

The hypothalamus and hippocampus are sensitive to early exposure to endocrine disrupting chemicals (EDC). Two EDC that have raised particular concern include bisphenol A (BPA), a widely prevalent chemical in many common household items, and genistein (GEN), a phytoestrogen present in soy and other plants. We hypothesized that early exposure to BPA or GEN may lead to permanent effects on gene expression profiles for both coding RNAs (mRNAs) and microRNAs (miRs), which can affect the translation of mRNAs. Such EDC-induced biomolecular changes may affect behavioral and metabolic patterns. California mice (*Peromyscus californicus*) male and female offspring were developmentally exposed through the maternal diet to BPA (5 mg/kg feed weight, low dose- LD and 50 mg/kg, upper dose-UD), GEN (250 mg/kg feed weight), or a phytoestrogen-free control diet (AIN). Behavioral and metabolic tests were performed at 180 days of age. qPCR analysis was performed for candidate mRNAs and miRs in the hypothalamus and hippocampus. LD BPA and GEN exposed California mice showed socio-communication impairments. Hypothalamic *Avp*, *Esr1*, *Kiss1*, and *Lepr* were increased in LD BPA offspring. miR-153 was increased but miR181a decreased in LD BPA offspring. miR-9 and miR-153 were increased in hippocampi of LD BPA offspring, whereas, GEN decreased hippocampal miR-7a and miR-153 expression. Correlation analyses revealed neural expression of miR-153 and miR-181a was associated with socio-communication deficits in LD BPA individuals. Findings reveal cause for concern that developmental exposure of BPA

or GEN in California mice, and potentially by translation in humans, can lead to long standing neurobehavioral consequences.