

EFFECTS OF PHTHALATES ON REPRODUCTION SYSTEM IN HUMAN GRANULOSA CELLS

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Purpose: Endocrine disrupting chemicals can induce malformations and impairment of reproductive function in experimental animals and may have similar effects in humans. Phthalates are chemicals used in many industrial products and are suspected of inducing adverse effects on the male reproductive system. Their possible role in the female is still unknown. This study is to determine whether phthalates can regulate activation of aryl hydrocarbon receptor signaling in human granulosa cell.

Materials and methods: Human granulosa cell line (Ho23) was obtained from the procedure of oocyte retrieval, cultured in DMEM/F12 mixture 10% FBS, keep 5% CO₂ at 37°C. Granulosa cell were treated by estrogen and phthalate including butyl benzyl phthalate (BBP), di(2-ethylhexyl) phthalate (DEHP) (10⁻⁶M, 18hr) and pre-treatment with Aryl hydrocarbon receptor antagonist 3',4'-DMF(10⁻⁵M, 120min). AhR, CYP1A1, CYP1B1 gene expression were determined by using Real time PCR, Flow cytometry.

Results: E2, BBP and DEHP increase AhR, CYP1B1, but not CYP1A1 expression by RT-PCR and Flow cytometry detection in human granulosa cell. The regulation of phthalate on AhR such as -- will be investigated.

Conclusion: In the preliminary study, we indicated that phthalates can effect the AhR signaling in human granulosa cell. Hopefully, the accomplishment of this project will provide a better understanding of the reproduction system and provide insights into the potential health effects of phthalate in women fertility.