dose dependent manner and their induced activities were decreased by tamoxifen (Tam) treatment. Phenolic compounds, such as octyl phenol (OP), nonyl phenol (NP), biphenol (BP), also induced the luciferase activity in dose dependent manner. Curcumin-derivatives, such as SB118, SB123, induced the luciferase activity and Tam treatment decreased SB118- and SB123-induced luciferase activities. Other curcumin-derivative, SB100, didn't induce the luciferase activity, but inhibited OP-, NP- and BP-induced luciferase activity. Over than 30 flavonoids were tested in this system, and isoflavone, such as biochanin A, daidzein, genistein, showed higher luciferase activity than others. Resveratrol driven from red wine induced the luciferase activity in dose dependent manner. To determine cell proliferative effect of chemicals, SRB assay was performed. E2 and DES increased the SRB readings 20-30 folds over that of control, and their activities were blocked by Tam treatment. Many flavonoids were tested in this system, and similar results to luciferase assay were achieved. These data shows that these methods are valuable tools for screening estrogenic activity of chemicals.

[PA4-18] [10/19/2000 (Thr) 10:00 - 11:00 / [Hall B]]

Reduced generation of reactive oxygen species and proliferation in human neuroblastoma cells treated with 2,3,7,8-tetrachlorodibenzo-p-dioxin

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2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) is one of the most toxic environmental pollutants. Wide range of toxic effects of TCDD have been known to be mediated through a ligand activated transcription factor termed arylhydrocarbon receptor (Ahr), which acts in concert with another structurally related protein, the arylhydrocarbon nuclear translocator. Despite the enormous reports regarding diverse actions of TCDD, the direct effect on the central nervous system has been largely unknown. In this study we have examined the toxic effects of TCDD on the human brain derived neuroblastoma cells. TCDD significantly suppressed proliferation of SK-N-SH cells. To elucidate the action mechanism, we studied possible involvement of reactive oxygen species and oxidative stress since endogenously generated reactive oxygen species are important growth modulatory signals. TCDD significantly reduced lipid peroxidation and generation of superoxide anion in the cells. The effect was not blocked by the treatment with α-naphthoflavone, a Ahr antagonist, or 8-methoxypsoralen, a binding inhibitor of activated Ahr to dioxin responsive element indicating that superoxide reducing action of TCDD is independent from its intracellular receptor. TCDD also significantly inhibited the activities of glutathione reductase, glutathione peroxidase. However, TCDD enhanced the activity of superoxide dismutase. In conjunction with the fact that a particularly risk group may be newborn infants, as it has been shown that TCDD is very efficiently transferred by lactation, the results suggest that TCDD may disturb brain development through inhibition of neuronal proliferation and generation of endogenous reactive oxygen species.
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[PA4-19] [10/19/2000 (Thr) 10:00 - 11:00 / [Hall B]]

Gene expression profile and estrogenicity of dibutyl phthalate in MCF7 cells using cDNA microarray and E-screening test

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Various phthalate compounds are used as softeners and plasticizers in a wide range of plastic materials. Since these substances are not limited to the original products, but enter the