Poster 14

Comparison of the Tertiary Structure of Cecropin A(1-8)-magainin 2(1-12) Hybrid Peptides and Their Analogues Studied by NMR Spectroscopy

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Cecropin A(1-8)-magainin 2(1-12) and cecropin A(1-8)-melittin(1-12) hybrid peptides were known to have potent antitumor and antibacterial activity. In particular, cecropin A(1-8)-magainin 2(1-12) has powerful antibacterial and antitumor activity with no hemolytic effect. In order to investigate the hydrophobic effect of position 2 (Trp) of CA-MA on its antibiotic activity, two analogues in which Trp2 -residue in CA-MA is substituted by Ala (Analog 3) or Leu (Analog 4) were synthesized. Trp2Leu2 substitution (Analog 4) at position 2 in CA-MA retained potent antibacterial and antitumor activities, whereas Trp2Ala2 substitution (Analog 3) caused a significant reduction in the antibacterial and antitumor activities. The difference in antibiotic activity of these peptides is related to those of the three dimensional structures on target cell membranes. Therefore we investigated the structures of these hybrid peptides in DPC micelles using NMR spectroscopy.