1. **No.**

   FP01912031

2. **Title**

   Does Nicotine Upregulate CCR7-dependent Immune Cell Migration and Immune Responses?

3. **Period**

   2018-2020

4. **Summary**

   In the last three years, I have assessed the effect on nicotine on dendritic maturation and CCR7-dependent dendritic cell migration using immunological methods and biochemical methods.

   Although nicotine inhibits LPS-induced differentiation of mature dendritic cells (mDCs) from immature dendritic cells, I found that nicotine facilitated CCR7-dependent mDC migration. These results suggest that nicotine has two roles, immunosuppression and immune promotion in dendritic cells.

   In addition to these, I found that mDCs expressed α4/β2 nAChR and α7 nAChR, and these receptor agonists also promoted CCR7-dependent mDC migration. Furthermore, nicotine enhanced mDC trafficking to the lymph nodes. From these results, we identified the novel role of nAChR signaling on dendritic cell mediated immune responses. We plan to investigate whether nicotine and nicotine analog enhance dendritic cell-mediated adaptive immunity and the efficacy of vaccination..