1. **No.**

   FP01812207

2. **Title**

   The Inhibitory Effect on the Progression of Parkinson's Disease via Nicotinic Acetylcholine Receptor Stimulation of Immune Cells

3. **Period**

   2016-2018

4. **Summary**

   Based on the previous reports and our results, we hypothesized that intravascular immune cells expressing alpha 7 nicotinic acetylcholine receptor (α7nAChR) are involved in the pathological process of Parkinson's disease (PD) and that α7nAChR agonists have inhibitory effects against the pathological condition. To test this hypothesis, we produced intrastriatal 6-OHDA-lesioned bone marrow chimeric rats (GFP bone marrow chimeric PD rats) and evaluated that the rat model is valid as a PD model rat. As in the case of using untreated SD rats, this rat model showed dopaminergic neurodegeneration behavioral pharmacologically and immunohistologically. Prior to dopaminergic neurodegeneration, GFP-positive cells were found in the lesion of substantia nigra compacta (SNPc), about half were CD8-positive, and also expressed α7nAChR. Intravascular immune cells in GFP bone marrow chimeric PD rats involved in the pathogenesis of dopaminergic neurons, and are likely to be directly affected by α7 nAChR stimulation. We will further study and search for novel therapeutic agents stimulating nicotinic receptors that can be expected to have neuroprotective effects on Parkinson's disease.