



UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Early Stage Researcher in Synthetic Glycobiology (ESR1: Engineering multimeric AB₅ lectin complexes for membrane fusion)



Salary: In line with Marie Skłodowska-Curie Innovative Training Network requirements

Reference: MAPCH1107

Closing date: 7 January 2019

Fixed-term for 36 months

Early Stage Researcher in Synthetic Glycobiology Marie Skłodowska-Curie Innovative Training Network

Are you keen to progress research in glycoscience at the interface between chemistry, biology and physics, in the first four years of your research career and based outside the UK? Do you want to further your career and attain a PhD in one of the UK's leading research intensive universities?

[synBIOcarb](#) is a Marie Skłodowska-Curie Innovative Training Network (MSCA-ITN-ETN). It brings together 14 leading European partners in a transnational network, implementing a multidisciplinary and intersectorial research and training programme between the academic and the industrial partners in the fields of synthetic glycobiology.

Together, we will provide 15 early stage researchers (ESRs) with advanced scientific training in chemical synthesis, protein engineering, biophysics, cell biology and analytical device technologies that underpin the development and exploitation of glycoscience for diagnostics and targeted drug delivery. Each ESR will contribute to one, or more, of four thematic [work packages](#) that have been designed to progress the state of the art in Synthetic Glycobiology.

Practical scientific training will be complemented by a coordinated programme of industry-relevant transferable skills, that will prepare the ESRs for future careers in the medical technologies sector.

As an ESR in Leeds, you will undertake research in protein engineering to create new multimeric lectins (carbohydrate-binding proteins) that can mediate membrane crosslinking and fusion. You will interact and develop research collaborations with our [synBIOcarb academic and industrial partners](#), and in addition you will participate in activities of the Innovative Training Network, including attending training courses and visiting other sites.

To meet the requirements of the Marie Skłodowska-Curie Innovative Training Network, you will be an early stage researcher within the first four years of your research career, have not yet been awarded a doctoral degree (PhD), and have not lived or carried out your main activity (work/study) in the UK for more than 12 months during the past three years.



As well as previous research experience, you will have a Masters degree in chemistry, biochemistry or a related discipline or a BSc and an equivalent level of professional qualifications or experience.

Salary

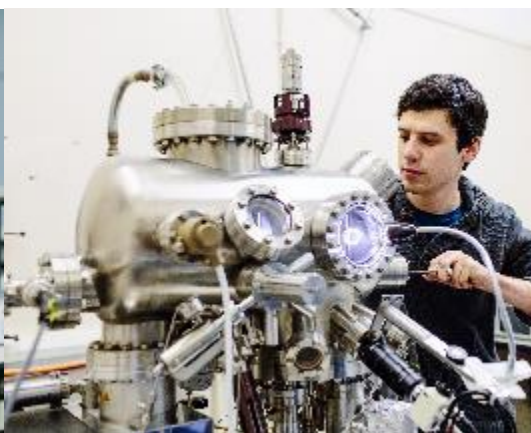
The Marie Skłodowska-Curie Early Stage Researcher living and mobility allowance is fixed at €48,452 per annum (plus family allowance if applicable). This amount will be subject to tax and National Insurance deductions, and will be paid in UK Sterling (£) using an appropriate conversion rate.

What does the role entail?

As an Early Stage Researcher your main duties will include:

- Contributing to the synBIOcarb Innovative Training Network (ITN) under the supervision of Professor Bruce Turnbull;
- Undertaking ongoing research at doctoral degree level into synthetic glycobiology as indicated on the [synBIOcarb website](#);
- Participating in synBIOcarb ITN activities to ensure a successful programme of investigation, including attending group meetings and seminars, training courses and site visits; as well as collaborating with academic and industrial partners;
- Contributing to the dissemination of research results in leading peer-reviewed journals and through presentation at meetings and conferences, with guidance as necessary;
- Ensuring good progress of your work and keeping up-to-date records;
- Providing support and advice to other members of the ITN;
- Working both independently and as part of a larger team of researchers and stakeholders;
- Continually updating your knowledge, understanding and skills in the research field in which you work.

