STUDY OF RESVERATROL AND ITS DERIVATIVES ON THE REGULATION OG GENE EXPRESSION IN MCF-7 CELLS TRANSFECTED WITH EITHER pERE-LUC OR phCYP1A1-LUC

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Resveratrol (trans-3,4',5-trihydroxystilbene), which is a polyphenolic compound found in a variety of plants such as grapes and wine, has been reported to have a variety of anti-inflammatory, anti-platelet, and anti-carcinogenic effects. Recently resveratrol was reported to serve as an estrogen agonist in MCF-7 cells Based on its structural similarity to diethylstilbestrol, a synthetic estrogen, we examined whether resveratrol and its derivatives might be estrogenic using stable MCF-7-ERE cells. Resveratrol functioned as a superagonist at high concentrations (i.e., produced a greater maximal transcriptional response than estradiol) Among the resveratrol derivatives, 10 compounds showed significant estrogenic activity.

In our previous data, 17β-estradiol (E2) significantly inhibited TCDD-induced CYP1A1 gene expression so we examined whether resveratrol and its derivatives inhibit TCDD-induced CYP1A1 gene expression like E2. pCYPIA1-luc reporter gene was transfected into MCF-7 cells. After transfected cells were treated with chemicals, luciferase activity was determined by luciferin. Resveratrol inhibits TCDD-mediated transactivation in a dose-dependent manner.and some derivatives also inhibited TCDD-stimulated promoter activity.