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Phoxim induces estrogen receptor-dependent adipogenesis in 3T3-L1 adipocytes**Hee-Seok Lee**

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During the past several decades, a number of synthetic chemicals were developed to meet a wide variety of industrial needs and they were easily released into the environment. Unfortunately, various chemicals such as bisphenols, phthalates and parabens are considered endocrine disrupting chemicals (EDCs), since they can exhibit the adverse effect on the mammalian endocrine system. Various pesticides also exhibit the potential endocrine disrupting effects by *in vitro* and *in vivo* studies. Phoxim is used as insecticide on crops for plant protection, which are toxic to insect pests and non-target organisms. Various studies were reported that several pesticides contribute to the development of obesity by their potential endocrine disrupting effects. In this study, we investigated the estrogen receptor (ER)-dependent adipogenesis by phoxim in 3T3-L1 cells. The cytotoxic effect using MTS assay showed that treatment with phoxim at various concentration (0, 1, 10, 100 and 1,000 μ M) for 24 hours had no cytotoxic effect on 3T3-L1 preadipocytes. Lipid accumulation was evaluated through oil-red-o-staining assay on 3T3-L1 adipocytes. The results revealed that treatment of phoxim dependent increased lipid accumulation compared to control at 1, 10 and 100 μ M concentrations. Also, we confirmed the expression of ER α in 3T3-L1 cells using western blot and phoxim exhibited a binding affinity against ER α . Furthermore, lipid accumulation induced by phoxim inhibited through co-treatment of ER antagonist, ICI 182,780. Our results indicate that phoxim induced adipocyte differentiation through binding affinity to ER α . Further studies are consistently needed to better understand a relation between lipid accumulation and estrogen activity.

Biography

Hee-Seok Lee has completed his PhD from Chung-Ang University in Republic of Korea and Postdoctoral studies from Department of Food Science of University of Massachusetts Amherst. He is working for risk assessment of hazardous chemicals in Korea Ministry of Food and Drug Safety from 2012. His major research field is development of endocrine disrupting chemicals screening methods using cell culture system. He is OECD Expert Member of Validation Management Group of non-animal testing for endocrine disrupting chemicals testing and assessment. He has published more than 30 academic papers to his credit.

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