

Doctoral Researcher Position (Doktoranden-Stellen) (m/f/d)

50% TV-L E13

A **doctoral fellow position** is available at the Institute of Biochemistry, **Chair Biochemistry II** at the Heinrich Heine University Düsseldorf. The position is to be filled **immediately** and fixed-term for **3 years**.

Description

Site-specific functionalization of complex, plant-derived natural molecules presents a significant challenge for synthetic chemistry. In this context, oxygenases such as cytochromes P450 (P450s) and unspecific peroxygenases (UPOs) are promising enzyme candidates due to their ability to catalyze late-stage oxidation of non-activated C-H bonds. Protein engineering can be employed to expand their substrate scope and enhance their activity and selectivity.

The PhD candidate's research will focus on enzyme engineering of selected oxygenases to achieve selective oxyfunctionalization of natural compounds:

- (i) Screening of in-house libraries of oxygenases.
- (ii) Protein engineering of P450s and UPOs.
- (iii) Biochemical characterization of enzyme variants, focusing on chemoselectivity, thermal and process stability, and kinetic parameter determination.
- (iv) Development and optimization of enzyme-catalyzed oxyfunctionalization reactions and processes.

Requirements

- Master degree or equivalent qualification in biochemistry, chemistry, biology, biotechnology or related disciplines.
- Interest and experience in cloning methods, heterologous protein expression (e.g., in *E. coli*, *K. phaffii* or *S. cerevisiae*), enzyme purification and protein engineering techniques.
- Interest and experience in setting up and conducting enzyme catalysis and enzyme activity assays.
- Experience in analytical methods (HPLC/MS, GC/MS) or bioinformatics (e.g., Yasara, BLAST) is beneficial.
- Proficient in both written and spoken English.
- Strong communication skills and team spirit.
- Interest in an interdisciplinary work environment.

Heinrich Heine University Düsseldorf aims at increasing the percentage of employed women. Applications from women will therefore be given preference in cases of equal aptitude, ability and professional achievements unless there are exceptional reasons for choosing another applicant. Applications from persons with severe disabilities or those of equal status according to Book IX of the German Social Code (SGB – Soziales Gesetzbuch) are encouraged.

Please submit your application documents (CV, degree certificates as well as an overview of achievements, letter of motivation (max. 1 page), contact details of two possible references) in a single PDF document by mail to Prof. Dr. Vlada Urlacher (Vlada.Urlacher@hhu.de).