1. **No.**

   FP01912002

2. **Title**

   Cross-talk Between ErbB Receptor Kinase and mTOR Induced by Tobacco Smoke

3. **Period**

   2018-2020

4. **Summary**

In this study, to clarify cross-talk between ErbB receptor kinase and mTOR induced by tobacco smoke, feedback regulation of EGFR homodimer and ErbB2/ErbB3 heterodimer induced with nicotine or B[a]P were examined. ErbB2/ErbB3 feedback regulation via p38 pathway induced with nicotine but not with B[a]P was suggested. Although ErbB2 phosphorylation wasn't altered with B[a]P, phosphorylation of ERK, p38, or Akt was reduced, suggesting intracellular signaling alternation. EGFR phosphorylation with B[a]P via other than ERK or p38 pathway was suggested. Further analyses are needed to clarify these mechanisms. For molecular mechanisms of ErbB family feedback regulation, the involvement of SHP-1/2 Tyr phosphatase with ErbB2/ErbB3 heterodimer, and CDC25 Tyr phosphatase with EGFR homodimer were suggested. Taken together, among ErbB family, although feedback regulation via conserved Thr phosphorylation, it was suggested tobacco smoke affect with the different way for EGFR homodimer and ErbB2/ErbB3 heterodimer. More detailed analyses are important for revealing ErbB family feedback regulation with tobacco smoke.