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IDENTIFICATION OF 2,3,7,8-TETRACHLORODIBENZO-P DIOXIN RESPONSIVE GENES IN HUMAN HACAT AND CHANG LIVER CELLS

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2,3,7,8-Tetrachlorodibenzo-p-dioxin(TCDD) a prototype of many halogenated aromatic hydrocarbons, is a ubiquitous, persistent environmental contaminant and the most powerful carcinogen categorized by IARC. Despite extensive research, the mechanisms of TCDD-induced carcinogenesis are poorly understood. To enhance our understanding of toxicity mediated through the pathway by which TCDD stimulates gene expression, we have investigated genes whose expressions are changed after treatment with TCDD and MNNG for two weeks in human HaCaT and Chang liver cells. We treated with TCDD and MNNG to transform human HaCaT and Chang liver cells. We obtained cells looks like to be transformed and compared the differential gene expression by using cDNA chip which carries genes related with signal transduction pathways, oncogenes and tumor suppressor genes, etc. We found that TCDD up-or down-regulated 203 and 111 genes including oncogenes and tumor suppressor genes in human HaCaT and Chang liver cells two fold or more, respectively. These results suggest that toxicity induced by TCDD may reflect sustained alterations in the expression of many genes and that the changes reflect both direct and indirect effects of TCDD.

keyword : dioxin, TCDD, cDNA microarray