carcinogen which caused lung, liver and cervical cancers. It is also reported as an endocrine disruptor that affects on the reproductive system and sperm counts. DBCP causes DNA damage and genotoxicity in animal cells. However, at the present time, the exact mechanism of the action of DBCP with respect to mutagenicity and carcinogenicity is unknown. For this reasons, we studied mutation spectrum induced by DBCP using transgenic Big Blue mutation assay which can investigate both the mutagenic potential and the mechanism of action of suspected mutagen and carcinogen. Big Blue Rat2 cells were treated with 0.748, 0.387 and 0.207 mM of DBCP, resulted in 50, 70 and 80% survival, respectively. The mutant frequency (MF) of *lacI* in control was 4.22×10^{-5}, whereas MF value in DBCP-treated groups showed statistically significant and dose-dependent increase. The DBCP-induced and spontaneous mutation spectrum will be represented at this report in detail.

[PA4-22] [04/21/2000 (Fri) 10:30 - 11:30 / [1st Fl, Bldg 3]]

THE ROLE OF HEPATIC METABOLISM IN THE ACUTE TOXICITY OF PARATHION

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Effects of phenobarbital and/or ketoconazole pretreatment on the acute toxicity of parathion were examined in male Sprague-Dawley rats. Phenobarbital pretreatment (50mg/kg/day, ip) for 4 consecutive days resulted in a significant decrease in inhibition of acetylcholinesterase activity in rats challenged by parathion (2mg/kg, ip). In contrast, ketoconazole (50mg/kg, ip) pretreatment potentiated the toxicity of parathion in brain. The protective effect of phenobarbital was markedly reduced by additional ketoconazole treatment. Phenobarbital treatment at the dosage regimen used in this study increased cytochrome P450 contents, protein contents and hepatic microsomal enzyme activities; p-nitrophenol hydroxylase, p-nitroanisole hydroxylase, aminopyrine N-demethylase and erythromycin N-demethylase. Hepatic aliesterase activity responsible for the detoxication of parathion was increased by phenobarbital. Ketoconazole treatment decreased aminopyrine N-demethylase and erythromycin N-demethylase. Induction of erythromycin N-demethylase by phenobarbital was blocked by ketoconazole treatment. Either phenobarbital or ketoconazole itself did not affect the acetylcholinesterase activity or the total hepatic glutathione contents. The results indicate that hepatic metabolism plays a significant role in the toxicity of parathion, although the target organs of organophosphorus compounds are primarily extrahepatic tissues such as brain and lung.

[PA4-23] [04/21/2000 (Fri) 10:30 - 11:30 / [1st Fl, Bldg 3]]

Monitoring Studies on Endocrine Disruptors(Cd, Pb, Hg) in Humans

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ABSTRACT

Human and vital systems were exposed to a variety of endocrine disruptors and accumulated by them which acted as many kinds of hormones. So they affected the number of germ and undermined male reproductive systems, immune systems and endocrine systems. This research was

intended to study the monitoring of heavy metals(Cd, Pb, Hg), endocrine disruptors, in korean people with study of 104 korean normal adults and 47 placentas.
This showed that the concentration of Cd was arithmetic mean 1.44±0.65㎍/L, that of Pb was arithmetic mean 31.70±14.12㎍/L and that of Hg was arithmetic mean 6.30±3.08㎍/L in blood, the concentration of Cd was arithmetic mean 1.53±1.04㎍/L, that of Pb was arithmetic mean 18.96±7.35㎍/L and that of Hg was arithmetic mean 2.72±3.16㎍/L in urine and the concentration of Cd was arithmetic mean 94.45±33.69ng/g, that of Pb is arithmetic mean 92.63±24.44ng/g and that of Hg is arithmetic mean 43.24±30.78ng/g in dried placentas.
From these results, the concentrations of Pb and Hg in blood were higher than in urine and the concentration of Cd in blood accords with that of Cd in urine.
The concentrations of Cd, Pb and Hg in blood and urine were within the reference ranges of American and Japanese clinical laboratories.
Comparing the relative concentration ratio of Cd to Pb in blood and urine with that of Cd to Pb in placenta was relatively much higher than in blood and urine. It suggested that the placenta acted as a barrier to Cd.

[PB1-1] [04/21/2000 (Fri) 10:30 - 11:30 / [1st Fl, Bldg 3]]

Involvement of cyclic nucleotide pathway in regulation of gastric motility by ethanol

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To investigate underlying mechanism of ethanol in gastric smooth muscle relaxation, we examined the effect of ethanol on gastric motility and cyclic nucleotide pathway. Ethanol dose-dependently inhibited amplitude and frequency of spontaneous phasic contraction of cat gastric smooth muscle, whereas elicited tonic contraction at concentrations of more than 0.5%. Both spontaneous phasic contraction and 2% ethanol-induced tonic contraction were significantly inhibited by forskolin and sodium nitroprusside. Ethanol dose-dependently inhibited basal cyclic AMP levels and forskolin-induced cyclic AMP formation. On the other hand, ethanol significantly increased the basal cyclic GMP levels and sodium nitroprusside-induced cyclic GMP formation at low concentrations of less than 0.25%. However, ethanol at concentrations of more than 1% significantly inhibited sodium nitroprusside-induced cyclic GMP levels. These results suggest that regulation of gastric motility by ethanol is in part mediated via cyclic nucleotide pathway.

[PB1-2] [04/21/2000 (Fri) 10:30 - 11:30 / [1st Fl, Bldg 3]]

Role of cyclooxygenase-2 in chloroquine-induced apoptosis in A172 human glioblastoma cells

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Role of cyclooxygenase-2 in chloroquine-induced apoptosis in A172 human glioblastoma cells

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Chloroquine, widely used for the treatment of malaria as well as a variety of inflammatory diseases including rheumatoid arthritis, has been reported to induce neuromuscular complications. However, little information is available regarding the mechanism of chloroquine toxicity on the nervous system We have examined the in vitro effects of chloroquine on DNA fragmentation, lipid peroxidation,