

**[P-38]****MECHANISM OF PHENOXY COMPOUNDS AS ANDROGENIC ENDOCRINE DISRUPTORS**Hyun-Jung Kim<sup>1</sup>, Won-Dai Kim<sup>1</sup>, Taik-Hun Kwon<sup>1</sup>, Dong-Hyun Kim<sup>2</sup>,  
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Phenoxy compounds, 2,4-Dichlorophenol acetoxyacid (2,4-D) and 2,4-dichlorophenol (DCP), are widely used as a herbicide and intermediate for pesticide manufacturing, respectively. In order to assess the potential of these compounds as endocrine disruptors, we studied the androgenicity of them using *in vivo* and *in vitro* assay system. In Hershberger assay, administration of 2,4-D (50 mg/kg/day, p.o.) or DCP (100 mg/kg/day, p.o.) to rats caused an increase in the tissue weight of ventral prostate, Cowpers gland and glands penis. These increases of androgen-dependent tissues were additively potentiated when rats were simultaneously treated with low dose of testosterone (1g/kg, s.c.). 2,4-D increased about 350% of the luciferase activity in the PC cells transiently cotransfected phAR and pMMTV-Luc at concentration of 10<sup>-9</sup>M. In 2,4-D or DCP-treated castrated rats co-treated with or without testosterone did not testosterone 6 $\beta$ -hydroxylase activity was not significantly modulated. *In vitro* incubation of 2,4-D and DCP with microsomes at 50 $\mu$ M inhibited testosterone 6 $\beta$ -hydroxylase activity about 27-66% in rat liver microsomes, human liver microsomes and recombinant CYP3A4 system. And the amounts of total testosterone metabolites were inhibited about 33-75% by 2,4-D or DCP, respectively. These results collectively suggested that 2,4-D and DCP may act as androgenic endocrine disruptor by binding to the androgen receptor as well as by inhibiting the metabolism of testosterone.

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Keyword : 2,4-D, DCP, androgenic endocrine disruptor