

Vacancy

Postdoctoral research fellowship – Visualization of hydrogen atoms in carbohydrate-binding proteins

We are offering a 3-year full-time postdoctoral research fellowship focused on advancing structural biology through single-crystal neutron diffraction techniques. This position focuses on visualizing critical hydrogen atoms in carbohydrate-binding proteins and their complexes using neutron diffraction along with complementary structural biology methods.

The successful fellow will work at the Institut Laue Langevin (ILL) to develop and apply cutting-edge neutron crystallography approaches. The researcher will collaborate closely with Dr. Matthew Blakeley from the Large-Scale Structures group, who is responsible for the neutron macromolecular crystallography beamlines LADI and DALI at ILL.

Candidates must submit a research plan (3-5 pages, maximum 10 pages) directly related to this research topic, outlining work to be conducted during the fellowship period.

This research fellow position is part of the EU cofund research project AMBER, Advanced Multiscale Biological imaging using European Research infrastructures, will address scientific and sectoral gaps in biological imaging ranging from molecular, through cellular, to tissue, organ and organism levels of organisation, and is coordinated by LINXS Institute of advanced Neutron and X-ray Science.

The interviews will start in November 2025. For more information about AMBER, application and evaluation process etc please visit: ambercofund.eu

As a research fellow at the AMBER programme, you will acquire unprecedented medical, biological, and methodological capabilities, with a profound potential impact for Europe's next generation of research and researchers. When you have completed the AMBER programme, you will be extraordinarily well equipped to further your career in academia, at infrastructures, in the health and MedTech sectors, and beyond. Your work may include clinical and biomedical projects. It may also include technique development work aimed at combining imaging techniques and data analysis to provide a more integrated picture of life processes in the context of health and disease.

For more information about the total announced post-doctoral/research fellow positions within in the AMBER co-fund project please visit <https://www.euraxess.se/jobs/341970>

Qualification requirements

Minimum requirements are:

- candidate needs to have a maximum 8 years after a doctoral degree (PhD), as required by the project Grant Agreement signed with the European Commission,
- at least one original publication in a peer-reviewed journal,

- a background in the relevant methods,
- a complete application package submitted through the AMBER portal (including CV and de-tailed research plan),
- and finally, strict compliance with the MSCA mobility rule that the researcher must not have resided or carried out his/her main activity (work, studies, etc.) in the host organisation's country for more than twelve months in the three years immediately prior to the call dead-line.

Instructions on how to apply For more information and documents/templates/europass link, please visit <https://www.ambercofund.eu/for-applicants>. Incomplete applications will not be considered. Please make sure that you upload all the required documents specified below i-ix.

If you are interested in applying for more than one position (maximum 3), you must be prepared to make a full application for each individual position.

Applications (in English and all documents shall be in pdf format)

- A CV (europass format). Your CV shall be exported to a PDF file that you use in your application.
- A detailed research plan including any foreseen secondments (candidates can suggest more than the mandated one, they can also suggest their own secondments), schools and conferences as well as a templated budget plan. (as concise as possible, recommended about 3-5 pages, but at an absolute maximum 10 pages). The research plan should include a half page of summary/abstract.
- iii) Letter of Commitment from any additional secondment partners the candidate wishes to bring on board.
- iv) Evidence of English proficiency (minimum CEFR B2-2 also checked at interview).
- v) A draft Individual Career Development Plan (ICDP).
- vi) Two reference letters.
- vii) Any additional documents to support the application.
- viii) Ethical questionnaire (HE ethics checklist + research ethics commitment)
- In addition, the application will require:
- ix) Any candidate can apply for a maximum of 3 positions. You must apply for each individual position. A list with order of preference of positions should be sent to the AMBER management: amber@linxs.se

Context

This 3-year research fellowship is part of the EU Marie Skłodowska-Curie (MSCA) COFUND research project AMBER, Advanced Multiscale Biological imaging using European Research infrastructures. This project will address scientific and sectoral gaps in biological imaging ranging from molecular, through cellular, tissue, organ and organism levels of organisation, and is coordinated by the LINXS Institute of advanced Neutron and X-ray Science. AMBER has six core partners: Lund University/MAX IV, Sweden, the European Spallation Source (ESS), Sweden, the European Molecular Biology Laboratory (EMBL), the Institut Laue-Langevin (ILL), France, the International Institute of Molecular Mechanisms and Machines, (IMOL), Poland, and the Leicester Institute of Structural and Chemical Biology, United Kingdom. For more information about AMBER, visit: <https://www.ambercofund.eu>

Description of the ILL's Project

At the Institut Laue-Langevin (ILL), the world's most powerful steady state neutron source, advanced beamlines for neutron crystallography are available (LADI and DALI), along with dedicated laboratories for the production of fully deuterated proteins (D-Lab).

