examine the estrogenic and dioxin like activites using pERE-Luc and pCYP1A1-Luc reporter system. River water was extracted using combined solid-phase extraction in static adsorption mode with soxhlet extraction. Chemicals adsorbed to the XAD-4 resin were recovered 98.24± 5.90% by elution with ethyl acetate and methylene chloride (1:9). Kumho River of Korea showed 0.77 pM EEQ in upstrean and 7.7pM EEQ in downstream. Kum River of Korea showed 3.5pM and 1.7pM EEQ in upstream and downstream respectively. Mankyung River of Korea showed 61fM and 0.41 pM EEQ in upstream and downstream respectively. Miho Stream of Korea showed 0.2pM EEQ only in the upstream. All these samples were tested with pCYP1A1-Luc activity and results showed there were more dioxin like activities in sediments than water from the river.

[PA4-22] [10/19/2000 (Thr) 10:00 - 11:00 / [Hall B]]

No teratogenicity of Phthalates using in vitro battery system

Kim SH°,Kim SS, Kwon OR, Sohn KH, Kwack SJ, Oh SD, Choi YW, Han SY, Ha KW, Chung SY and Park KL

Reproductive and Developmental Toxicology Division, National Institute of Toxicological Research, Korea FDA; College of Pharmacy, Kyunghee University, Seoul, Korea

Phthalates have been used as plasticizers in polyvinyl chloride plastics such as cable coating, flooring, and blood bags. It was generally demonstrated that many phthalates is a developmental toxicant in rodents. However, in vitro teratogenic effects of phthalates are not clearly known. The aim of this study was to investigate the teratogenic potential of phthalates (DEHP, BBP, and DBP) using in vitro battery system. Short-term in vitro battery system (whole embryo culture and limbbud and midbrain cell micromass culture) has been proposed as a preliminary screening method of teratogens.In whole embryo culture, rat embryos at gestation day 9.5 were cultured in rat IC serum for 48 h. Micromass culture of embryonic limbbud and midbrain cells was performed based on the method of Flint. After 5 days of culture, cell proliferation was assessed by neutral red uptake and cell differentiation was determined by hematoxylin-stained foci area or alcin blue staining, respectively. In whole embryo culture, there were no morphological abnormalities of embryo at any concentration of phthalates. However, phthalates tested in our studies decreased growth and development of embryo only at higher concentration. Although in vitro battery system did not detect the embryotoxicity of phthalates, these results suggest that phthalates (DEHP, DBP, and BBP) itself are able to alter normal embryonic growth and development.

[PA4-23] [10/19/2000 (Thr) 10:00 - 11:00 / [Hall B]]

Comparative evaluation of a 20-day thyroid/pubertal male assay and Hershberger assay for the detection of androgenic/antiandrogenic activity

Moon HJ*, Kim HS, Shin JH, Kim TS, Kang IH, Suk JH, Kim IY, Lee KM, Hwang, IK and Han SY

Endocrine Toxicology Division, National Institute of Toxicological Research, Korea Food and Drug Administration, 5 Nokbun-dong, Eunpyung-ku 122-704, Seoul

Several different screening and testing methods for the detection of endocrine disruptors (EDCs) have been proposed recently. A rodent Hershberger assay is one of the screening methods recommended by EDSTAC and OECD. A rodent 20-day thyroid/pubertal male assay is also one of alternative methods to replace the Tier I Screening Battery. The purpose of our study is to evaluate comparatively short-term in vivo screening methods to detect substances with androgenic/antiandrogenic activity. Hershberger assay was performed utilizing immature Sprague-Dawley male rats castrated at 6 weeks of age. Testosterone (0.4 mg/kg/day) was subcutaneously (s.c.) injected for 10 days. Additionally, a pure androgen antagonist, flutamide (1, 5, and 10 mg/kg/day) was administered by oral gavage after testosterone treatment. In testosterone treatment group, glans penis (GP), seminal vesicles (SV), ventral prostate (VP), levator ani muscle