【P-40】

# Retinoid Regulation of CYP 1A Expression and Erod Activity by Retinoic Acids in Rainbow Trout Hepatoma (RTH-149) and Mouse Liver Cells (HEPA 1C1C7)

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Exposure of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) or polyaromatic hydrocarbons (PAHs) cause a variety of biological and toxicology effects, most of which are mediated by arylhydrocarbon receptor (AhR). The ligand-bound AhR as a heterodimer with AhR nuclear translocator (ARNT) binds to its specific DNA recognition site, the dioxin-responsive element (DRE), and it results in increased transcription of CYP1A1 gene. Retinoic acid (RA) regulates the transcription of various genes for several essential functions through binding to two classes of nuclear receptors, the retinoic acid receptor (RAR) and retinoid X receptor (RXR). In this study, we have examined and compared how retinoic acids (RAs) regulated CYP1A transcription level and enzyme activity of CYP1A in rainbow trout hepatoma cell (RTH-149) and mouse liver cell (Hepa 1c1c7) using luciferase reporter gene assay system and EROD activity assay system. We did transient transfection with CYP1A1 luciferase reporter gene and treated with TCDD/ PAHs (Benzo(k)fluoranthene, Dibenzo(a,h)anthracene), all-trans RA and 9-cis RA. For we observed the effect of retinoic acids on TCDD/ PAHs-induced EROD activity, we did EROD activity assay. Treatment of all-trans RA and 9-cis RA decreased the TCDD/ PAHs induced transcription of CYP1A in RTH-149 cells. Retinoids slightly decreased the TCDD/ PAHs induced of CYP1A enzyme activity in RTH-149 cells. However, Hepa 1c1c7 cells showed different results from RTH-149 cells.

**Keyword** : CYP1A1, TCDD, PAH, RETINOIC ACID