



## The short- and long-term effects of two isomers of DDT and their metabolite DDE on hormone secretion and survival of human choriocarcinoma JEG-3 cells

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### **Abstract:**

JEG-3 cells were used to compare the effects of two isomers of DDT (1,1,1-trichloro-2,2-bis(p-chlorophenyl)ethane), p,p'-DDT and o,p'-DDT and their metabolite DDE (1,1-dichloro-2,2-bis(p-chlorophenyl)ethylene) on progesterone (P4) and human chorionic gonadotropin (hCG) secretion and cell apoptosis. Cells were treated with 1, 10, 100 ng/ml or 1 µg/ml of each compound for 24 or 72 h. Twenty four hours of exposure at 1 µg/ml of p,p'-DDT and o,p'-DDT decreased, whereas both DDEs, at all investigated concentrations, increased P4 secretion. Seventy two-hour exposure to all concentrations of both isomers of DDT and their metabolite DDE stimulated progesterone secretion.

Statistically significant decrease in hCG secretion after 24 h and increase in hCG secretion after 72 h exposure for all investigated compounds was noted. Decrease in caspase-3 activity was observed in cells exposed to both isomers of DDT and its metabolites. These findings indicate that both isomers of DDT and their metabolite DDE are able to alter main placental hormone production and survival of JEG-3 cells in the concentration- and time-dependent manner.

### **Key words:**

JEG-3 cells, DDT, DDE, progesterone, hCG, caspase-3

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