Determined the Function of *Xenopus laevis* Aryl Hydrocarbon Receptors 
**AHR1α & AHR1β via Morpholino Knockdown**

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### Abstract

The aryl hydrocarbon receptor (AHR) is a ligand activated transcription factor that is a member of the PAS family of proteins. It mediates the biological and toxicological effects of structurally diverse endogenous and contaminant ligands through changes in the expression of genes, including CYP1A1, CYP1A2 and CYP1B1. Contaminant ligands that include planar halogenated aromatic hydrocarbons (PAHs) such as 2, 3, 7, 8-tetrachlorodibenzo-p-dioxin (TCDD) and polychlorinated biphenyls (PCBs) as well as polyaromatic aromatic hydrocarbons (PAHs). Due to a genome duplication approximately 30 million years ago, *Xenopus laevis* (the African clawed frog), has two copies of the AHR gene, AHR1α and AHR1β. It is unknown if the encoded proteins have distinct or redundant functions. We seek to probe the individual functions of these paralogous proteins by studying the effects of AHR1α and AHR1β knockdown in frog embryos. We have developed a methodology for the post-transcriptional knock down of either AHR1α or AHR1β in *X. laevis* embryos via microinjection of antisense morpholino oligonucleotides. We have monitored the reduction of AHR1α or AHR1β protein by western blotting. Future studies will examine the expression of target genes following exposure of morpholino injected embryos to TCDD and other AHR agonists as well as potential morphological phenotypes resulting from the knockdown of individual AHRs.

### References

4. Stevens EA, Mezrich JD, Bradfield CA. 2009. The aryl hydrocarbon receptor: A perspective on potential roles in the immune system. Immunology 127(3):299-311