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 an Early Stage Researcher you will have:

- A masters-level degree in Chemistry, Biochemistry, or a related discipline; or BSc in Chemistry or Biochemistry with an equivalent level of professional qualifications or experience;
- The ability to meet all eligibility requirements for appointment in the UK as an Early Stage Researcher funded by the Marie Skłodowska-Curie Innovative Training Network:
 - You must be within the first four years (full-time equivalent) of your research career, and have not yet been awarded a doctoral degree (e.g. PhD), at the time of recruitment to this role;
 - You must not have resided or carried out your main activity (such as work or study) in the UK for more than 12 months during the three years prior to your recruitment to this role;
- The ability to meet the University's eligibility requirements to enrol on a PhD degree, including English language requirements if English is not your first language;
- Experience of undertaking academic research;
- Good interpersonal and communication skills, both written and verbal, and the ability to communicate effectively with a wide range of stakeholders;
- Good time management and planning skills, with the ability to meet tight deadlines and manage competing demands effectively;
- A proven ability to work well both independently and as part of a team;
- A keen interest in multidisciplinary work;
- A strong commitment to your own continuous professional development.

You may also have:

- Working experience in protein chemistry or molecular biology;
- Evidence of contributing to papers in internationally recognised, peer-reviewed journals or evidence of publishable research in progress.

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:

[Prof Bruce Turnbull](#) - Project Primary Supervisor

Email: w.b.turnbull@leeds.ac.uk

Additional information

Project ESR1 - Engineering multimeric AB₅ lectin complexes for membrane fusion

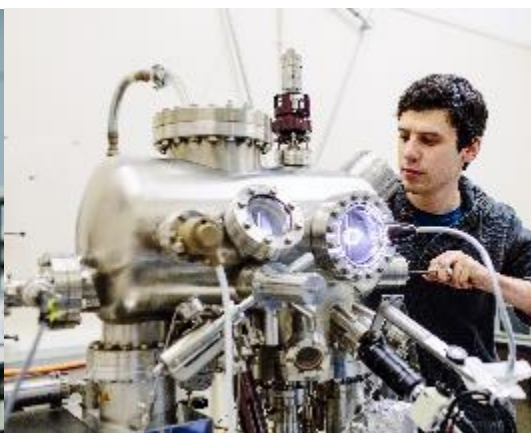
All cells are coated with complex carbohydrates and many viruses, bacteria and protein toxins produced by bacteria exploit this sugar coating as a means of binding to and entering their target cells. We have recently developed methods for the site-specific chemical, enzymatic and genetic modification of cholera toxin to make non-toxic delivery vehicles that can carry large cargoes into cells. We have also developed methods which enable the re-engineered proteins to initiate membrane fusion. In this project you will investigate how changes in the structure of the proteins affects and controls vesicle crosslinking and fusion. You will develop new protein tools for crosslinking and fusing together vesicles and cells that are coated in different types of sugars. Working closely with another ESR based at University of Freiburg (Germany), you will evaluate the lectins in functionalized giant unilamellar vesicles.

The protein-based tools developed in this project will have applications in drug delivery.

Through this interdisciplinary project you will develop skills in protein engineering and molecular biology; site-specific chemical modification of proteins; biophysical techniques for measuring the affinity for molecular interactions; fluorescence imaging techniques for studying membrane interactions. Appropriate training will be provided in all areas that are new to the researcher.

Training and location

The successful candidate will participate in the network's training activities and work placements at the laboratories of the participating academic and industrial teams.



Regular meetings and workshops within the synBIOcarb International Training Network will supplement the training and support provided at the University of Leeds.

This post will be based in the laboratory of Prof Bruce Turnbull which belongs to the School of Chemistry (Faculty of Maths & Physical Sciences), and the Astbury Centre for Structural Molecular Biology. You will collaborate with the laboratory of Dr. Ralf Richter which belongs to the School of Biomedical Sciences (Faculty of Biological Sciences), the School of Physics (Faculty of Mathematics and Physical Sciences), which is also part of the Astbury Centre.

Find out more about the [Turnbull Laboratory](#), the [Richter Laboratory](#), and the other [synBIOcarb project partners](#).

Find out more about the [University of Leeds](#), the [Astbury Centre for Structural Molecular Biology](#), and the [School of Chemistry](#).

Find out more about the [Marie Skłodowska-Curie](#) research and innovation scheme.

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.

A diverse workforce

The Faculty of Mathematics and Physical Sciences is proud to have been awarded the [Athena SWAN Bronze 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.

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.

