1. **No.**

   FP01901019

2. **Title**

   Association Among Malignant Tumor, Genetic Polymorphisms and Smoking in Elderly: an Analysis Using Autopsy Cases

3. **Period**

   2017-2020

4. **Summary**

   We investigated an association among cancer risk, single nucleotide polymorphism (SNP), and smoking/drinking using consecutive autopsy cases with known life history, clinical course, and pathological findings. First, among approximately 50 representative SNPs, only *TGFβ1* gene polymorphism was associated with the number of carcinogenesis. TGFβ1 is related to carcinogenesis because TGFβ1 induces apoptosis and growth inhibition in damaged nontranformed cells in the early stage of cancer development. Next, as a result of examining functional polymorphism -1327C> T in the *hTERT* gene associated with telomeres, T allele with high enzyme activity significantly reduced the risk of developing epithelial malignancies such as colorectal, lung, and prostate cancers, which were common in the elderly. In addition, we recently adopted a comprehensive study of SNPs using the Exome DNA chip, and induced the following conclusions: (1) *Chromodomain helicase DNA-binding protein 4 (CHD4)* gene polymorphism increases the risk of carcinogenesis, and smoking amplifies this tendency, (2) *macrophage capping protein (CAPG)* gene polymorphism involved in cell motility and rearrangement of intracellular microstructure was associated with gastric cancer in men, but smoking behavior did not affect carcinogenic risk, (3) *ADH1B* gene polymorphism associated with alcohol metabolism was associated with lung cancer, and *ALDH2* gene polymorphism was associated with pancreatic cancer, (4) *Nestin* gene p.A1199P polymorphism was involved in the development of pancreatic cancer, without relation to smoking history, drinking history, and obesity.