1. No.
   2019G015

2. Title
   The Effect of Nicotine on T cell-dependent Allergic Inflammation

3. Period
   2019-2022

4. Summary
   Although the expression of nicotinic acetylcholine receptor (nAChR) on T cells has been reported, its functional role remains unclear. In this study, we aimed to elucidate the effects of nicotine on T cell-regulated allergic inflammation. By examining the expression levels of nAChRs in various T cell subsets, we found that α9-nAChR is highly expressed in regulatory T (Treg) cells and that it is regulated at the promoter activity level. Nicotine stimulation markedly decreased transforming growth factor-β1 production in Treg cells. We examined the effect of an α7-nAChR agonist (GTS-21) on mouse models of allergic rhinitis. Allergen-induced sneezing response was suppressed by GTS-21 without affecting Th2 cells or IgE/mast cell-mediated responses. Based on these findings, we will continue to study the effects of nicotine on the pathogenesis of allergic diseases and its mechanisms, focusing on the functions of nAChRs in various cell types.