【P-30】

Modulation of human cytochrome P450 1B1 by 2,3',4,5'-tetramethoxystilbene(TMS) in mammary tumor cells and its application for cancer chemotherapy.

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We have previously shown that 2,3',4,5'-tetramethoxystilbene(TMS), a *trans*-stilbene analogue, is one of the most potently selective inhibitor of recombinant human cytochrome P450 1B1 in vitro. In the present studies, the effects of TMS on the expression of cytochrome P450 1B1 were investigated in human mammary cell lines such as MCF-7 and MCF-10A. TCDD-stimulated P450 1B1 expression was significantly suppressed by TMS in a dose-dependent manner. However, TMS exert no appreciable effect on Ah receptor and ARNT mRNA expression. It was found that there exists a correlation between P450 1B1 suppression and the cytotoxicity of TMS in human mammary cells. In MCF-7 cells, the cytotoxic effect of anticancer drugs such as paclitaxel, docetaxel or etoposide was enhanced in the presence of TMS. Taken together, our results indicate that TMS is a strong modulator of P450 1B1 gene expression as well as a potently selective inhibitor of P450 1B1. The ability of TMS to increase cytotoxic effect of anticancer drugs may contribute to its usefulness for cancer chemotherapy.