

Poster, Goal 4, LTG2

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Evaluation of sex-specific responses to trenbolone acetate metabolites in early life-stage fathead minnows (*Pimephales promelas*) using molecular tools

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The occurrence of endocrine disrupting chemicals (EDCs) in concentrated animal feed operation (CAFO) waste, and the potential effects of these chemicals on aquatic ecosystems have been of recent concern, especially in large agricultural regions. Currently, little is known concerning effects of EDC exposure on early life-stage aquatic organisms. One particular uncertainty is the effect of EDC exposure on sex differentiation, which is complicated with regard to knowledge of genotypic vs. phenotypic sex. For example, there is currently no method of identifying sex in larval fathead minnows (*Pimephales promelas*), a common model fish used in endocrine disruption studies, and no baseline data available on characteristics of males and females for assessing endocrine disruption in these fish at early ages. Our labs are developing molecular methods for early sex identification in fathead minnows including a gene expression assay to study endocrine disruption in this species at various time points during development. Preliminary data indicate we can differentiate male and female gene expression of targeted genes involved in sex determination and gonad differentiation in larval fathead minnows. We are currently verifying this method using a DNA sex-linked marker to genotype the larvae. We will present data on the application of this gene expression assay coupled with genotyping for assessing the effects of two androgenic steroids associated with CAFOs (17 α - and 17 β -trenbolone) on sex ratios.