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Interaction of Arginine-Rich Peptides with Model Cell Membranes ABHIJIT MISHRA, NATHAN SCHMIDT, VERNITA GORDON, JIANJUN CHENG, University of Illinois at Urbana-Champaign, TIMOTHY DEMING, University of California, Los Angeles, GERARD WONG, University of Illinois at Urbana-Champaign, WONG RESEARCH GROUP TEAM — Cell-penetrating peptides have the ability to traverse the plasma membrane of eukaryotic cells. Furthermore, these peptides can transport cargo across a range of cell membranes, implying they have many potential biotechnological applications. In this study we compare the interaction of three commonly used arginine-rich cell-penetrating peptides, TAT, Penetratin, and pVEC, with model cell membranes of variable charge density and intrinsic curvature, using synchrotron small angle x-ray scattering (SAXS). To better understand the respective roles of arginine and hydrophobic residues in membrane reorganization we also examine the interaction of arginine-leucine (R60L20) block copolypeptides with model membranes, as well as the relationship between membrane composition and peptide induced changes in membrane topology.

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