Poster presentation preferred

Student presenters

**Bisphenol A differentially impacts locomotor activities and axon guidance in *Drosophila melanogaster* from distinct genetic backgrounds.** A.Tanveer, Z.Zaki, and K. Mulligan. Department of Biological Sciences, Sacramento State University, Sacramento, CA. Bisphenol A (BPA) is an environmentally prevalent endocrine disrupting chemical that can impact human health. Data indicates BPA may be an environmental risk factor for neurodevelopmental disorders—BPA has been associated with behavioral impairment in children and it causes a variety of neurodevelopmental phenotypes in model organisms. We still have an incomplete picture of how BPA disrupts neurodevelopment; in particular, how its impacts may vary across different genetic backgrounds. Given the genetic tractability of Drosophila melanogaster, they present a valuable model to address this question. Fruit flies are increasingly being used for assessment of neurotoxicants because of their relatively simple brain structure and variety of measurable behaviors. We investigated the neurodevelopmental impacts of BPA across two genetic strains of Drosophila—w1118 (control) and the Fragile X Syndrome (FXS) model—by examining behavioral and neuronal phenotypes. We found BPA induces hyperactivity in larvae, increases repetitive grooming behavior in adults, and impairs axon guidance in adult brains. Remarkably, BPA elicited the opposite phenotypic responses for each of these endpoints in FXS flies. This data indicates that the neurodevelopmental impacts of BPA can vary widely depending on genetic background and suggests BPA may elicit a gene-environment interaction with Drosophila fragile X mental retardation 1 (dFmr1)—the ortholog of human FMR1, which causes Fragile X Syndrome and is associated with autism spectrum disorder.