



UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow in the Structural Biology of Protein-Protein Interaction Modulators, Faculties Engineering and Physical Sciences, and, Biological Sciences



Salary: Grade 7 (£33,797– £40,322 p.a.) Due to funding restrictions an appointment will not be made above £35,845 p.a

Reference: EPSCH1035

Closing date: Monday 14th June 2021

Fixed-term for 3 years

We will consider job share / flexible working arrangements

Research Fellow in the Structural Biology of Protein-Protein Interaction Modulators

Schools of Chemistry and of Molecular and Cellular Biology

Are you an ambitious researcher looking for your next challenge? Do you have an established background in structural biology? Are you interested in synthetic biology, protein-protein interactions and targeted degradation? Do you want to further your career in one of the UKs leading research intensive Universities?

Protein-protein interactions (PPIs) regulate virtually all biological processes. Therefore, methods and reagents that intervene in and modulate PPIs are critical to improve our understanding of cellular processes and for developing treatments of diseases of unmet medical need. As a Research Fellow in Structural Biology you will join a BBSRC-funded team focused on exploiting supramolecular peptide assembly to generate modules that regulate PPIs in new ways. The research will use the diversity of available and possible *de novo* coiled coils (CCs) as scaffolds for new PPI modules. We will explore two applications of this technology: (i) the disruption of endogenous PPIs to effect downstream changes to the processes that they are involved in; and (ii) the formation of new PPIs to target specified proteins for degradation and to couple these to the intracellular ubiquitination machinery. You will assist the Investigators in delivering this research programme by determining ternary structures of protein complexes and coiled-coil based protein-protein interaction modulators, as well as understanding binding modes and affinities using a variety of biophysical techniques.

The post is associated with a £1.7 million 42-month collaborative research programme led by [Professor Andy Wilson](#), funded by the [Biotechnology and Biological Sciences Research Council \(BBSRC\)](#), and bringing together the [University of Leeds](#), the [Woolfson group](#) (University of Bristol), and [Itzhaki group](#) (University of Cambridge). This large and diverse programme focuses on *Coiled-coil Technology for Regulating Intracellular Protein-protein Interactions*.

You will be part of a large team based in [The Wilson](#), and [The Edwards](#) groups in the [School of Chemistry](#), the [School of Molecular and Cellular Biology](#) and the [Astbury Centre for Structural Molecular Biology](#) with access to a superb infrastructure for research in structural biology, including protein production facilities, crystallization



robotics, NMR equipment including a 950 MHz Bruker Ascend Aeon NMR magnet, mass spectrometry and instrumentation for biophysical analyses.

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 Prof. Andy Wilson, Dr Thomas Edwards and the wider collaborative team of investigators;
- Generating and pursuing independent and original research ideas and for the analysis and modulation of protein-protein interactions using coiled coils;
- Developing research objectives and proposals and contributing to setting the direction of the research project and team;
- Making a significant contribution to the dissemination of research results by authoring publications in leading peer-reviewed journals, by presentation at national and international meetings, and by participating in our programme of public engagement activities;
- 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, including secondments to other institutions where appropriate;
- Supporting research activities and communication, through participation at group meetings/seminars, 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 supporting diversity and inclusion.

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 structural biology or a closely allied discipline;



- Exceptional technical skills and track record in generating new protein constructs, recombinant protein expression and purification, biophysics (e.g. fluorescence anisotropy, isothermal titration calorimetry or surface plasmon resonance), structural biology and protein crystallography applied to protein-ligand and protein-protein interactions;
- Exceptional background knowledge of contemporary research in Structural and Chemical Biology;
- The ability to design, execute and write up research accurately, carefully and independently;
- Excellent communication skills, both written and verbal and the ability to communicate your research at national and international conferences;
- A proven ability to work well both independently and as part of a team, with a strong commitment to research in a team environment, together with a demonstrable interest in cutting-edge approaches to develop new tools to modulate protein-protein interactions e.g. stabilizers and/or degraders;
- A high level of organisational, planning, communication and self-management skills, with the ability to work effectively under pressure to support a range of different work streams/projects simultaneously, understand the links between them, and retain a clear focus on outcomes/deadlines;
- Evidence of practical experience in multidisciplinary research;
- A developing track record of peer-reviewed publications in internationally leading journals;
- A strong commitment to your own continuous professional development;

You may also have:

- Experience of synthetic biology
- Experience of pursuing external funding to support research;
- Experience of using structural biology to support the development of inhibitors or degraders;
- Practical experience in cell culture and cell-based assays;
- Experience of public communication and engagement.

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.

The interview will involve a scientific discussion about the project and as such we recommend that you familiarise yourself with recent publications relevant to the project.

Contact information

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

Andrew Wilson, Professor of Organic Chemistry

Tel: +44 (0)113 343 1409

Email: A.J.Wilson@leeds.ac.uk

Additional information

Recent published research articles relevant to the project includes:

Z. Hegedüs, F. Hobor, D. K Shoemark, L.-Y. Lian, C. Trinh, R. B. Sessions, T. A. Edwards, A. J. Wilson: [*Identification of \$\beta\$ -Strand Mediated Protein-Protein Interaction Inhibitors Using Ligand-Directed Fragment Ligation*](#), *Chem. Sci.*, **2021**, 12, 2286-2293.

J. A. Miles, F. Hobor, C. H, Trinh, J. Taylor, C. Tiede, P. R. Rowell, B. R. Jackson, F. A. Nadat, P. Ramsahye, H. F. Kyle, B. I. M. Wicky, J. Clarke, D. C. Tomlinson, A. J. Wilson, T. A. Edwards: [*Selective Affimers Recognize the BCL-2 Family Proteins BCL-xL and MCL-1 through Non-Canonical Structural Motifs*](#), *ChemBioChem*, **2021**, 22, 232-240.

A. A. Ibarra, G. J. Bartlett, Z. Hegedüs, S. Dutt, F. Hobor, K. A. Horner, K. Hetherington, K. Spence, A. Nelson, T. A Edwards, D. N. Woolfson, R. B. Sessions, A. J. Wilson: [*Predicting and Experimentally Validating Hot-spot Residues at Protein-Protein Interfaces*](#), *ACS Chem. Biol.*, **2019**, 14, 2252-2263.

J. M. Fletcher, K. A. Horner, G. J Bartlett, G. R. Rhys, A. J. Wilson, D. N. Woolfson: [*De novo coiled-coil peptides as scaffolds for disrupting protein-protein interactions*](#), *Chem. Sci.*, **2018**, 9, 7656-7665.



J. A. Miles, D. J. Yeo, Philip Rowell, S. Rodriguez-Marin, C. M. Pask, S. L. Warriner, T. A. Edwards, A. J. Wilson: [*Hydrocarbon Constrained Peptides – Understanding Preorganization and Binding Affinity*](#), *Chem. Sci.*, **2016**, 7, 3694-3702.

Find out more about the:

- [School of Chemistry](#);
- [School of Molecular and Cellular Biology](#)
- [Astbury Centre](#) for Structural Molecular Biology, their [research](#) and associated [facilities](#);
- [Faculty of Engineering and Physical Sciences](#);
- [Faculty of Biological Sciences](#)
- University [libraries](#), [journal](#) and [database](#) subscriptions.

A diverse workforce

The Schools in the Faculty of Engineering & Physical Sciences are proud to have been awarded the Athena SWAN [Bronze](#) or [Silver](#) Award from the Equality Challenge Unit, the national body that promotes equality in the higher education sector. Our [equality and inclusion webpage](#) provides more information.

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.

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.

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.

