1. **No.**

   FP01802039

2. **Title**

   Study of complement activation mechanism in the local inflammation by smoking

3. **Period**

   2017-2019

4. **Summary**

Complement is composed in several soluble and membrane proteins in blood and is related in complement activation and a lot of important biological functions in almost animal bodies. Recently, it has been found that complement system is involved in many kinds of inflammation in animal body. In this study, we focus whether the complement activation participate in exacerbation of local inflammation by the smoking? The first is the construction of complement protein analysis system in Japan and the determination of basal values in complement proteins. The second is clinical study is focused on blood analysis in smoking persons and non-smoking persons. The clinical study using blood samples from Caucasian smokers and non-smokers has been performed. Basic studies were well done which were the construction of complement analysis systems, which was certificated by EQA2017-2019. Using above analyses, we found the difference on the complement activation level in blood of the smokers and non-smokers, although the limited numbers. We need to extend the analysis using more sample numbers and will determine the relation between the inflammation markers and the total complement activation level after evaluating several complement activation markers.