1. **No.**

   FP01806077

2. **Title**

   Role of human fat brownig in smoking-mediated increase in resting energy expenditure

3. **Period**

   2017-2019

4. **Summary**

Smoking sometimes reduces body weight, and the prohibition is often accompanied with the body weight gain in diabetes treatment therapy. We have recently identified LR11, a negative regulator for adipocyte browning in mice, and the circulating levels of soluble form were increased in human obese patients with type 2 diabetes. The results obtained from human tissues showed that epicardial adipocytes showed the gene expressions characteristic for beige adipocytes, those from cell-biological studies showed that the LR11 gene was obviously expressed in mature beige-like single-follicular adipocytes in 3D-culture, and those from human examinational studies showed that circulating sLR11 levels were decreased in smoking subjects, in comparison to those in non-smoking subjects, although the levels were generally increased in association with other atherosclerotic risk factors. Taken together, circulating sLR11 levels possibly reflect the browning of adipocytes by smoking in patients with diabetes.