concentrations were determined for pooled urine. Analyte CVs for the concentrations ranged from 1.07% to 6.27% for the pooled urines. These results indicate that analytes in urine samples are stable for 7 days in 4°C, −20°C, and −70°C temperatures should give a representative value of the analyte concentration at time zero for that individual. These findings suggest that development effects of BPA exposure could be investigated with measurements from stored urine.

PP-29-099

Validation and Application of a Method for the Determination of Phthalate in Urine by LC-MS/MS: Short-term Temperature Stability Test

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Background/Aims: Phthalates are widely used in a group of industrial chemicals as solvents, additives, and plasticizers. Humans are potentially exposed to many products contained phthalates. Phthalates are rapidly metabolized in humans to their respective monoesters, which depending on the phthalate can be further metabolized to their oxidative products. Monoesters and the oxidative metabolites of phthalates may be glucuronidated, and these conjugates excreted in the urine and feces. We applied our novel method to analyze urine samples using pooled urine several kind of phthalate reported mEHP, mEOHP, and MnBP. Therefore, information on the concentration of these free species in urine could be helpful for risk assessment. Because conjugates could hydrolyze to their corresponding free forms during collection, handling, and storage of biological specimens, information on the temporal stability of the conjugates is of interest. The ability to measure phthalates in urine samples after short-term storage could aid in such studies. As part of the baseline assessment, urine samples are being collected, processed and frozen at 4°C, −20°C, and −70°C for short-term storage for experiment later.
Methods: The application for testing urine pools for fractionation. Therefore, has to be accompanied by appropriate validation. Three aliquots of the low, medium, and high concentrations should be thawed at room temperature and kept at this temperature from 4 to 24 hours and analyzed.
Results: In our study, the concentration of phthalate in the urine stored at 4°C or 25°C did not change to compare with the concentration of phthalate in urine frozen at −70°C immediately after the collection. The concentration of phthalate also showed same result after about 7 days storage at 4°C, −20°C, and −70°C.
Conclusion: The proper storage conditions depend on a variety of factors used for need to experiment result about sample stored for longer periods.

PP-29-100

Differential Gene Expression Analysis in Human Leukemia Cell Line K562 Treated With Benzene

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Background/Aims: Even though the exposure to benzene has been linked to variety of cancers including leukemia, the detailed molecular mechanism of carcinogenesis by benzene remains unidentified. We investigated the effects of benzene on differential gene expression in leukemia.
Methods: After leukemia cell (K562) were cultured in RPMI media with 10 mM benzene, RNA extraction, and nucleosome extraction. To analyze the gene expression profiles, using 41,000 human whole genome cDNA microarray, western blot analysis.
Results: We initially identified 154 gene altered by benzene treatment. Of these, 88 genes were upregulated and 66 genes were down regulated more than 6 fold, respectively. Functional classification revealed that identified genes were involved in transcription, cell proliferation, cell cycle, and apoptosis. Additionally, we have identified that benzene treatment modified histone modifications including histone H3 and H4 acetylation status in K562 cells.
Conclusion: These gene expression profiles should provide further understanding of the molecular mechanism of benzene-induced leukemogenesis.

PP-29-101

Relationship Between AhR Gene Polymorphisms and Dioxin Concentrations in Maternal Blood—Hokkaido Study on Environment and Children's Health

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Background/Aims: Dioxins (PCDDs, PCDFs, Dioxin-like PCBs) are endocrine disruptors, which when exposed to at low levels during pregnancy, are thought to have negative effects on fetal growth. Maternal dioxin concentrations vary greatly among individuals due to factors such as smoking, parity, and age. However, dioxin concentrations in maternal blood may also be affected by individual dioxin metabolizing ability. Dioxins are metabolized by the CYP1 enzyme family, which is produced by the binding of dioxins with the aromatic hydrocarbon receptor (AhR). Thus far, although 1 study has analyzed dioxin concentrations in relation to CYP1A1 genotype, no such studies have considered AhR. The aim of this study is to determine whether AhR polymorphisms affect dioxin concentrations in maternal blood.
Methods: We examined 421 mothers who enrolled in our study between 2002 and 2005 in Sapporo, Japan. Relevant information was collected from a baseline questionnaire during pregnancy and from medical records at delivery. Dioxin concentrations in maternal blood were measured by high-resolution gas chromatography/high-resolution mass spectrometry. We used multiple linear regression analyses after adjustment for maternal age, height, pre-pregnancy weight, caffeine and alcohol intake during pregnancy, parity, smoking status during pregnancy, education level, annual household income, inshore and deep-sea fish intake during pregnancy, and blood sampling period.
Results: When the difference in beta dioxin congener concentrations (log10 [pg/g lipid] scale) between the AhR (G>A, Arg554Lys) GA/AA referent genotype and GG genotype were measured, total non-ortho PCBs (beta = −0.044), and total mono-ortho PCBs (beta = −0.054) levels were significantly decreased. Specifically, 3,3′,4,4′-TeCB (#77), 3,3′,4,4′,5-PeCB (#126), 2′,3,4,4′,5-PeCB (#123), 2,3′,4,4′,5-PeCB (#118), 2,3,3′,4,4′-PeCB (#105), and 2,3′,4,4′,5,5′-HxCB (#167) levels were significantly decreased.

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