At the Department of Chemistry in the Faculty of Mathematics and Natural Sciences of Heinrich Heine University Düsseldorf a position of a

Scientific Assistant / Doctoral Researcher

(65 %, pay grade 13 TV-L)

is to be occupied from 01. January 2018. The employment is initially limited for a period of three years with an option for prolongation for one more year. It is a qualification position in the sense of the Act of Academic Fixed-Term Contract (Wissenschaftsvertragsgesetz´- WissZeitVG), which is to promote the scientific qualification of the employee.

In the newly founded group “Synthetic Membrane Systems” we employ membrane-reconstituted systems of varying complexities to study vital biological processes downto single-molecule level. Recent developments in synthetic membranes, such as nanodiscs, SMALPs and giant vesicles, allow us to conduct a comprehensive biochemical, biophysical and structural analysis on membrane proteins and their complexes in physiologically-relevant environments. With that we are aiming to elucidate conformational dynamics and macromolecular assembly of cellular machineries dedicated to protein folding, transport, and degradation, in native-like custom-tailored lipid membranes, as well as scrutinize roles of the lipid environment in protein functioning and regulation.

Currently we are looking for a PhD student to study the mechanisms of translocation and folding of lipase A from *Pseudomonas aeruginosa*. Bacterial lipases are an important and ubiquitous class of secreted proteins that are of tremendous biotechnological significance and, as virulence factors, of biomedical relevance. In this project, a combination of biochemical, biophysical and structural biological approaches will investigate the mechanism of Sec-mediated translocation of LipA and the role of foldase LipH in transport and folding *in vitro* using a membrane-reconstituted *Pseudomonas* secretion system. The results will provide us with a view on the targeting, membrane translocation and folding of LipA under near-native conditions, which will be integrated in a comprehensive model of the Sec/T2SS secretion pathway indispensable for the virulence of every bacterial pathogen. The project is supported by collaborations with groups specializing in microbiology and single molecule biophysics.

The applicants are expected to have a Master degree in Biochemistry/Biophysics or related fields, with an experience in molecular biology, (membrane) protein biochemistry and/or mathematical modeling of biological processes. Please submit your application documents (CV, copies of education certificates, description of previous research experience and two references) until 15. December 2017 preferably by email (please, just one pdf-file) to **Kedrov@hhu.de**

or in writing to:

Heinrich-Heine-Universität Düsseldorf
Faculty of Mathematics and Natural Sciences
Chemistry, Synthetic Membrane Systems
Jun.-Prof. Dr. Alexej Kedrov
Build. 26.42, room 03.30
Universitätsstr. 1
40225 Düsseldorf

The pay scale grouping will be, depending on the personal qualification of the applicant, up to pay grade 13 TV-L. In principle, the employment can also take place part-time, if no compelling official reasons are opposed in an individual case. 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 suitably qualified severely disabled persons or disabled persons regarded as being of equal status according to Book IX of the German Social Code (SGB – Soziales Gesetzbuch) are encouraged.

Selected publications:

Kedrov et al. (2016) Structural dynamics of the YidC insertase upon membrane protein insertion. Cell Rep, 17, 2943-54.

Beckert et al. (2015) Structural basis for SRP-dependent protein targeting and elongation arrest in prokaryotes. Nat Struct Mol Biol, 20, 767-73.

Kedrov et al. (2013) Elucidating the native architecture of the YidC: Ribosome complex. J Mol Biol 425, 4112-24.

Kedrov et al. (2011) A single copy of SecYEG is sufficient for preprotein translocation. EMBO J 30, 4387-97.