

A1**Structural Studies of Porcine Myeloid Antibacterial Peptide, PMAP-23 in DPC micelles by NMR Spectroscopy**

Kyoungsoo Park*, Songyub Shin¹, Kyungsoo Hahm² and Yangmee Kim
Dept. of Chemistry, Konkuk University, ¹Dept. Of Life Science, KIST, Kwangju
and ²Chosun University

Leukocytes are important elements in the host defense against microbial infections. A variety of antimicrobial peptides named as the cathelicidin family have been identified from leukocytes. PMAP-23 derived from porcine myeloid cells is an antimicrobial peptide belong to the cathelicidin family. PMAP-23 was reported to have potent growth inhibition activity against bacterial and tumor cells with no hemolytic activity.

In order to study the relationship between the structure and biological activity of PMAP-23, we used two analogs by replacing Trp residue with alanine and their structures have been studied by NMR spectroscopy. The results indicate that PMAP-1(Trp⁷→ Ala⁷) has a similar antibiotic activity to PMAP-23, while PMAP-2(Trp²¹→ Ala²¹) has lower activity than PMAP-23. All peptides have short amphipathic α -helix from residue 1 to 10. However, PMAP-23 and PMAP-1 have α -helix for 17 to 23 while PMAP-2 has a random structure in the C-terminus. Therefore, Trp²¹ residue at the C-terminus is important for the antibiotic activity of PMAP-23.