UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow in Structural Biology, Faculty of Biological Sciences

Salary: Grade 7 (£35,333 – £42,155 p.a.). Due to funding limitations, it is unlikely an appointment will be made above £39,745.

Reference: FBSMB1248

Available on a full-time fixed-term basis for 3 years, with a latest possible end date of 28 Feb 2026.

This role will be based on the university campus, with scope for it to be undertaken in a hybrid manner. We are also open to discussing flexible working arrangements.

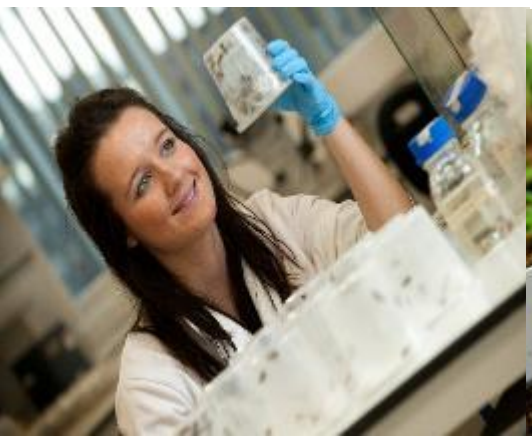
Research Fellow in Structural Biology
School of Molecular and Cellular Biology

Are you an ambitious researcher looking for your next challenge? Do you have an established background in structural biology? Do you want to further your career in one of the UKs leading research intensive Universities?

We are looking for an outstanding postdoctoral research fellow to join the Fontana and Calabrese labs at the University of Leeds. The fellow will be part of a large team (£5.7M, funded by a BBSRC Strategic Longer and Larger grant). The team aims to unravel the 'ribosome code', rules that explain how compositionally dissecting ribosomes enable translation of specific sets of mRNA. Specifically, the Research Fellow in Structural Biology will focus on the structural characterisation of the different ribosomes that we will purify during the project. This will include isolating specialised ribosomes from a variety of organisms, and structurally characterising these ribosomes by cryo-electron microscopy and structural mass spectrometry. This will be possible by taking advantage of the state-of-the-art equipment available at the Astbury Biostructure Laboratory (ABSL), which includes: two Titan Krios microscopes, equipped with Falcon 4 and Selectris Falcon 4 direct electron detectors; an Orbitrap Ultra-High Mass Range mass spectrometer (for native mass spectrometry of intact ribosomes); and a Orbitrap Eclipse mass spectrometer (for cross-linking mass spectrometry). We anticipate that by understanding the structure of different specialised ribosomes, by exploiting our combined cryo-EM and mass spectrometry toolkit, we will be able to dissect conserved mechanisms of ribosome specialisation across eukaryotes, allowing us to unravel the 'ribosome code'.

You must have a PhD (or close to completion) in RNA, translation, structural biology or a closely allied discipline; and experience in either cryo-electron microscopy or mass spectrometry applied to the structural characterisation of macromolecules. You should also be willing to learn the other structural technique as the project will involve the use of both approaches.

The University of Leeds and the Faculty of Biological Sciences are committed to providing equal opportunities for all and offer a range of family friendly policies. The University is a charter member of Athena SWAN (the national body that promotes gender equality in higher education), and the Faculty of Biological Sciences was awarded a Silver award in 2020. We are proud to be an inclusive Faculty that values



all staff, and are happy to consider job share applications and requests for flexible working arrangements from our employees. Our Athena SWAN webpage provides more information.

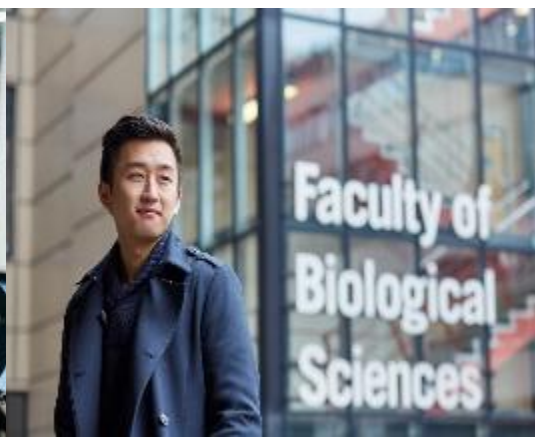
What does the role entail?

