The Effect of Maternal Route of Exposure on Neurodevelopmental Outcomes in Sprague Dawley Pups Developmentally Exposed to PCB 28

Early-life exposure to polychlorinated biphenyls (PCBs) has been associated with adverse neurodevelopmental outcomes, including neurodevelopmental disorders (NDDs). Lower chlorinated (LC)-PCB 28 is an emerging environmental contaminant that is readily detectable in environmental and human samples. Preliminary data suggests PCB 28 disrupts neurodevelopment *in vitro*. The objective of my project is to investigate whether PCB 28 induces developmental neurotoxicity (DNT) *in vivo* and how different routes of exposure affect neurotoxic outcomes. I hypothesize that PCB 28 exposure during gestation results in neurodevelopmental deficits in rat pups and that the DNT profile differs between maternal exposure via inhalation or ingestion. To test my hypothesis, I will expose female Sprague Dawley rats to vehicle or varying doses of PCB 28 through the diet or whole-body exposure for two weeks prior to conception and until parturition. I will then *(1)* identify the distribution and concentration of PCB 28 and its metabolites in the brains of dams and pups at various timepoints, *(2)* assess neurobehavioral outcomes relevant to NDDs in juvenile offspring, and *(3)* evaluate neurodevelopmental endpoints. The findings of this project will provide data critically needed by regulatory bodies to better assess the risks persistent LC-PCBs pose to the developing brain.