Role of Aryl Hydrocarbon Receptor in Larval Danio rerio Benzo[a]pyrene-mediated Behavioral Effects

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Benzo[a]pyrene (BaP), an aromatic polycyclic hydrocarbon, is an environmental contaminant and carcinogen that causes neurological and developmental effects to children when exposed in pregnant women. The aryl hydrocarbon receptor (AHR) is known to mediate the effects of BaP, but its behavioral effects have yet to be explained. This study focuses on examining the role of Ahr2 to mediate BaP behavioral effects. Zebrafish (Ahr2+/+, Ahr2+/-, Ahr2-/-) were either exposed to DMSO (0.01%), the control, or 100 Mg/L BaP, the experimental group, from 6 to 120 hours post-fertilization (hpf). The larvae were accessed in a photometer response assay where they were tested in two phases, dark and light. Results show that the BaP treatment caused a decrease in activity compared DMSO (0.01%) treatment. The genotype of all larvae were confirmed. The outcome of this study proposes that Ahr2 shields the larvae from the behavior effects of Benzo[a]pyrene.

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