1. **No.**

   FP01804058

2. **Title**

   Development of Radical Therapy Against Pulmonary Fibrosis Using Virus-based Agents and Nucleic Acid Medicines and Analysis of Effects of Agents in Cigarette Smoke

3. **Period**

   2016-2018

4. **Summary**

   Smoking has been demonstrated to be involved in various types of pulmonary diseases. In particular, much attention has been focused on lung fibrosis. Development of radical treatment/medicines for lung fibrosis is urgently needed because there are few of effective medicines for lung fibrosis, in spite of a lot of lung fibrosis patients. In this study, we examined the antifibrotic effects of reovirus, which has been clinically developed as an oncolytic virus. First, we demonstrated that following reovirus treatment with human lung carcinoma cell lines, protein levels of hypoxia inducible factor (HIF)-1α, which is highly involved in fibrosis and malignancy of tumors, were significantly reduced. Next, we showed that expression levels of fibrotic marker genes, including α-smooth muscle actin (α-SMA), were significantly reduced in TGF-β-activated human lung fibroblasts following reovirus treatment. Furthermore, reovirus ameliorated lung fibrosis in bleomycin-induced lung fibrosis mice following intravenous administration. This study provides important clues for development of reovirus-based antifibrotic medicines.