Poster 15

Tertiary Structures of Mastoparan B in Model Membrane System by NMR Spectroscopy

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Mastoparan B (MP-B) is an antimicrobial cationic tetradecapeptide isolated from the venom of the hornet *Vespa basalis*. MP-B causes liberation of histamine, serotonin and other chemical substances mediating inflamation upon binding to plasma membrane. It shows a potent hemolytic activity. MPs enhance the permeability of phospholipid bilayer and activates GTP-binding regulatory proteins (G-proteins). The amphiphilic α-helical structure in the membrane is closely related to its biological activity. In order to study the relationship between the structure and biological activity, we determined the structures of the four analogs by replacing amino acids with alanine ([Ala^3]MP-B, [Ala^4]MP-B, [Ala^9]MP-B, [Ala^{12}]MP-B) and studied their structures in TFE/water solution, DPC micelle, SDS micelle, and bicelle using NMR spectroscopy. Tertiary structure of MP-B and alanine analogues has α-helical structure in model membrane systems such as TFE/water solution, SDS micelle, DPC micelle, and Bicelle. Tryptophan residue has close contact with acyl chains of lipid and is essential for the interaction with membrane.