As a Research Fellow your main duties will include:

- Designing, planning and conducting a programme of investigation, in consultation with Dr Juan Fontana and Dr Anton Calabrese; as well as the full project team led by Dr Julie Aspden;
- Generating independent and original research ideas and methods in ribosome structure using a combination of both cryo-EM and structural MS with an aim to extend the specialised ribosomes research portfolio of the team;
- Contributing to scientific discussions within the research team during group meetings, journal clubs and project meeting;
- Keeping up-to-date with relevant literature and attending seminars;
- Making a significant contribution to the dissemination of research results by publication in leading peer-reviewed journals, and by presentation at national and international meetings;
- Working independently and as part of a larger team of researchers, both internally and externally, to develop new research links and collaborations and engage in knowledge transfer activities where appropriate;
- Contributing to the supervision of junior researchers and PhD students and acting as a mentor to less experienced colleagues;
- Evaluating methods and techniques used and results obtained by other researchers and relating such evaluations to your own research;
- Contributing to, and encouraging, a safe working environment.

These duties provide a framework for the role and should not be regarded as a definitive list. Other reasonable duties may be required consistent with the grade of the post.





What will you bring to the role?

As a Research Fellow you will have:

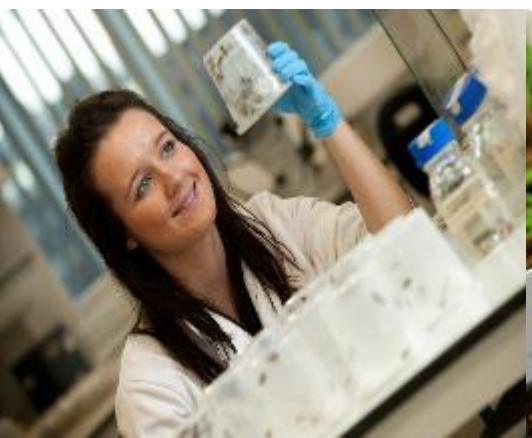
- A PhD (or close to completion) in RNA, translation, structural biology or a closely allied discipline;
- Experience in either cryo-electron microscopy or mass spectrometry applied to the structural characterisation of macromolecules and an interest in integrative structural biology;
- Strong analytical skills and aptitude for problem solving;
- The ability to design, execute and write up research independently;
- A developing track record of peer reviewed publications in international journals;
- Excellent communication skills, both written and verbal, and the ability to communicate your research at national and international conferences;
- Good time management and planning skills, with the ability to meet tight deadlines;
- A proven ability to work well both independently and as part of a team;
- Ability to work accurately and carefully;
- A strong commitment to your own continuous professional development.

You may also have:

- Experience in ribosome purification and/or in mRNA translation;
- Experience in cell culture, virus infections, *Drosophila melanogaster* husbandry, or growing *Arabidopsis thaliana*;
- Drive to pursue cutting-edge research in the field of ribosome structure using a range of approaches;
- An interest in mRNA translation;
- Evidence of pursuing external funding to support research;
- Experience in public engagement and/or outreach.

How to apply

You can apply for this role online; more guidance can be found on our How to Apply information page. Applications should be submitted by **23.59** (UK time) on the advertised closing date.



Your application should include:

- A supporting statement providing evidence to support each requirement listed on the 'What will you bring to the role' section of the Candidate Brief (no more than two sides of A4, minimum font size 11);
- An academic curriculum vitae, including a list of your publications.

