1. No.
   2024G017

2. Title
   Elucidation of the Pathogenesis of Chronic Obstructive Pulmonary Disease Induced by Bacteria-Derived Peptides

3. Period
   2024-2024

4. Summary
   We previously reported that the microbiota-derived peptide corisin, discovered in a mouse model of pulmonary fibrosis, induces mitochondrial damage in alveolar epithelial cells and induces apoptosis, thereby exacerbating lung injury. Chronic obstructive pulmonary disease (COPD) is a disease in which apoptosis of alveolar epithelial cells is a cause of onset, and we verified that corisin is involved in the onset of not only pulmonary fibrosis but also COPD. Assuming that apoptosis of alveolar epithelial cells causes aging during this process, we evaluated the activation of SA-β-gal, and found that treatment with corisin increased SA-β-gal activity in a dose-dependent manner, and that this effect was attenuated by anti-corisin antibody. In fact, when corisin and the aging-promoting factor p21 were examined in a COPD model mouse, their expression in the tissues was confirmed, suggesting that pathology is induced through cellular aging in this COPD model. Originally, we would have administered anti-corisin antibody to COPD model mice and performed a smoking challenge to confirm the preventive effect on onset in the following years, but due to various circumstances, it was difficult to continue receiving the grant, and the results were only achieved in the first year.