1. **No.**

   FP01809118

2. **Title**

   Effects of Passive Smoking during Pregnancy on Child Feeding Behavior, Stress Response, and Various Emotional Behaviors

3. **Period**

   2016-2018

4. **Summary**

Prenatal exposure to maternal cigarette smoking is a well-established risk factor for obesity and various behavioral disorders, but the underlying mechanisms are not clarified. The aim of the present study is to examine whether prenatal nicotine exposure (Nicotine) is associated with various kinds of behavioral disorders by using our newly developed assay system, Augmented Reality-based Long-term Animal Behavior Observing system (AR-LABO), under group-housing conditions, and whether these associations may be related to structural variations in brain. Pregnant C57BL/6J mice were exposed to nicotine 12 mg/kg/day via Alzet osmotic pump from gestational day 3.5 to day of birth, while control group was exposed to saline. The body weight and serum corticosterone of adult nicotine mice were not significantly different from those of control. The Nicotine only group mice showed a significant increase in total distance traveled during the first 180min observation of AR-LABO as compared to that of control, while Nicotine mice in mix condition (Nicotine and control) showed reduction in the total distance traveled to the control level. These findings suggest that prenatal nicotine induces a tendency of hyperactivity in male mice, while this phenotype is rescued with cohabitation with control mice. Huddling behaviors including latency of the first huddling and ratio of huddling during two days exhibited no significant difference between Nicotine and control mice.