ABSTRACT

The growing awareness of the hazard of Bisphenol A has sparked a massive switch to its analog, Bisphenol S (BPS), which is deemed to be safer. However, the safety of this chemical is questionable as BPS shares considerable structural similarities with BPA and little scientific evidence backing up its safety.

This thesis project was conducted to investigate the developmental effects, particularly on neurodevelopment, following maternal exposure to BPS through a systematic review and an *in vivo* experimental study.

The systematic review was conducted based on the guidelines issued by the Office of Health Assessment and Translation (OHAT) protocol and Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) for reporting. Meanwhile, for the experimental study, pregnant mice were fed daily with 500 µg/kg body weight of BPS since E0. Meanwhile, control mice received corn oil as a vehicle. The brains of the litter were extracted on E16.5 or P1 and processed for hematoxylin & eosin staining. Following the staining, the morphological appearance and thickness of the cerebral cortex along with its layers were evaluated.

The systematic review revealed that maternal exposure to BPS is "suspected" for neurodevelopmental and prenatal developmental disorders while being "not classifiable" for postnatal developmental disorders. The in vivo study revealed a significant decrease in the cortical layer of BPS-exposed mice at both E16.5 and P1. The proportion of the ventricular and subventricular zone was significantly thicker in BPS-exposed mice at E16.5 while the proportion of subplate and Layer V were significantly reduced, indicating persisting neurodevelopmental toxicity.