



UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow in Protein Chemistry / Biological Mass Spectrometry, Astbury Centre for Structural Molecular Biology, Faculty of Biological Sciences



Salary: Grade 7 (£33,797 – £40,322 p.a.) Due to funding limitations it is unlikely an appointment will be made above £36,914.

Reference: FBSAS1037

Fixed-term for 3 years (due to funding)

We will consider flexible working arrangements

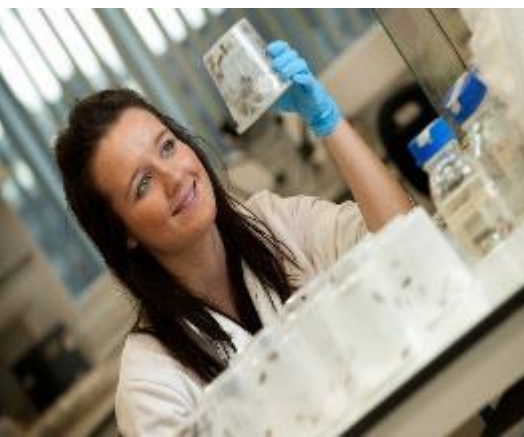
Research Fellow in Protein Chemistry / Biological Mass Spectrometry

Astbury Centre for Structural Molecular Biology, School of Molecular and Cellular Biology

Are you an ambitious researcher looking for your next challenge? Do you have an established background in Protein Chemistry, Structural Mass Spectrometry or Biophysics? Do you want to further your career in one of the UKs leading research intensive Universities?

Biomolecular condensates are multicomponent structures comprised of specific repertoires of proteins/RNA, and are formed via liquid-liquid phase separation (LLPS). They play key roles in organising cells, signalling, stress and viral factory formation, whilst aberrant LLPS is associated with several neurodegenerative diseases (e.g. motor neurone disease and dementia). Biomolecular condensates are heterogeneous and dynamic, making it challenging to elucidate their composition, structure and biogenesis. We are looking for a postdoctoral research fellow to join a team of researchers investigating the mechanisms by which biomolecular condensates form using a combination of structural mass spectrometry (including native mass spectrometry, covalent footprinting, chemical crosslinking and hydrogen-deuterium exchange), proteomics, biochemistry, biophysics and cell biology. Overall, we aim to develop and deploy a toolkit of methods to interrogate the formation of biomolecular condensates both in vitro and in cell.

This project focuses on studying the conformational dynamics, protein-protein and protein-nucleic acid interactions that underlie LLPS and aberrant phase transitions and has two key foci. First, we aim to reveal the molecular grammar underlying the formation of viral replication factories, using Rotaviruses as a model system, in order to identify key weaknesses in the viral factory assembly pathway that could be targeted by new antiviral therapies [this builds on our previous work (Bravo et al., *Nucleic Acids Research*, 46, 2018, 7924–7937; Bravo et al., *bioRxiv* 2020.10.26.354233)]. Secondly, we aim to reveal the mechanism by which liquid-to-solid phase transitions occur by the protein TDP-43. Intracellular TDP-43 deposits are associated with neurodegenerative diseases including motor neurone disease and dementia, and understanding the molecular details of TDP-43 phase separation and aggregation is key to elucidating disease mechanisms and identifying therapeutic targets.



You will be based in the laboratory of Dr Antonio Calabrese (Sir Henry Dale Fellow), and will work closely with collaborators at Leeds, across the UK and internationally. You will have a PhD (or be close to completion) in Chemistry, Biochemistry, Biophysics or a related discipline. You will have an interest in analytical techniques, and whilst some mass spectrometry experience would be an advantage, training will be provided.

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 Antonio Calabrese](#);
- To study biomolecular condensate formation using structural proteomics methods;
- To use other biophysical methods, where appropriate, including fluorescence, CD or NMR, to monitor protein interactions, dynamics and conformations;
- The development and application of in-cell structural proteomics methods;
- 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;
- Keeping up to date with recent advances in fields of research associated with the project;
- 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;
- To contribute to, and to encourage, 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 Biochemistry, Chemistry, Physics, Biophysics or a closely allied discipline;
- Knowledge of recombinant protein production methods;
- Previous experience of applying different analytical/biophysical techniques to the study of protein structure, protein interactions and/or protein folding. These could include any of the following: mass spectrometry, CD, fluorescence, multi-angle laser light scattering, SPR, AUC, NMR, X-ray crystallography;
- Experience of successful collaborations and team working;
- Good data management, analytical and computer skills;
- The ability to design, execute and write up experimental work independently as well as a proven ability to work effectively and responsibly without close supervision;
- Ability to work well both independently and as part of a team;
- 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;
- A strong commitment to your own continuous professional development.

You may also have:

- Practical experience in structural proteomics;
- Experience in using cell biological assays using cell lines or primary cells;
- Experience in structural modelling.

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 Antonio Calabrese](#), Sir Henry Dale Fellow and University Academic Fellow

Email: a.calabrese@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

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.

Find out more about the [Astbury Centre for Structural Molecular Biology](#), the [Faculty of Biological Sciences](#) and the [School of Molecular and Cellular Biology](#). More information about the Calabrese lab can be found at <https://www.calabreselab.com>.

Working at Leeds

Find out more about the benefits of working at the University and what it is like to live and work in the Leeds area on 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.

