DC 1 | Identification of cryptic halogenases from biosynthetic pathways

ORGANISATION

The University of Bern (UniBe) is the third largest university in Switzerland and was ranked 104 in the 2025 Times World Universities Rankings. With almost 20,000 students, UniBe offers a vibrant environment set within the city centre of Bern, minutes from the train station and very well served by public transport. The position will be hosted within the Department of Chemistry, Biochemistry, and Pharmaceutical Sciences (DCBP) (https://www.dcbp.unibe.ch/index_eng.html), a highly interdisciplinary department that brings together diverse research groups and houses state-of-the-art facilities, including X-ray, NMR, and advanced mass spectrometry instrumentation. The DCBP places a strong emphasis on sustainability, with catalysis in its various forms serving as a central research theme across many laboratories. In 2025, the department took a significant step toward integrating biocatalysis within the organic chemistry domain, dedicating an entire floor of the building to the laboratories of Professors Paradisi and Buller. The research group led by Rebecca Buller focuses on advancing biocatalysis and enzyme engineering to support sustainable chemical synthesis. The team conducts studies to tailor enzymes through bioinformatics, directed evolution, and non-canonical amino acid incorporation, for enhanced activity, selectivity, and stability, and to enable both new-to-nature reactions and more efficient production of pharmaceuticals and other fine chemicals. In addition, the group works on broadening the enzymatic toolbox by sourcing and identifying novel biocatalysts through bioinformatics approaches.

ROLES AND RESPONSIBILITIES

The main part of your PhD research (4 years in total) will be carried out at **the University of Bern** (UniBe, Switzerland) under the supervision of **Prof. Dr. Rebecca Buller** in the Department Chemistry, Biochemistry and Pharmaceutical Sciences. Within these four years, an academic research stay (of 12 months) will take place at the **University of Groningen** (RUG, the Netherlands) under the supervision of **Prof. Dr. Sandy Schmidt** followed by an academic research stay (of 3 months) at the **University of Girona** (UdG, Spain) under the supervision of **Prof. Dr. Sílvia Osuna**. Additionally, an industrial secondment at the company **Syngenta** (UK) is foreseen. The Horizon Europe Marie Skłodowska-Curie Actions (MSCA) – Doctoral Network (DN) project starts in January 2026. The date of recruitment and start of the PhD project is planned for April 2026 and latest in December 2026. Your **PhD degree** (so-called double degree) will be awarded based on successful completion of the research work from **two universities (University of Bern, Switzerland and University of Groningen, the Netherlands)**. You will also be required to participate in the training events and workshops organized by the DN-Joint Doctorates (JD) program. As a MSCA fellow, you are also expected to **contribute your time in the dissemination of your PhD project's result** through public engagement and other scientific platforms.

The PhD research will focus on:

(i) Interdisciplinary project on bioinformatics, biocatalysis, and chemistry,
(ii) Bioinformatics-guided identification of novel halogenases,
(iii) Use of computational tools to map critical structural features to improve catalyst performance (incl. during academic secondment UdG),
(iv) Cloning, expression, and elucidation of enzyme promiscuity of selected candidates (incl. during academic secondment RUG),
(v) Enzyme engineering for higher performance and characterization of improved variants
(vi) Transfer of key amino acid mutations to improve performance of halogenases active on industrial compounds (industrial secondment)

Primary supervisor: Prof. Dr. Rebecca Buller
Secondary supervisor: Prof. Dr. Sandy Schmidt
Recruiting institution: University of Bern (Bern, Switzerland)
Double degree awarding institution: University of Groningen (Groningen, the Netherlands)

QUALIFICATIONS

- An outstanding M.Sc. degree in Chemistry, Biological chemistry, Biochemistry, or related field,

- Eligible as a graduate student at the University of Bern (Switzerland) and the University of Groningen (the Netherlands),
- Research experience in organic chemistry, analytical methods (HPLC, GC, MS, NMR etc.), enzyme purification and assays, experience in molecular biology (molecular cloning) is desirable,
- Ability to work in an international team,
- Inter- and multidisciplinary thinking,
- High motivation,
- An integrative and cooperative personality with excellent communication and social skills,
- Fluency in English – written and oral.

CONDITIONS OF EMPLOYMENT

We offer you in accordance with the regulation of Swiss National Science Foundation

- a salary ranging between 47,040 to 55,000 CHF per year
- the contract is issued on a yearly basis. Prolongation of the contract is contingent on sufficient progress within the year to indicate that a successful completion of the PhD thesis within the remaining time is to be expected.

The preferred starting date is between April 1st and July 1st 2026. Details on the conditions of employment can be found here:
https://www.unibe.ch/unibe/portal/content/e152701/e322683/e325053/e901473/ul_rgl_anstellung_final_en_ger.pdf

APPLICATION PROCEDURE

To apply for the position, kindly provide:

(i) A letter of motivation including a statement of your research interests, relevant skills and experience and an explanation for the choice of position(s);
(ii) A CV including publication list (if applicable);
(iii) Names and contact details of up to three referees willing to write confidential letters of recommendation;
(iv) Copies of relevant diplomas including explanation of international grades.

Please upload applications only according to instructions at https://haloverse.eu/recruitment/.

Address applications to: Prof. Dr. Rebecca Buller

The University of Bern strives to offer a respectful and inclusive study and work environment. We believe that working on our core values of inclusion and equality are a joint responsibility and we are constructively working on creating a socially safe environment. Diversity among students and staff members enriches academic debate and contributes to the quality of our teaching and research. For more information, see also our webpage: https://www.unibe.ch/university/portrait/self_image/equal_opportunities/topics/respectful_and_inclusive_study_and_work_environment/index_eng.html. Our selection procedure follows the guidelines of the European Commission's European Code of Conduct for recruitment of researchers, https://euraxess.ec.europa.eu/jobs/charter/code

Unsolicited marketing is not appreciated.

APPLICATION DEADLINE

You may apply until 31st of December 2025 11:59pm / before 1st of January 2026 Central European Time (CET) for this position by means of the online application form (click on "Apply" below on the advertisement on the HaloVerse website).

Funded by the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.