1. No.
   2020G002

2. Title
   Effect of smoking on premetastatic niche formation

3. Period
   2020-2021

4. Summary
   The smoking history is strongly implicated in chronic obstructive pulmonary disease (COPD). We have studied the role of TLR4 endogenous ligands on pulmonary premetastatic niche formation.
   This study consists of two parts: (1) To evaluate the role of TLR4 ligand in both COPD and ARDS mouse models. (2) To examine the expression of SAA3 in autopsy specimens of pulmonary emphysema, interstitial pneumonia, and cirrhosis.
   We first examined whether TLR4 signaling would involve into smoking-mediated COPD using COPD mouse models, and found that administration of elastase increased pulmonary metastasis in a mouse model. These results suggest that pulmonary microenvironment in COPD may be similar to premetastatic niche in lungs.
   To date, human SAA3 is recognized as a pseudogene. However, our results showed that SAA3 expressed in lungs of pulmonary emphysema or interstitial pneumonia. These results suggested that human SAA3 mRNA can translate the SAA3-related protein in some circumstances, such as a fibrosis. However, further studies are necessary to evaluate the possibilities using a mass spectrometry.