

# Mycotoxins Reduce Placental Cell Migration

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Early in the formation of the placenta, extravillous trophoblasts (EVTs) invade and remodel spiral arteries in the maternal uterus allowing for proper transfer of nutrients required for fetal development. Aberrant EVT migration, invasion, and improper remodeling of maternal vessels has been associated with a myriad of pregnancy complications including preeclampsia and fetal growth restriction. Notably, the food supply is contaminated with the mycotoxin zearalenone (ZEA) raising concern because both chemicals mimic the activity of estrogen which can disrupt hormone production and perinatal development. In this study, we sought to elucidate the effects of ZEA on migration of EVT's using an immortalized human cell line, HTR8-SVneo. ZEA was evaluated for cytotoxicity using propidium iodide staining. Subtoxic doses of ZEA (0.001-20  $\mu\text{M}$ ) were then used in a stopper-based migration assay that utilized real-time microscopy. Compared to control cells, ZEA decreased EVT migration up to 17% at 24 hr with notable reductions at the lowest concentrations tested. Additionally, 20 $\mu\text{M}$  ZEA decreased EVT proliferation by 30% relative to controls. The results from this study are significant because they provide potential mechanistic insight into how dietary exposure of humans to ZEA could increase the risk of pregnancy complications. Supported by P30ES005022, T32ES007148, R01ES029275, ASPET SURF Program, and R25ES020721.