Contact information

To explore the post further or for any queries you may have, please contact:

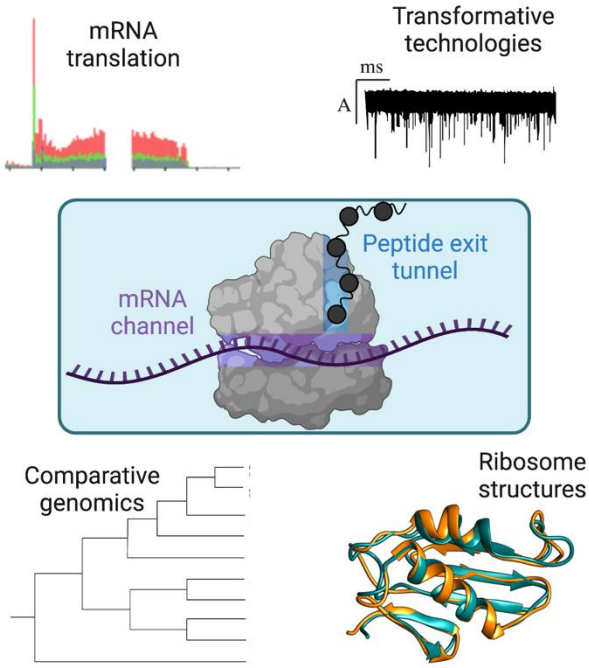
Dr Juan Fontana, Associate Professor
Tel: +44 (0)113 343 34170
Email: j.fontana@leeds.ac.uk

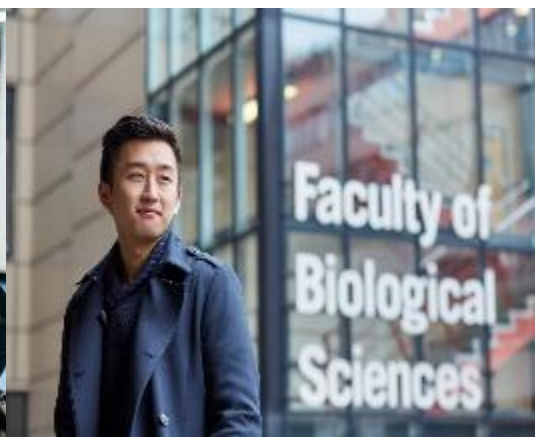
Please note: If you are not a British or Irish citizen, from 1 January 2021 you will require permission to work in the UK. This will normally be in the form of a visa but, if you are an EEA/Swiss citizen and resident in the UK before 31 December 2020, this may be your passport or status under the EU Settlement Scheme.

Additional information

Background

Recent discoveries, across a wide range of eukaryotes, have identified 'specialised ribosomes' – compositionally distinct ribosomes that actively regulate mRNA translation. Unravelling the structural implications of differential ribosome composition and linking this to translational outputs has been technically challenging, limiting our understanding of the molecular mechanisms that drive ribosome specialisation. Additionally, analysis has been restricted to single organisms. This project aims to overcome these barriers with an innovative, multidisciplinary and multi-system, evolutionary strategy to dissect molecular mechanisms of ribosome specialisation.





Project

Overall, we aim to understand the detailed molecular mechanisms of ribosome specialisation and determine common features across eukaryotes. We will study ribosome specialisation from an evolutionary, functional (translational outcome) and structural perspective (see Figure), using different eukaryotic model systems (yeast, *Drosophila*, *Arabidopsis,* human cells) that cover >1 billion years of evolution. We will also develop novel tools, including nanopore- based approaches to characterise specialised ribosomes in single cells.

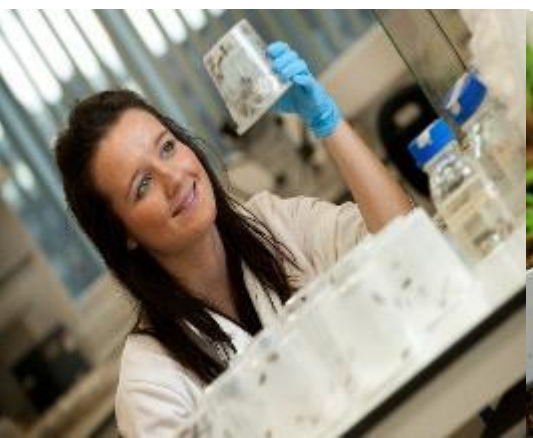
Together this programme of research will allow us to unravel precisely how heterogeneity results in specialisation, and to define a 'ribosome code' applicable to all eukaryotes. It will build upon recent work across the team on ribosome heterogeneity, specialisation and mRNA translational control. Our findings have the potential to impact our understanding of several human diseases, including ribosomopathies, cancers and viral infection, and enable the modulation of ribosome translation in future medical, agricultural and biotechnological applications.