Protein-carbohydrate interactions are involved in the first step of many infectious processes. Many pathogens (bacteria, viruses and fungi) recognize sugar epitopes present in glycolipids and glycoproteins on host tissue as the first step of infection. On the other hand, many human lectins such as the ones of the dendritic cells, recognize

fragments of bacterial cell wall polysaccharide as the first stage of the innate immunity process. A detailed structural knowledge of the interactions may serve as the basis for the design of new inhibitors that could act as alternative strategies to antibiotic treatment in some infections. This call is for a 3-year full-time research fellowship project, focused on using single-crystal neutron diffraction techniques in combination with other structural biology techniques, in order to visualize important hydrogen atoms in carbohydrate-binding proteins and their complexes. At the Institut Laue-Langevin (ILL), the world's most powerful steady state neutron source, advanced beamlines for neutron crystallography are available (LADI and DALI) along with dedicated laboratories for the production of fully deuterated proteins (D-Lab). Researchers from the Glyco@Alps network at the Institut de Biologie Structurale (IBS) and Centre de Recherches sur les Macromolécules Végétales (CERMAV) have expertise in production of recombinant human and microbial lectins, respectively. In addition, certain saccharides (and their analogs) can be produced in deuterated form via a synthetic biology approach, in collaboration with CERMAV (see Gajdos et al., 2021, Glycobiology 31, 151; Gajdos et al., Nat. Commun. 13, 194). Moreover, the Partnership for Structural Biology (PSB) on the European Photon and Neutron (EPN) Science campus provides a unique environment for state-of-the-art integrated structural biology with access to many technical platforms for sample production, biophysical characterization and structure determination.

Your work at the ILL will focus on using single-crystal neutron diffraction techniques in combination with other structural biology techniques, in order to visualize important hydrogen atoms in carbohydrate-binding proteins and their complexes.

Name and working place of the Principal investigator

Matthew Blakeley, Large-Scale Structures group, Institut Laue-Langevin, Grenoble, France, is responsible for the neutron macromolecular crystallography beamlines LADI and DALI. His research uses single-crystal neutron diffraction in combination with other structural biology techniques for studies of biological macromolecular structure and function, typically health/disease related and with a particular focus on structure-based drug design.

Minimum requirements

- PhD in structural biology/chemistry, with excellent knowledge of biochemistry and molecular biology, including experience in protein expression, purification and crystal growth.
- Applicants need to have a maximum 8 years after a doctoral degree (PhD), as required by the Commission, in accordance with the MSCA rules.
- At least one original publication in a peer-reviewed journal.
- A complete application package submitted through the AMBER portal (including CV and detailed research plan).
- Strict compliance with the MSCA mobility rule that the researcher must not have resided or carried out his/her main activity (work, studies, etc.) in the host organisation's country for more than twelve months in the three years immediately prior to the call deadline.
- Applicants should be fluent in English, have good communication skills and should demonstrate their ability to develop and conduct high-quality research, both in a team and independently.
- Additional expertise for the position: experience in neutron and X-ray single-crystal diffraction techniques (data collection, data reduction/structural refinement) and knowledge of programming languages, such as Python, would be desirable.

We offer:

- **Quality of life** A hub for research and technology, the city of Grenoble is ideally located in the heart of the French Alps (just 3 hours from Paris/Provence by train, 1 hour from Lyon international airport and 1 ½ hours from Geneva). It is important for us that our staff achieve a healthy work-life balance. We therefore offer home working (under certain conditions), generous annual paid leave entitlement and a host of other benefits that you will discover when you arrive!



- **Prospects** . We guarantee you a **secure 3-year contract** in the framework of a project with project-specific funding (“contrat d’usage pour financement nominatif”). Only candidates holding a PhD obtained less than 8 years ago are eligible.
- **Benefits** - We offer generous social benefits (expatriation allowance, excellent health cover), moving and relocation assistance (under certain conditions) and an annual productivity bonus. We also offer language courses for you and your partner and subsidies for the use of public transport and the staff canteen, as well as for holidays and a variety of cultural and sports activities.

How to apply:

Then why not take your next career step with us by applying online - preferably in English - via our career portal from **before 08.09.2025**, quoting **reference number 25/34** with a list of publications and the names of 3 referees, including one from your present work place. Please note that all applicants are subject to administrative screening (background checks). For this post, medical fitness for work under ionising radiation is required.

Apply now

https://www.illrecruits.eu/module.php?module=applicant_register_cv_analyzer/applicant_register_cv_upload&sid=2012

Con copia de la candidatura a: eures.franciasuizabenelux@sepe.es

Indicando la referencia ILL 25/34

Ayudas a la movilidad EURES



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This project is funded by the European Union