1. No.

   FP01812190

2. Title

   Elucidating a potential mechanistic link between altering fatty acid composition caused by smoking and onset or development of chronic obstructive pulmonary desease (COPD)

3. Period

   2017-2019

4. Summary

   The elongase of long chain fatty acids family 6 (Elovl6) is a catalytic enzyme that elongates of saturated and monounsaturated long chain fatty acids. Elovl6 plays a crucial role of production of fatty acids, which is a major source of pulmonary surfactant. We demonstrated that fatty acid compositions were significantly changed in lung of cigarette smoking-induced pulmonary emphysema model mice. Next, we revealed that mRNA expressions of LPCAT1 and LPCAT4, which is critical for the regulation of phatidylcholine composition, were significantly reduced in cigarette smoking-induced pulmonary emphysema model of Elovl6-/- mice. Furthermore, The serum Elovl6 activity showed a decreasing tendency in COPD group. In this study, we demonstrate a novel mechanism of pulmonary emphysema by which derangement of Elovl6-mediating fatty acid balance in alveolar epithelial cells play an important role in cigarette-induced pulmonary emphysema.