**Establishing the Self-fertilizing Mangrove killifish (*Kryptolebius marmoratus*) as an emerging model system for examining the epigenetic consequences of developmental xenoestrogen exposure.**

Xenoestrogens are a category of endocrine-disrupting compounds (EDCs) that perturb hormonal homeostasis by mimicking endogenous estrogen. One of the most widely used and potent xenoestrogens is 17α-ethinylestradiol (EE2), the active ingredient of most oral contraceptives. A growing concern regarding the use and disposal of xenoestrogens like EE2 is their propensity to induce persistent phenotypic alterations after transient exposure scenarios, resulting in adverse reproductive consequences that manifest long after initial exposure and/or persist within future unexposed progeny, a process generally regarded as transgenerational inheritance (TGI). While the precise molecular initiating events that guide the inheritance of these persistent traits are unknown, a likely explanation involves the complex interactions between estrogen receptor (ER) activation and the perturbation of epigenetic mechanisms. While many studies have examined the consequences of developmental EDC exposure, these studies are largely unable to control for genetic variation. Therefore, it is challenging to disentangle the consequences of environmental pollutants from the inherent genetic differences within and between populations, especially when investigating effects across multiple generations. Given the growing need to understand the impact that environmental pollutants play in altering epigenetic processes, we aim to establish the self-fertilizing Mangrove killifish (*Kryptolebius marmoratus*) as a clonal vertebrate model to examine the acquisition and persistence of epigenetic marks following developmental exposure to EE2, underpin the molecular pathways that guide the acquisition of xenoestrogen-induced epigenetically mediated traits, and better inform the risk of xenoestrogen exposure to human and animal populations.