dose-response data and for extrapolating the effects of observed at high dose to predict that might occur at lower doses relevant to human exposure. This proposed guidelines state that "If in a particular case, the evidence indicated a threshold, as in the case of carcinogenicity being secondary to another toxicity that has a threshold, the margin of exposure analysis for toxicity is the same as is done for a non-cancer endpoint". DEHP is excellent candidate for reconsideration under the new guidelines for carcinogen risk assessment(John Doull et al., 1998).
This study is conducted about risk asssessment for infant exposure on DEHP in powdered milk using methodology in EPA's new guideline on carcinogenic risk assessment. Estimated cancer risk of DEHP in powdered milk is 1.2E-5(using cancer potency : 1.4E-2 /(mg/kg/day)) and MOE is 0.04(using selected NOEL 20mg/kg/day, uncertainty factor 1000).

[PA3-5] [10/18/2001 (Thr) 14:00 - 17:00 / Hall D]

Suggestion of Policy Option for Management of Cadmium in Food using Reference Dose and Human Exposure Pattern

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Cadmium can be exposed in human via multimedia such as ambient air, water, soil and food. It was reported that food was the main exposure source of cadmium by several studies. This study was conducted to quantify dietary intake level of cadmium and to suggest managing option for management of cadmium using reference dose and human exposure pattern. In order to quantify the dietary intake level of cadmium, data were obtained from both the cadmium levels in foods and consumption data for 53 foods, which were selected as foods must commonly consumed by the general Korean. The residue data in food for the last 5 years, from the Korea Food and Drug Administration and related agencies were collected. For the suggestion of policy option, the maximum residue value of food groups were induced having theory that daily dietary intake level of cadmium must not exceed reference dose as 0.001mg/kg/day based on kidney dysfunction of cadmium and exposure contribution by food group to total dietary intake level. The daily dietary intake level of cadmium, which the general Korean adult group with 60kg was regarded as the target population and the Report on National Health and Nutrition Survey (2000) was used as consumption data, was estimated to be 3.3410-4mg/kg/day. The order of exposure contribution to total dietary intake level was grain (34.02%), vegetables (28.26%), fishes (10.90%), meats (10.38%), fruits (8.08%), legumes (5.0%), potatoes (3.17%), and nuts (0.19%). The maximum residue levels of food group to control below reference dose exposure of cadmium were suggested using equation , maximum residue level(mg/kg) = [Reference dose(mg/kg/day) Body weight (kg)] / [Intake level(g/day) 0.001(kg/g)] and suggested managing options by food group were 0.057ppm in grain, 0.051ppm in vegetables, 0.086ppm in fishes, 0.085ppm in meats, 0.023ppm in fruits, 0.088ppm in legumes, 0.05ppm in potatoes, and 0.051ppm in nuts.

[PA3-6] [10/18/2001 (Thr) 14:00 - 17:00 / Hall D]

Apoptosis induced by tetrandrine in HepG2 cells proceeds via cytochrome c independent and caspase-8 dependent.

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Tetrandrine is a bis-benzyl isoquinoline alkaloid derived from the root of Stephania tetrandra S. Moore, which was reported to elicit in vitro cytotoxic effect on Hela cells and in vivo suppressive effects on mouse ascite tumor. Tetrandrine also induced apoptosis in a various cell lines. Recent studies have revealed that mitochondria has been shown to play an important role in the regulation of several

apoptotic processes.The prupose of the present study is to elicit rhw molecular mechanism of tetrandrine induced apoptosis in HepG2 cells. Treatment of the cells with tetrandrine resulted in the activation of caspase-3 protease and the cleavage of PARP. The activation of caspase-8 was also observed at a concentration of 16 uM.Tetrandrine didn't affect the release of cytochrome c from mitochondria into cytosol in a time and dose dependent manner. The teratment of HepG2 cells with tetrandrine did not influence the mitochondrial transmembrane potential(MPT) as has been determined by JC-1 staining. Caspase-9, a downstream caspase of cytochrome c release, was not activated by the treatment with tetrandrine. These results suggest that apoptosis of HepG2 cells induced by tetrandrine proceeds via cytochrome c independent and caspase-8 as well as caspase-3 dependent pathway.

[PA3-7] [10/18/2001 (Thr) 14:00 - 17:00 / Hall D]

Protection against hydrogen peroxide-induced oxidative DNA damage by galangin

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The effect of *Alpinia officinarum* extract and its major flavonoid, galangin (>10% in the 70% ethanol extract) on the oxidative DNA damages *in vitro* were evaluated to develop new chemopreventive agent against oxidative stress. In order to investigate the modulating effects of these compounds, 8-OH 2'dG and comet assay have been performed in CHL cell. Hydrogen peroxide (H_2O_2) and iron (II) induced 8-OH 2'dG formation and DNA damages in CHL cells were decreased by catalase, SOD and model antioxidants (Vit-E, Vit-C, BHT), including *Alpinia officinarum* extract and galangin. Galangin showed the most potent modulating effects on the oxidative DNA damages *in vitro*. These results suggest that *Alpinia officinarum* extract and its major flavonoid, galangin may be useful chemopreventive agents for protecting cellular oxidative DNA damage by oxidative stress.

[PA3-8] [10/18/2001 (Thr) 14:00 - 17:00 / Hall D]

Cardioprotective effect of Lidera erythrocarpa against oxidative stress-induced cell death

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Recent evidence has suggested an intimate link between myocardial failurean and an excessive generation of reactive oxygen species(ROS), such as O2-, 갏OH, H2O2. We investigated the effect of several extracts of natural products, Hovenia dulcis, Koelreuteria paniculata, Sorbus comixta, Pedicularis resupinata, Lindera erythrocarpa, Sanguisorba officinalis, Boehmeria berchemiae, Euscaphis japonica, against ROS-induced cell death. Previously it has been demonstrated that those extracts have anti-oxidant effect as shown by DPPH assay. Cell death was induced by using BSO, buthionine sulfoximine, which inhibit GSH level and subsequntly increase ROS level. Cell death was quntitatively determined by measuring lactate dehydrogenase(LDH) activity, propidium iodide(PI)-uptake and morphology.
Among those extracts, Lindera erythrocarpa has shown the most potent protective effect against BSO-*induced cardiac cell death*. From 0.3ug/ml to 10ug/ml of Lindera erythrocarpa reduced LDH release and PI-uptake by induced BSO, in a dose-dependent manner. We also observed cardioprotective effect of Lindera erythrocarpa morphologycally by using microscope. In conclusion, our results suggest that Lindera erythrocarpa can produce cardioprotective effect against ROS-induced cell death.