

# **The effects of triclosan exposure on gene expression in mammalian ovary cells**

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Triclosan is a synthetic antibiotic found in a wide array of consumer products due to its broad spectrum antibacterial properties. Recent studies have focused on its bioaccumulation and potential toxic and teratogenic side effects in mammals. However, research has also demonstrated an unexpected increase in cell proliferation at low triclosan concentrations, followed by a decrease in cell proliferation at high triclosan concentrations in Chinese hamster ovary cells (CHO). The concentrations at which cell proliferation peaked, as well as was inhibited by 50% (IC<sub>50</sub>) were previously determined as 2 ppm and 6.5 ppm, respectively. Acetone controls were analyzed to ensure results were not based on solvent interactions. The current experiment aims to investigate changes in gene expression in CHO cells at both the proliferation peak, as well as the IC<sub>50</sub> concentrations of triclosan. The expression of *Fasn*, *P450*, and *Gstp1*, were analyzed at both concentrations of triclosan, and compared to *β-actin*, a housekeeping gene, as a control. Gene expression of *Fasn* increased at both concentrations, demonstrating a 1.74 fold increase at 2 ppm and a 2 fold increase at 6.5 ppm. Both *P450* and *Gstp1* displayed decreased gene expression, with *P450* demonstrating a 2.73 fold decrease at 2 ppm and 1.45 fold decrease at 6.5 ppm, and *Gstp1* demonstrating a 5.31 fold decrease in gene expression at 6.5 ppm and no significant change in gene expression at 2 ppm. Similar research suggests a change in gene expression after low and high triclosan exposure, although no clear reason has yet to be determined.