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INTERACTION OF TENECIN FRAGMENTS WITH LIPOSOMES

Myeong Jun Choi, Hyun Sook Cho, Sung Yu Hong, Jeong Hyeok Yoon, Keun Hyeng Lee, Hong Mo Moon and Hong Seok Cheong Drug Delivery Research Lab. Protein Chemistry Lab., Mogam Biotechnology Research Institute, Kyonggi-Do, 449-910

Tenecin fragments are antimicrobial and antifungal peptide from *Tenebrio molitor* with highly positive charged amino acid residues. To elucidate their membrane selectivity and molecular mechanism, various forms of tenecin fragments were synthesized, and their interaction with acidic phospholipid, Gram (+), fungal and human erythrocyte membrane were investigated by ANTS/DPX leakage, membrane binding and fusion assay. Tenencin fragments fused and leaked out negative charged liposomes and their activity was reduced with increasing neutral charged phospholipid. The order of membrane selectivity was PG/CL > PS > PC/PS. Also, tenecin fragments induced leakage from fungal membrane but did not lyse erythrocyte membrane. Peptide binding assay was estimated by blue shift and quenching of Trp. From the results, Trp residue was buried in the hydrophobic region on the bilayers and N- and C- terminal region of peptide were important for the membrane binding. As a results, tenecin fragments interact with acidic phospholipids through electrostatic interaction followed by hydrophobic interaction to form an amphiphilic β-sheet, including membrane fusion and lysis.