

PhD Position in Molecular Biology / Biophysical Interaction Analysis

The Institute for Pharmaceutical and Medicinal Chemistry at the Heinrich-Heine-University of Düsseldorf is inviting applications for a PhD project (65%, EG 13 TV-L) starting in October 2023. The contract is limited to a duration of three years.

As part of the DFG-funded Special Priority Program "Code χ – Chitin, chitosan and chito-oligosaccharides and their interaction with proteins of the extracellular matrix and cellular signaling" (SPP 2416; <https://codechi.de/>), the PhD student will be integrated in a multidisciplinary and highly collaborative research consortium studying structure–function relationships of chito-based materials.

The PhD project will be supervised by Jun.-Prof. Dr. Jonathan Cramer and conducted in close collaboration with Prof. Dr. Holger Gohlke to synergistically combine molecular modeling approaches with experimental biophysics for the investigation of molecular interactions of human chitinase-like proteins (CLPs) with chito-oligosaccharides (COS) on an atomistic level. We predominantly focus on a particular CLP called YKL-40 (CHI3L1), which is known to be involved in various inflammatory diseases and cancers and is considered a promising therapeutic target. Mechanistic knowledge about YKL-40/COS interactions determined by biophysical methods and mutagenesis experiments will be validated in cellular models examining the functional consequences of COS recognition by YKL-40 in human immunity and disease. By gaining deeper understanding of CLPs and their interactions, the studies will contribute significantly to the development of novel drugs targeting these proteins for therapeutic purposes.

We are looking for a highly motivated junior researcher, who will perform molecular biology experiments, biophysical interaction analyses, and cellular assays as part of a PhD thesis. Applicants should hold a master's or equivalent degree in Biology, Biochemistry, Biophysics, Chemistry, Pharmacy, or a related discipline. Basic knowledge of common techniques in molecular biology / biochemistry / biophysics are required. Fluency in English (written and oral) is mandatory, good knowledge of German is desirable.

Please send your complete application including a one-page motivation letter detailing how you will make an excellent contribution to the project, CV, academic transcripts, and contact details of academic references until 30.09.2023 to jonathan.cramer@hhu.de.

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