What we can offer you

This position represents a unique opportunity to be involved in a highly collaborative, interdisciplinary project. Working as part of a team of 7 postdocs, 5 PhD students, 3 research technicians, 2 data scientists and 8 group leaders, across 3 universities (Leeds, Nottingham and Sheffield), you will have the opportunity to develop excellent skills in communication, teamwork and collaboration. A position on this team will expose you to a range of technical expertise including but not limited to cryo-electron microscopy, mass spectrometry, ribosome profiling, comparative genomics, CRISPR, and nanopore technology. Extensive training opportunities will be available, and you will be embedded within bouyant research communities (e.g. LeedsOmics, Astbury Centre, RNA Salon).

Environment

We are passionate about fostering a supportive, responsible, and inclusive research culture. Equity, diversity, and inclusion (EDI) are central to how the team operates, and the team will play active roles in EDI activities across the 3 universities. Development opportunities for a range of career avenues (e.g. CV writing workshops,



presentation training, meet industrial representatives, fellowship writing) will be available. Mentoring will be provided and tailored to your career goals.

Find out more about:

- The Fontana and Calabrese labs.
- Astbury Centre for Structural Molecular Biology.
- LeedsOmics.
- Faculty of Biological Sciences.
- School of Molecular and Cellular Biology.
- Our Research and associated facilities.
- Our Faculty Equality and inclusion and Inclusion initiatives.

At the University of Leeds, we are committed to providing a culture of inclusion, respect and equity of opportunity that attracts, supports, and retains the best students and staff from all backgrounds. Whatever role we recruit for we are always striving to increase the diversity of our community, which each individual helps enrich and cultivate. We particularly encourage applications from, but not limited to Black, Asian, people who belong to a minority ethnic community; people who identify as LGBT+; and disabled people. Candidates will always be selected based on merit and ability.

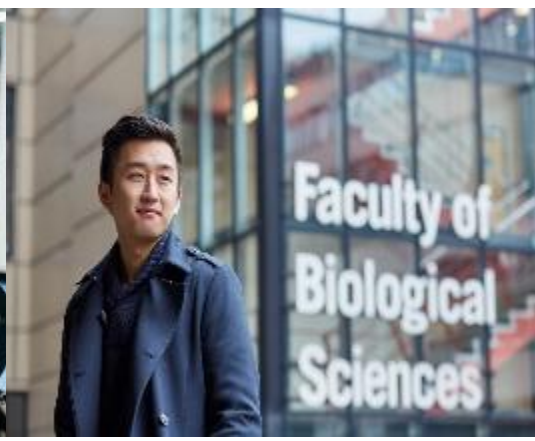
Working at Leeds

We are a campus-based community and regular interaction with campus is an expectation of all roles in line with academic and service needs and the requirements of the role. We are also open to discussing flexible working arrangements. To find out more about the benefits of working at the University and what it is like to live and work in the Leeds area visit our Working at Leeds information page.

Candidates with disabilities

Information for candidates with disabilities, impairments or health conditions, including requesting alternative formats, can be found on our Accessibility information page or by getting in touch with us at disclosure@leeds.ac.uk.





Criminal record information

Rehabilitation of Offenders Act 1974
A criminal record check is not required for this position. However, all applicants will be required to declare if they have any ‘unspent’ criminal offences, including those pending.

Any offer of appointment will be in accordance with our Criminal Records policy. You can find out more about required checks and declarations in our Criminal Records information page.