1. **No.**

   FP01809116

2. **Title**

   Effecct of smoking on cognitive function and the brain structure/activity in schizophrenia

3. **Period**

   2017-2019

4. **Summary**

   In this study, we investigated the effects of smoking on cognitive ability in schizophrenia patients. In the comparison of cognitive functions, smoking group showed significant decrease in verbal memory and motor function compared with non-smoking group. As for gray matter volume, smoking group showed significant decrease in left prefrontal cortex volume compared to non-smoking group. Analysis of white matter revealed that smoking group showed significant decrease in integrity of corpus callosum, frontal lobe white matter, zonal bundles, and internal forelimbs compared with non-smoking group. Analysis of functional connectivity of default mode network measured by rest state fMRI showed bilateral thalamus-frontal wedge connectivity was significantly attenuated in smoking group compared to non-smoking group, and bilateral thalamus-medial prefrontal cortex/anterior cingulate cortex/orbital frontal cortex connectivity was significantly enhanced, with a negative correlation between bilateral thalamic-anterior wedge connectivity and amount of smoking. In addition, we identified 2 functional connectivities that have negative correlations with amount of smoking, middle cingulate cortex-inside prefrontal cortex/anterior cingulate cortex/orbital frontal cortex, and middle cingulate cortex-right gyrus. These results indicate effects of smoking on cognitive function, brain structure of gray and white matter, and functional connectivity of brain in schizophrenia patients.