female (po: control, 0.1, 0.4, and 0.8 mg/kg TBF for 2 days) and male (po: control, 0.1, 0.5, and 1.0 mg/kg TBF for 3 days) rats were sacrificed 24 hr after administration. In experiment II, 48-days-old female and male rats (po: 0.5 mg/kg TBF for 2 days) were sacrificed 0, 6, 12, 24 and 72 hr after the last dose. In experiment III, 48-days-old female and male rats (po: control or 0.5 mg/kg TBF for 2 days) were sacrificed 12 hr after last dose. Result: In experiment I, mortality was 25% in 1.0 mg/kg TBF group of male and 50% in 0.4 and 0.8 mg/kg TBF groups of female rats. AchE was significantly decreased only in the frontal and entorhinal cortices of female rats receiving 0.4 or 0.8 mg/kg TBF. In experiment II, no death was observed in female or male rats. The maximal inhibition in the brain regions or plasma was 2 or 3-fold higher in female, which occurred 6 or 12 hr after last dose. In experiment III, mortality was 20% and 0% in female and male rats, respectively. AchE activity in the frontal cortex was significantly inhibited by 60–65% in female and 10–15% in male rats treated with TBF. These results show that female is more sensitive to the inhibition of AchE or mortality than male rats, indicating that TBF causes sexual dimorphic effects on AchE inhibition or mortality in age-matched rats.

[PA4–28] [10/18/2002 (Fri) 09:30 – 12:30 / Hall C]

Changes of serum immunoglobulin in the subacute oral administration of bisphenol A

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Bisphenol A (BPA), a monomer used in the manufacturing epoxy resins and polycarbonates, has been reported to induce estrogenic activity, it has been considered as an environmental endocrine disruptor. But the immunomodulatory effects of BPA exposure have not been systematically evaluated. We investigated whether BPA effects on the ability of immunoglobulin (Ig) production of mice. To initiate investigation of BPA-induced alterations of the immune system, BPA at dose of 100, 500, 1000 mg/kg b.w./day with or without OVA-antigen for 30 days were orally administered to female ICR mice. Mice were sacrificed and serum was collected on day 1 following administration of BPA for 30 days. Total IgG1, total IgG2a, total IgE, OVA-specific IgG1, OVA-specific IgG2a, and OVA-specific IgE in serum were determined and compared with those of non-treated mice.

In the groups of BPA with OVA antigen, total IgG1, total IgG2a, total IgE, OVA-specific IgG1 and OVA-specific IgG2a were significantly decreased at dose of 500 mg/kg/day and 1000 mg/kg/day. However, in mice treated with BPA alone, total IgG1 and IgG2a were not much altered and total IgE was significantly increased at dose of 1000 mg/kg/day. These results demonstrated the BPA modulates the production of immunoglobulin.

[PA4–29] [10/18/2002 (Fri) 09:30 – 12:30 / Hall C]

In utero exposure to 2, 3', 4, 4', 5'- Pentachlorobiphenyl (PCB 118) alters postnatal reproductive development in female rat

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Our previous study demonstrated that 2, 3', 4, 4', 5'- Pentachlorobiphenyl (PCB 118) showed an antiestrogenic activity in vitro and in vivo. In the present study, we examined the effect of PCB 118 on postnatal reproductive development in female rats. PCB 118 (0.001, 0.01 or 0.1 mg/kg/day) was administered to pregnant female SD rats from gestation day (GSD) 6 to 18 via subcutaneous injection, and developmental parameters such as vaginal opening were determined. PCB 118 significantly delayed vaginal opening of female offsprings at dose of 0.1 mg/kg/day, whereas had no effects on body weights. In addition, in utero treatment of PCB 118 caused significant decreases in serum levels of E2, T3 and T4 in female offsprings at certain doses on postnatal day (PND) 22. Our data of results indicate that in utero exposure to PCB 118 may alter postnatal reproductive development in female rat through its antiestrogenic activity.

[PA4–30] [10/18/2002 (Fri) 09:30 – 12:30 / Hall C]
Screening and Confirmation of Designer Drugs and Anorectics in Urines using Immunoassay and GC/MS

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Immunoassays are frequently used for a screening method to detect the presence of drugs in urine. The main advantages of the method are well known — simplicity of handling samples, rapidity, sensitivity, and specificity of analysis. However, it is also known that immunoassays exhibit cross-reactivity to related drugs and there are only limited specific immunoassays on the market. This study reports on the ability of TDx to detect urine samples obtained from subjects of taking over-the-counter medications and illegal drugs containing ATS, designer drugs. Samples identified as positive or negative by TDx assay were confirmed by GC/MS. Accusign MET, SD bioline, TDx Solaris and selectra were also compared respectively in terms of the specificity and sensitivity for drugs. First, MDMA and MDA were detected in 4 samples, and only MDA was detected in 1 sample. Second, ephedrine (EP) and pseudoephedrine (PEP) were detected in 9 samples. and methoxyphenamine (MTP) was detected in 1 sample. Third, 6 phenethylamine (PT), one fenfluramine (FF) and two Phendimetrazine (PDT) were detected from 24 samples. This study also describes the following results for 15 drugs with 6 kinds of immunoassays. First, 250ng/mL of MDA, MDMA, MDEA, EP, norEP, and norPEP were positive by Solaris. Second, the sensitivity for MDMA was the highest by TDx. The sensitivity order was MDMA>MDEA>FF>PT>MPT. Third, FF was the most sensitive by Selectra. Fourth, the sensitivity for MDA was high by SD-line AMP, while the sensitivity for MDMA was high by SD-line MET. Fifth, the sensitivity for MDMA and MDEA was high by Accusign, but the sensitivity for MDA was very low.

Poster Presentations – Field B1. Physiology

Effects of Protein Kinase Inhibitors on Histamine Release and ROS Generation in RBL 2H3 Cells

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Previous report showed that histamine release by HCl was mediated via reactive oxygen species (ROS) generation in RBL 2H3 cells. To investigate action of protein kinase on histamine release and ROS generation, we observed effects of protein kinase inhibitors on histamine release and ROS generation in RBL 2H3 cells stimulated by HCl. HCl dose-dependently increased both histamine release and ROS generation. HCl-induced histamine release was significantly inhibited by bisindolmaleimide (10 μM), DHC (10 μM), and wortmannin (10 μM), but not by PD098059 (10 μM). On the other hand, HCl-induced ROS generation was significantly inhibited by DHC (10 μM), but not by bisindolmaleimide (10 μM), wortmannin (10 μM) and PD098059 (10 μM). However KN-62 did not inhibited both. These results showed that involvement of protein kinase in regulation of histamine release and ROS generation may be different and only tyrosine kinase may be associated with regulation of both histamine release and ROS generation in RBL 2H3 cells.

Protective effect of KR-32000 against hypoxia- and oxidative stress–induced cardiac cell death

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