

[PC1-11] [ 04/19/2001 (Thr) 15:30 - 16:30 / Hall 4 ]

### Two $\beta$ -carboline Alkaloids from *Melia azedarach* Inhibit Nitric Oxide Synthase Expression by Suppression the NF $\kappa$ B activation in RAW 264.7 Cells

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The transcription factor NF $\kappa$ B is a key regulator of the cellular inflammatory and immune response. Therefore, components of the NF $\kappa$ B-activating signaling pathways are frequent targets for anti-inflammatory agents. In the previous study, we showed that the two  $\beta$ -carboline alkaloids inhibited both NOS and COX-2 activities through NF $\kappa$ B inactivation. In this study, we extended this study to get insights into the mechanism by which two alkaloids suppress the NF- $\kappa$ B activation in RAW 264.7 cells. Treatment with the  $\beta$ -carboline alkaloids blocked the LPS-induced NF $\kappa$ B activation by preventing the translocation of p65 NF $\kappa$ B and the I $\kappa$ B degradation. In addition, transient transfection experiments show that the  $\beta$ -carboline alkaloids blocked NF $\kappa$ B-dependent transcriptional activity. Moreover, LPS-induced NOS promoter activity was blocked by the  $\beta$ -carboline alkaloids. Taken together, the results suggest that the ability of  $\beta$ -carboline alkaloids to inhibit NF $\kappa$ B activation and NOS promoter activity might be responsible, in part, for its anti-inflammatory effects.

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### Genetic Structure of Benzoate Dioxygenase Complex in Biphenyl-Degrading *A. xylosoxidans* KF701

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*A. xylosoxidans* KF701 is a soil bacterium that can grow in biphenyl as the sole source of carbon and energy. A gene cluster responsible for lower pathway of biphenyl catabolism has been cloned, and genetic structure of benzoate dioxygenase complex encoded in bphXYZ genes was analyzed. Oxygenase components of the enzyme complex were composed of large subunit (bphX) and small subunit (bphY). An ORF of bphX was consisted of 1356 base pairs that can encode a polypeptide of molecular weight 54 kDa containing 452 amino acid residues. An ORF of bphY was consisted of 489 base pairs that can encode a polypeptide of molecular weight 20 kDa containing 163 amino acid residues. An electron transfer component from NADH in the benzoate dioxygenase complex was encoded in bphZ gene consisting of 1011 base pairs that can encode a polypeptide of molecular weight 40 kDa containing 337 amino acid residues. Nucleotide sequences of bphXYZ genes will be represented, and homology of them with other oxygenases will be discussed.

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