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The Cooperative Behaviour of α-Helical Antimicrobial Peptides in Different Environments MARCO PINNA, University of Central Lancashire, JANPING WANG, UCLan Biomedical Technology Ltd (Shenzhen), P. R. China, MANUELA MURA, University of Central Lancashire, YUHUA ZHOU, UCLan Biomedical Technology Ltd (Shenzhen), P. R. China, ANDREI ZVELINDOVSKY, SARAH DENNISON, DAVID PHOENIX, University of Central Lancashire — A systematic analysis of the antimicrobial peptides (AMPs) cooperative action is performed by means of a full atomistic molecular dynamics simulation. The following peptide analogues: Aurein 2.5-COOH, Aurein 2.6-COOH and Aurein 3.1–COOH are investigated in different environments including aqueous solution, trifluoroethanol (TFE), palmitoyloleoylphosphatidylethanolamine (POPE), and palmitoyloleoylphosphatidylglycerol (POPG) lipid bilayers. Simulations conducted for monomer and trimer peptide highlight the importance of the cooperative behaviour and reveal the different mechanisms of antimicrobial peptides action in different lipid bilayers.

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