

Seminar

Peptides as multidisciplinary players in Life Sciences – from models and tools to drugs and biomedical applications

Diana Imhof

Universität Bonn, Germany

The research focus of the Imhof group at the Pharmaceutical Institute of the University of Bonn lies in the fields of Pharmaceutical Biochemistry and Bioanalytics. The scientific work is focused on specific fields at the interface of Bioorganic Chemistry, Biochemistry, Medicinal Chemistry and Computational Studies. The most prominent topics, we are currently working on, include: 1) bioactive, disulfide-bridged peptides, i.e., synthesis, structure elucidation, and functional analysis of a series of highly complex, cysteine-rich peptides of therapeutic relevance, 2) protein-protein and ligand-protein interactions, where we investigate interactions such as the transient binding of heme to proteins, underlying mechanisms and consequences thereof using peptides as tools, and 3) method development in peptide analytics with focus on the establishment of modern bioanalytical techniques, for instance Edman and MS/MS sequencing. In all projects we are employing a set of experimental techniques and methods, yet also computational studies (Molecular Modelling, MD simulations) and Bioinformatics (Knowledge Graphs). Select aspects of our research will be presented highlighting the potential for translation from basic research into biomedical applications. Thanks to their high specificity and targeted interaction with biological target structures, peptides can be employed as active agents, diagnostics, or functional building blocks in biomedical technologies. The systematic investigation of peptide sequences, mechanisms of action, and structure-activity relationships lays the foundation for developing new therapeutic and diagnostic approaches. In this way, fundamental molecular insights can be purposefully translated into innovative applications and, ultimately, into solutions with clinical or technological utility.

Thursday, Oct 8th 2026

11:30 Hrs (Tea / Coffee 11:15 Hrs)

Auditorium, TIFRH