



UNIVERSITY OF LEEDS

## CANDIDATE BRIEF

Research Fellow in Artificial Cell Engineering,  
Faculty of Engineering and Physical Sciences



**Salary: Grade 7 (£39,105 – £46,485 p.a.)** Due to funding restrictions, an appointment will not be made higher than £40,247 p.a.

**Reference: EPSCH1115**

**Closing date: Monday 03 February 2025**

**Fixed-term until 31 July 2027**

**We are open to discussing flexible working arrangements**

## Research Fellow in Artificial Cell Engineering, School of Chemistry.

**Are you a creative and resourceful researcher looking for your next challenge? Do you have a background in engineering and characterising biomimetic membranes and vesicles? Would you like to be part of an international multidisciplinary project and spend part of your time on secondment with project partners in Japan?**

We are looking for an enthusiastic and team-oriented researcher to join an international collaborative project to engineer artificial cells to act as highly sensitive and robust biosensors for diagnosis of pathogen infections. Your specific role will be to lead on the development and optimisation of methods for artificial cell assembly and functionalisation. In particular, you will optimise the design of transmembrane signalling modules that communicate the detection of pathogen biomarkers in the external environment to internal biomolecular signalling pathways. You will be proactive and self-motivated in contributing to the co-creation of innovative artificial cell tools and technologies within the project team to achieve our collective research goals.

You will be expected to work closely with other members of the multidisciplinary team to integrate the different components of the artificial cell design to achieve a functional biosensor. We will then work with clinical research scientists to further optimise their design for use in a clinical laboratory setting. The wider project team includes a second Research Fellow and a PhD student based at the University of Leeds and two further Research Fellows and a PhD student based in Japan.

You will be required to spend at least 9 months, across multiple visits, working at partner institutes in Japan ([RIKEN](#) and [JAMSTEC](#)) to enable knowledge transfer and integration of the synthetic parts for construction of artificial cell biosensors. The grant funding includes a budget to cover your living costs while on secondment. You will be expected to participate in engagement activities with wider stakeholders, including the general public and clinicians. The role will offer a range of opportunities for professional and career development as well as networking with the wider synthetic cell community through participation in national and international conferences and workshops.





## What does the role entail?

As a Research Fellow, your main duties will include:

- Developing methods for artificial cell assembly, encapsulating functional biomolecular systems and functionalising the membrane with transmembrane signalling machinery;
- Optimising the design of the transmembrane signalling modules for robust and sensitive detection of pathogens and their toxins;
- Working closely with other members of the team to effectively integrate a range of biomolecular tools and technologies to create functional artificial cells;
- Working on secondment with project partners in Japan for extended periods totalling at least 9 months during the project;
- Co-developing and participating in public and patient engagement activities and contributing to the wider responsible innovation activities of the project;
- Keeping accurate and detailed laboratory records of your work and ensuring responsible data management for data security and the wider usability of datasets within the project team;
- Generating and pursuing independent and original research ideas in the appropriate subject area;
- Developing future research objectives and proposals and contributing to setting the direction of the research project and team including preparing proposals for funding in collaboration with colleagues;
- Evaluating methods and techniques used and results obtained by other researchers and to relate such evaluations appropriately to your own research;
- 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;
- Maintaining your own continuing professional development and acting as a mentor to less experienced colleagues as appropriate;
- Contributing to the training of both undergraduate and postgraduate students, including assisting with the supervision of projects in areas relevant to the project.



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 have submitted your thesis before taking up the role) in chemistry, biochemistry, biophysics, bio/chemical engineering or a closely allied discipline;
- A strong background in biomolecular sciences, biophysical characterisation techniques and molecular self-assembly;
- Experimental expertise in the assembly and characterisation of biomimetic membranes or vesicles, including encapsulation of functional biomolecules and/or functionalisation of the membranes;
- Experience of quantitative optical microscopy methods (e.g. confocal fluorescence microscopy) for characterisation of soft or biological materials;
- The flexibility to spend significant periods of time on secondment at project partners in Japan (expected to total 9 months over the course of the project);
- The ability to keep accurate and detailed laboratory records and undertake responsible data management and curation for sharing within a wider project team;
- Good time management and planning skills, with the ability to meet tight deadlines and manage competing demands effectively without close support;
- 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;
- A proven ability to work well both independently and in a team;
- A strong commitment to your own continuous professional development.



You may also have:

- Experience of pursuing external funding to support research;
- Experience of engaging with wider stakeholder in scientific research (e.g, the general public, clinical or industrial end-users, policy makers);
- Experience of:
  - working in large multidisciplinary project teams;
  - working with microfluidics and/or DNA nanotechnology.

## 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](#).

## Contact information

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

**[Professor Paul Beales](#), Professor of Soft Matter and Biophysics**

Tel: +44 (0)113 343 9101

Email: [P.A.Beales@leeds.ac.uk](mailto:P.A.Beales@leeds.ac.uk)

## Additional information

### Faculty and School Information

Further information is available on the research and teaching activities of the [Faculty of Engineering & Physical Sciences](#), and the [School of Chemistry](#).

### 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.





## **A diverse workforce**

As an international research-intensive university, we welcome students and staff from all walks of life and from across the world. We foster an inclusive environment where all can flourish and prosper, and we are proud of our strong commitment to student education. Within the Faculty of Engineering and Physical Sciences we are dedicated to diversifying our community and we welcome the unique contributions that individuals can bring, and particularly encourage applications from, but not limited to Black, Asian and ethnically diverse people; people who identify as LGBT+; and people with disabilities. Candidates will always be selected based on merit and ability.

The Faculty of Engineering and Physical Sciences are proud to have been awarded the Athena SWAN [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.

## **Information for disabled candidates**

Information for disabled candidates, impairments or health conditions, including requesting alternative formats, can be found under the 'Accessibility' heading on our [How to Apply](#) information page or by getting in touch by emailing HR via [hr@leeds.ac.uk](mailto:hr@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.

## **Salary Requirements of the Skilled Worker Visa Route**

Please note that this post may be suitable for sponsorship under the Skilled Worker visa route but first-time applicants might need to qualify for salary concessions. For more information, please visit [the Government's Skilled Worker visa page](#).



For research and academic posts, we will consider eligibility under the Global Talent visa. For more information, please visit [the Government's page, Apply for the Global Talent visa.](#)

