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Geographical Distribution and Congener Pattern Trend of Polybrominated Diphenyl Ethers (PBDEs) in Human Breast Milk from 3 Different Regions, Korea

In Cheon Baek, Sung Ug We and Byung Yoon Min*

Department of Environmental Engineering, Kyungnam University, Masan, 631-701

PBDEs have been widely detected and quantified in biota and humans in many industrialised countries from the Northern Hemisphere. The aim of the present study was to evaluate the PBDEs human milk distribution in residents from an capital region Seoul ($n=22$), manufacturing region Ansan ($n=22$), and mountainous region Chuncheon ($n=22$). This study were analysed by isotope dilution method and HRGC/HRMS (EI-SIM mode) for 18 BDE-28, 47, 99, 100, 153, 154 and 183 congeners. In the distribution ratio of concentrations for PBDE congeners in breast milk, the ratio of BDE-47 to them was in the highest position and then followed as BDE-153, BDE-100 BDE-28, respectively. Σ PBDEs concentration of Seoul, Ansan and Chuncheon showed 4.46 ± 3.27 ng/g lipid (mean \pm standard deviation), 1.91 ± 0.77 ng/g lipid and 2.35 ± 2.53 ng/g lipid, respectively. Also concentration range were $1.51 \sim 17.13$ ng/g lipid, $0.98 \sim 4.0$ ng/g lipid and $0.82 \sim 11.59$ ng/g lipid, respectively. The data suggest regional differences are likely to be small if they exist at all. The concentrations of PBDEs found in Seoul region human milk were higher than Ansan and Chuncheon region human milk. Our result were strongly associated suggesting multiple exposure routes.

Key words: PBDEs, HRGC/HRMS, human breast milk

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Temporal Profile of CREB Expression in Mouse Testis during Postnatal Development and Spermatogenesis

Joong-sun Kim, Myoung-sup Song, Heung-sik Seo, Jong-Choon Kim,
Sung-Ho Kim and Changjong Moon

College of Veterinary Medicine, Chonnam National University, Gwangju 500-757, Korea

The basal activity and cellular localization of cAMP response element-binding protein (CREB) was examined in mouse testis during postnatal development and spermatogenesis. Testes of ICR mice were sampled on postnatal days (PND) 1, 3, 6, 18, 48, and 120 and analyzed by Western blotting, which showed that basal CREB activity was significantly higher in early-phase (PND 16) developing testes than in adult testes (PND 48/120). Furthermore, immunohistochemical analysis of various testicular cell types demonstrated CREB phosphorylation during postnatal development. In particular, the level of CREB phosphorylation in seminiferous tubules of the adult testis varied according to the spermatogenic cycle. CREB phosphorylation was seen in spermatogonia during all stages. Phosphorylation was moderate in pachytene spermatocytes of stages IIII and intense in round and elongate spermatids of spermiogenesis in stages XIII-X. These results suggest that CREB plays an important role in cell proliferation and differentiation in the early phase of postnatal development and spermatogenesis of mouse testis. This work was supported by the Regional Research Centers Program (Bio-housing Research Institute), granted by the Korean Ministry of Education, Science and Technology.

Key Words: CREB; Testis; Development; Mouse; Spermatogenesis.