DBMR Research Conference

Seminar room EG050
Murtenstrasse 24, 3008 Bern

Date: **Monday, March 30, 2026, 5pm – 6pm**

Title: **What can we learn from microscopy of disordered regions in blood clotting proteins?**

Speaker: **Anna D. Protopopova, PhD, Senior Postdoctoral Researcher at the Adolphe Merkle Institute, University of Fribourg, Switzerland**

Bio: Dr. Protopopova earned her PhD in physics from Lomonosov Moscow State University, where she specialized in atomic force microscopy and investigated the early stages of fibrin polymerization at the single-molecule level. Her work provided the first visualization of the flexible, unstructured αC regions of fibrinogen. She then conducted postdoctoral research at the University of Pennsylvania in the groups of Dr. John W. Weisel and Dr. Vera Y. Moiseenkova-Bell, where she continued biophysical and structural studies of blood coagulation mechanisms and gained expertise in single-particle cryogenic electron microscopy for atomic structural studies of TRPV ion channels.
Currently, she is a researcher at the Adolphe Merkle Institute, University of Fribourg, where she continues her studies of blood coagulation, with a particular focus on Factors V and XIII. Her current work applies both atomic force microscopy and cutting-edge single-molecule plasmonic optical trapping techniques to investigate conformational flexibility of these proteins.

Abstract: Structural information about intrinsically disordered proteins (IDPs) and intrinsically disordered regions (IDRs) in proteins remains extremely difficult to obtain. In their functional states, IDPs exist as conformational ensembles comprising widely different structures that interconvert on multiple timescales. An important class of IDR-containing proteins is that of human blood clotting proteins associated with cardiovascular diseases.
Here, we studied key proteins of the common cascade of blood coagulation—Factor V, Factor XIII, and fibrin(ogen)—to understand structural and functional roles of long IDRs in these proteins. Atomic force microscopy (AFM) of single proteins immobilized on the surface of a modified graphite substrate served as the central experimental approach. The talk presents the main results of these studies and provides details of the methodology enabling direct visualization of IDPs and IDRs within folded proteins by AFM.

Host: Prof. Dr. phil. Verena Schröder, Blood Program, Department for BioMedical Research, University of Bern.

Next DBMR Research Conference: Monday, May 4, 2026, 5pm-6pm
Speaker: Dr. Magdalena Renner, Institute of Molecular and Clinical Ophthalmology (IOB), Basel, Switzerland
Title: tba