1. No.
   2019G031

2. Title
   A Study on the Placenta Formation of Smoking Effect using Human Trophoblast Stem Cells.

3. Period
   2019-2022

4. Summary
   The development of toxicity assessment methods for fetuses most vulnerable to chemicals is expected to enable accurate assessment, not only of individual chemicals but also of long-term or combined exposures at low doses. The representatives recently succeeded in establishing human placental trophoblast stem (TS) cells for the first time in the world (Cell Stem Cell 2018). The gene expression and epigenetic modifications of the human TS cells have very similar properties to those of living placental cells. It can therefore be a very useful material for accurately assessing the environment in the uterus. In this study, we aimed to develop a new method to accurately quantify the effects of chemical exposure to the placenta in utero. In addition, human TS cells derived from pregnancy-induced hypertensive disorder of pregnancy (HDP) were generated and placenta organoid models were created by adding endometrial organoids to establish a toxicity evaluation system for the intrauterine environment.