COLL: Division of Colloid and Surface Chemistry

629 - Molecular dynamics simulations together with experimental studies reveal strong membrane activity of a small peptide

View Session Detail

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Abstract: Cell-penetrating peptides (CPPs) and antimicrobial peptides (AMPs) are generally defined as small cationic peptides with the ability to interact with lipidic membranes, in a process driven by electrostatic and hydrophobic processes. The interaction with CPPs is known to lead to its translocation across the membrane, while with AMPs lead to membrane damage.
Here we present one synthetic anionic peptide, which strongly interacts with model membranes, showing properties of the two peptide classes, namely the translocation through lipidic membranes on a mechanism usually described for cationic CPPs and membrane destabilization like AMPs promote. These properties were shown through molecular dynamic studies, experimental studies with liposomes and mammalian cells in vitro. Based on the peptide properties here demonstrated, small modifications in its structure could make it a very promising tool for drug delivery.