1. **No.**

   FP01912185

2. **Title**

   Effects of Smoking and Nicotine on Aβ Influx into the Blood from the Brain by Removal of Blood Aβ

3. **Period**

   2016-2020

4. **Summary**

   We have been developing the therapeutic system for Alzheimer's Disease by removing blood Aβs (amyloid-β protein). In this study,1. we constructed an experimental system in which drugs that alter cerebral blood flow, such as nicotine, cilostazol, and donepezil, are administered to normal rats for blood purification. 2-1 we measured blood Aβ, tau concentration, and PIB/PET in patients with chronic renal failure undergoing hemodialysis and those not undergoing hemodialysis to determine the effect of Aβ removal by hemodialysis.

   2-2 In addition, cerebral amyloid angiopathy was investigated in autopsy cases of dialysis patients. 1. The results of animal experiments showed that both cilostazol and donepezil may have enhanced Aβ transfer from brain parenchyma to CSF and blood. On the other hand, data were not available for the nicotine study due to unstable hemodynamics. 2-1. A comparison of Aβ deposition by PIB/PET before and after hemodialysis with end-stage renal failure patients showed a decreasing trend after initiate hemodialysis. 2-2. Brains from hemodialysis / renal failure had significantly smaller ratio of cerebral amyloid angiopathy than those of non-hemodialysis / renal failure, and similar to non- hemodialysis /non- renal failure. Plasma tau levels of the controls having smoking history were lower than those of non-smokers. These results suggest that hemodialysis, which effectively remove blood Aβs may contribute to reduce Aβs in the brain.