Call for PhD 5 fellowship (DC5)

MSCA – Doctoral Network

Lectin LIgands for Modulation of ImmuniTy = LLiMiT

LLIMIT is a European doctoral training network dedicated to advancing immunomodulatory glycoscience. Its aim is to empower a new generation of researchers with the skills to design and develop ligands/antagonists targeting immune-related lectins—an innovative but underexplored therapeutic strategy against immune disorders such as allergy, cancer and autoimmunity, one of today's major global health challenges. The consortium unites 7 academic institutions with accredited PhD programs in organic and medicinal chemistry, molecular biology, structural biology, immunology and pharmacology, each with strong expertise in glycoscience. They are joined by 7 non-academic partners and a graduate and research academy, ensuring comprehensive, cross-sector training that spans fundamental science, translational research, and entrepreneurship. Key objectives of LLIMIT include: a) recruiting and training 14 doctoral candidates in a joint, research-based program supported by expert supervision and specialized training events, b) advancing innovative research on immune lectins and carbohydrate ligands, covering the full early drug discovery pipeline: from target identification and validation, through advanced glycochemistry and drug design, to hit and lead discovery; c) establishing a sustainable foundation for European excellence in glycodrug and immunomodulatory research; d) developing a common glycodrug curriculum across participating institutions to standardize and strengthen education in this field; e) building and maintaining long-term partnerships that ensure continuity in training, research, and innovation well beyond the project's duration.

DC5 PROJECT TITLE. ***Multivalent Siglec-8 ligands to block allergic inflammation***.

Host Institution: Department of Pharmaceutical Sciences, Utrecht University, (UU), the Netherlands. Department of Pharmaceutical Sciences - Utrecht University

Duration: 48 months, April 2027 - March 2031.

Supervisor: Prof. Dr. Roland Pieters; Prof. dr. R.J. (Roland) Pieters - Utrecht University, Roland J. Pieters - Google Scholar, Roland PIETERS | Professor (Full) | Ph. D. | Utrecht University, Utrecht | UU | Division of Chemical Biology and Drug Discovery | Research profile

Co-supervisors: Dr. Balthasar. Heesters (UU), Dr. Oliver Schwardt (University of Basel), Dr. Nuska Tschammer (CreWu)

DC5 PROJECT. The objective of the project is to advance beyond the current state-of-the-art in the field of Siglec-8 ligands by designing novel multivalent versions of glycomimetics and small-molecules. **DC5** will have following objectives:

1) Discover novel small molecule ligands for Siglec-8. DC5 will perform virtual screening of millions of commercially available compounds, using various scoring methods and data fusion, to yield new non-carbohydrate ligands with all the potential drug-like advantages. AI approaches will independently predict affinities. A complementary, DNA-encoded library approach will also yield non-carbohydrate ligands and will be carried out during a non-academic secondment at CreWu with N. Tschammer. Experience with both methods is available in our lab and with consortium partners.

2) Create potent multivalent Siglec-8 ligands. A multivalent presentation of any Siglec ligand is essential for a biological effect. We propose the use of hyperbranched polyglycerol polymers for CuAAC conjugation of Siglec ligands. The crucial factors: size, molecular weight and ligand

density, can readily be varied, thus allowing optimization of the multivalent scaffold. The combined optimization of ligand and polymer scaffold will yield the most potent compounds for this Siglec. Besides the small molecules, the current best glycomimetics i.e. sialic acid derivatives, will also be used in the conjugations. During a secondment at UNIBAS with O. Schwardt additional polymeric scaffolds will be tested and more biophysical techniques will be used, such as advanced ITC, to further decipher the interactions.

3) Functional immunological evaluation. DC5 will collaborate with **DC6 and B. Heesters at UU** to evaluate the biological effects of the newly developed ligands through cellular immunological assays. Similar DC5 will reciprocate and synthesize multivalent ligands for DC6 to enable their investigations.

PLANNED SECONDMENTS. 1. University of Basel (Dr. Oliver Schwardt) for biophysical activity evaluation and polymeric scaffolds 2). Crewu (Dr. Nuska Tschammer) for the DNA-encoded library method.

PhD School enrolment: Graduate School of Life Sciences, Utrecht University, PhD program Drug Innovation Pharmacy. PhD programme - Utrecht Institute for Pharmaceutical Sciences (UIPS) - Utrecht University

APPLICATION PROCEDURE

The position is open to candidates of any nationality, provided they meet the eligibility requirements for Doctoral Candidates (DCs) funded under the Marie Skłodowska-Curie Actions (MSCA), as defined in Section 1.3.2, “Recruited researchers”, of the Horizon Europe Work Programme 2026–2027.

Applicants must complete the **LLIMIT Application Form** (provided as a separate document, available at https://llimit.eu/) and submit it, together with all the required supporting documents listed in the form, to llimit@ffa.uni-lj.si by **15 January 2027**. The application for the first round of candidate assessment should consist of the following documents:

- Completed LLIMIT application form;
- Curriculum Vitae (CV) in the Europass format: https://europass.europa.eu/en/create-europass-cv including the details of education and qualifications, work experience, language skills and other relevant skills;
- Motivation Letter;
- Transcript of record (academic studies) and master’s degree certificate (when available);
- Two letters of recommendation from academics or research professionals;
- A summary of the master’s degree thesis or a brief description of the past scientific activity;
- A short critical summary of a selected paper: https://www.sciencedirect.com/science/article/pii/S0045206824002268?via%3Dihub,
- Copy of the valid ID card or Passport.

Please use the subject line “*Application for DC5 position*”. The five highest-ranked applicants following the first round of candidate assessment will be invited for an interview.

This PhD position is at Utrecht University. Your employment as a PhD candidate will be subject to Utrecht University’s terms and conditions of employment:

- a position for 18 months, with an extension to a total of four years upon a positive assessment in the first 18 months;

- a gross monthly salary starting at € 3,204 in the first year and increasing annually up to €4,051 in the fourth year between (salary scale P under the Collective Labour Agreement for Dutch Universities (CAO NU). The salary is based on a 38-hour working week;
- 8% holiday pay and 8.3% year-end bonus;
- a pension scheme, partially paid parental leave and flexible terms of employment based on the CAO NU.

In addition to the terms of employment set out in our collective labour agreement, we offer attractive additional benefits, including opportunities for personal and professional growth, flexible leave arrangements, and extra vacation days. Through the UU Terms of Employment Options Model, you can tailor your employment package to your needs. In this way, we encourage you to grow in what you do, both in your work and in your development. Read more about our terms of employment.

CANDIDATE PROFILE

- 5-years degree (Master) in Pharmacy, Chemistry, Medicinal Chemistry or related fields,
- Experience in medicinal chemistry, organic chemistry and biophysical techniques is welcome,
- Good level of English proficiency (understood, spoken and written),
- Team spirit and proactive attitude.

Information also available at: https://euraxess.ec.europa.eu/ and https://llimit.eu/.