

# The pesticide heptachlor affects steroid hormone secretion in isolated follicular and luteal cells of rat.

## Abstract:

Heptachlor, a chlorinated hydrocarbon pesticide, suppresses the production of progesterone and estradiol in the female rat in vivo or in isolated ovaries in vitro. In this study the effect of heptachlor on steroid hormone production by isolated rat luteal and follicular cells, in the presence of two precursor hormones was investigated. Ovaries were isolated from anesthetized mature normocyclic virgin rats (3 to 4 months old), under sterile conditions. Corpora lutea and follicles were microscopically dissected out and separately enzymatically dispersed with collagenase at 37 degrees C. Viable cells collected after centrifugation were used at a concentration of approximately  $2.5 \times 10^5$  cells/10 mL. Both luteal and follicular cell preparations were separately incubated overnight (15 h) at 37 degrees C in the presence of pregnenolone (P5) and androstenedione (A4) at a concentration of 6.0 nmol/L each, and heptachlor at either 0.12 microg/mL (low dose) or 1.20 microg/mL (high dose) (test cells) or in the absence of heptachlor (control cells). At the end of the incubations, progesterone and estradiol 17beta levels were analyzed in the incubation media. The results indicate that heptachlor significantly suppressed the production of both progesterone and estradiol in both cell types in a dose related manner even in the presence of A4 and P5 as precursor hormones ( $P < 0.05$ ).