relating to the work • To carry out literature searches within pre-specified parameters. • To assist in supporting research students in the use of specific methods or approaches under the direction of their line manager.

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Professional Development:

- Duties and opportunities to engage in work that support your own professional development.

Impact and Knowledge Exchange:

- Participate in workshops and conferences to support the dissemination of research findings.

Leadership and Citizenship:

- Contribute to the overall success of the research programme

Internal and External Relationships

- Internal: the Principal Investigator, members of the research group, colleagues in the Division of Molecular and Cell Biology and LISCB, and staff of the University imaging and high-performance computing facilities.
- External: collaborators at other institutions, the funder (Wellcome) and the wider research community, including at conferences and meetings.

Planning and Organising

Plan own experimental and computational work on a weekly and monthly basis, under the direction of the Principal Investigator.
Balance laboratory and computational work to meet project milestones within the 12-month contract.
Organise and document data and analysis workflows so that results are reproducible.

Qualifications, Knowledge and Experience

Essential

- MSc in Bioinformatics*
- Experience of culturing embryonic stem cells and working with differentiation models*
- Experience of RNA FISH, immunofluorescence and advanced fluorescence microscopy, and of image analysis using Fiji*
- Experience of developing and applying RNA-seq workflows to study X chromosome inactivation and X-linked gene regulation in human pluripotent stem cells*
- Experience of using high-performance computing environments for read alignment, BAM processing, variant calling and allele-specific analysis*

Desirable

- Experience of presenting research findings, for example through publications, posters or talks

Skills, Abilities and Competencies

Essential

- Skilled in differential expression analysis, X-linked gene annotation and allele-specific expression analysis
- Able to combine transcriptomic data with published XCI classifications, genomic position and transcription factor information
- Proficient in R, statistical analysis and reproducible bioinformatics workflows for large transcriptomic datasets
- Good written and verbal communication skills, and the ability to work independently and as part of a team

Desirable

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- Experience of workflow managers (e.g. Snakemake or Nextflow) and version control (e.g. Git)

**Criteria to be used in shortlisting candidates for interview*

Reason for Fixed Term Contract

The reason for the fixed term contract is stated in section 1.9 in the summary of contractual terms in your contract of employment.

Criminal Declaration

If you become an employee, you must inform your manager immediately, in writing, if you are the subject of any current or future police investigations/legal proceedings, which could result in a criminal offence, conviction, caution, bind-over or charges, or warnings.

Supporting University Activities

As a University of Leicester citizen, you are encouraged to support key university activities such as clearing, graduation ceremonies, student registration and recruitment open days. We encourage all staff as citizens to work flexibly across the University if required. If supporting these activities is likely to affect your workload, please speak to your line manager in the first instance

University Values

Inclusive - We are diverse in our makeup and united in ambition. Our diversity is our strength and makes our community stronger.

Inspiring - We are passionate about inspiring individuals to succeed and realise their ambitions. We challenge our community to think differently, to get involved, and to constantly embrace new ideas.

Impactful - As Citizens of Change we will generate new ideas which deliver impact and empower our community

Freedom of Speech

The University is committed to upholding freedom of speech and academic freedom within the law throughout our recruitment processes. We ensure that all candidates are considered based on merit and suitability for the role, without regard to their lawful viewpoints or the expression of challenging or controversial ideas. Our recruitment policies and practices are designed to protect applicants from discrimination or adverse treatment on the basis of their opinions, and to foster an environment where open debate and diverse perspectives are valued as essential to our academic mission.

Equity and Diversity

We believe that equity, diversity and inclusion is integral to a successful modern workplace. By developing and implementing policies and systems that challenge stereotypes across all aspects of our work, we have a culture that recognises and values the diverse contributions of our staff which benefits everyone. Our strong values of inclusivity and equality support our efforts to attract a diverse range of

high quality staff and students, and identify our University as a progressive and innovative workplace that mainstreams equality, diversity and inclusion.