Does BPA Cause Hearing Loss? Assessing the Potential Ototoxicity Induced by Bisphenol- A in Danio rerio (Zebrafish) Lateral Line

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The zebrafish (Danio rerio) lateral line consists of a system of sensory organs that are optimal for in vivo studies of hair cell death and protection. Zebrafish hair cells are both structurally and functionally similar to those in the human inner ear. In zebrafish these hair cells are arrayed in clusters called neuromasts along the head and trunk of the animal, making these cells easily accessible. In my research, I have used this system for multiple hair cell death and protection studies (reviewed in Coffin et al. 2010, Zebrafish). Last year, I examined the potential for bisphenol-A (BPA), the common monomer used in the production of polycarbonate plastics and epoxy resins, to kill hair cells, and I showed that BPA can kill hair cells in a dose- and time-dependent manner. This year, I have asked what cell death signaling pathways are activated in BPA-damaged hair cells, and have identified oxidative stress as a potential cell death signaling pathway for BPA induced damage, and believe that antioxidants have the capability to provide hair cell protection from BPA.

Awards Won:
Third Award of $1,000