defense system against tumors, and that its prophylactic and therapeutic effect on tumor metastasis is associated with NK cell and macrophage activation.

[PA1-49] [04/17/2003 (Thr) 14:00 - 17:00 / Hall P]

Pharmacological and Adverse Effects of Aloe vera

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Active ingredients, therapeutic and adverse effects of Aloe vera were comprehensively investigated. Aloe vera contains active components, including sugars, proteins, lipids, vitamins, minerals, phenolic compounds and other several compounds like phthalate esters, gibberellin, lectin-like substances, lignin, saponins, salicylic acid and uric acid. These chemicals are responsible for various pharmacological activities such as healing activity in skin diseases, gastric ulcer, inflammation, diabetes and immunologic disorders. Aloe vera is also reported as a chemopreventive agent to be effective in initiation, promotion and metastasis stage of multistage carcinogenesis due to its active compounds like polysaccharide and aloe-emodin. Aloe contains large quantities of phenolic constituents and possesses the antioxidative activity. In addition, there are some adverse effects such as burning sensation, contact dermatitis, mild itching and cytotoxicity.

[PA1-50] [04/17/2003 (Thr) 14:00 - 17:00 / Hall P]

A Collaborative Study to Establish a Korea National Biological Standard for Antithrombin III Concentrate

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We have carried out a collaborative study to evaluate a candidate preparation of antithrombin III concentrate whether it is suitable to serve as a Korea National Biological Standard. Three National Control Laboratories and three manufacturers participated in this study. The potency of this candidate preparation was determined by using a heparin cofactor chromogenic method described in the Minimum Requirements for Biological Products and the European Pharmacopoeia. The candidate demonstrated an excellent intra- and inter-laboratory correlations when assayed against the second international standard for antithrombin III concentrate coded 96/520. The overall potency estimate was calculated as unweighted geometric means of results from all laboratories. The potency of this candidate was defined as 51.9 IU/vial (95% confidence intervals ; 48.24 ~ 55.98 IU/vial). We also performed the accelerated thermal degradation test and the predicted loss of activity per year at -20℃ was 0.227%. In conclusion, the candidate reference standard is proved to be suitable to serve as a Korea National Biological Standard for antithrombin III concentrate.

[PA1-51] [04/17/2003 (Thr) 14:00 - 17:00 / Hall P]

Importance of Cytochrome P450 3A4 Conformation for the Activity Stimulation by

Cytochrome b5 : Specific Inhibition of Cytochrome P450 3A4 by Zinc (II) Ion

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CYP3A4 is the most abundant human CYP and oxidizes a diversity of substrates, including various drugs, steroids, and carcinogens. A variety of metal ions are known to affect microsomal monooxygenase activities. Effects of a series of divalent metal ions on the CYP3A4-catalyzed reaction of reconstituted system containing purified CYP3A4, NADPH-P450 reductase (NPR), and cytochrome b5 (b5) were examined. Only Zn2+ inhibited the activity of testosterone 6값-hydroxylation catalyzed by CYP3A4 with IC50 value of 27 ∂ 9 mM. However, Mg2+, Mn2+, Ca2+, and Co2+ had no apparent effects on the activities of CYP3A4 within the range examined here. Zn2+ decreased the CO-binding spectra of CYP3A4 reduced by NPR, b5, and NADPH. Interestingly, Zn2+ didn···t inhibit the CYP3A4 reduction by NPR and NADPH in the absence of b5. Conformational change of CYP3A4 accompanying the Zn2+-induced inhibition in the enzyme activity was shown by CD, fluorescence spectroscopy, and absorption spectroscopy. The decrease in activity of CYP3A4 occurs concomitantly with the conformational change including decreased 감a-helix content. Intrinsic fluorescence intensity of CYP3A4 is also decreased in the presence of effective ion, Zn2+. The conformational change of CYP3A4 induced by Zn2+ might diminish the enhancing effect of b5 on the CYP3A4 reduction. It is known that the stimulatory effect of b5 on the CYP3A4-catalyzed reactions comes from the protein-protein interaction of CYP3A4 and b5. However Zn2+ didn···t show any apparent effects on the activity and conformation of NPR. Zn2+ can bind to CYP3A4 with a higher affinity (Ks = 24 and 22 mM) with or without the substrate, respectively, indicating that the substrate binding was not affected by Zn2+. It can be suggested that Zn2+ can modulate the CYP3A4 activity by changing the conformation of CYP3A4 and the interaction with b5. Conformation of CYP3A4 seems to be important for the proper protein-protein interaction with b5. These results suggest that the balance of metal ions including zinc and copper present in the cytosol might be important for a functional conformation of CYPs in a monooxygenase system including NPR and b5 . [This work was supported by Korea Research Foundation Grant (KRF-2000-015-FS0002)].

[PA1-52] [04/17/2003 (Thr) 14:00 - 17:00 / Hall P]

Increase of susceptibility against apoptotic stimuli in PC12 cells carrying mutant PS2 : Increase of p53 mRNA level, 8-oxo-dG formation and NF-κB activiation

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Alzheimer's disease (AD) is a neurodegenerative disorder characterized by the progresive deterioration of cognition and memory in association with widespread neuronal loss. AD is supposed to be very often associated with missense mutation located on homologous protein Presenilin (PS1) and (PS2). Up to now, the molecular mechanisms underlying the role of the gene mutation in AD still remain unclear. To compare the response against apoptotic stimuli of the wild PS2 tranfected PC12 (PC12/PS2w) cells and that of the mutant PS2 tranfected PC12 (PC12/PS2m) cells, the acetylcholine esterase activity, 8-oxo-dG levels,p53 expression and activation of transcription factors in the two cell types treated with Aβ and glutamate were compared. We found that the acetylcholine esterase activities, p53 mRNA and 8-oxo-dG levels were higher in PC12/PS2m cells compared to those of PC12/PS2w cells. We also found the levels of NF-κB DNA-binding activity were higher in PC12/PS2m cells than in the PC12/PS2w cells treated with either glutamate or Aβ. Correlated well with the different responses, the induction of apoptosis by apoptotic stimuli was much higher in PC12/PS2m cells than that in