

Poster #11

Decreased Apoptosis in the Forebrain of Adult Male Medaka (*Oryzias latipes*) After Aqueous Exposure to Ethinylestradiol

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Endocrine disrupting compounds (EDCs), especially those that are estrogenic, are an issue of growing concern because they adversely affect wildlife survival. 17β -Estradiol and its synthetic counterpart, 17α -ethinylestradiol, are associated with intersex conditions and impaired male reproductive behavior in fish. Male and female Japanese medaka (*Oryzias latipes*) that were exposed to 10 ng/L ethinylestradiol for six months showed a dramatic decrease in rates of reproductive behavior and increased numbers of apoptotic cells in the testes, kidney tubule, and liver (based on terminal dideoxynucleotidyl-mediated dUTP nick end-labeling (TUNEL)). These results suggest that a variety of tissues are affected by exposure to EDCs, but the tissues examined were not primarily involved in the regulation of reproductive behavior. To address this issue, we examined the effects 17α -ethinylestradiol on TUNEL labeling in brain tissue and found that exposed males had significantly fewer apoptotic cells in the forebrain compared to untreated males and exposed females. Our results are interesting in that behavioral deficits in males were associated with significantly **decreased** cell death in the forebrain, while ethinylestradiol-exposed females with equally dramatic behavior deficits showed a non-significant **increase** in cell death. Thus, the effects of ethinylestradiol exposure appear to be highly variable among individuals of the same species and even within tissues of the same individual. Therefore, when examining the effects of EDCs on natural populations, data from a variety of tissues should be examined and the interpretation of any effects should include consideration of tissue-specific processes.

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