

Detection of Dopamine using Fluorescence Resonance Energy Transfer for Development of Neurotransmitter Sensor

서창환, 김종성*
경원대학교 화학생명공학과
(jskim@kyungwon.ac.kr*)

Recently, various novel biosensors have been widely studied and developed for early diagnostics of various diseases. Fluorescence Resonance Energy Transfer (FRET) is a physical phenomenon between two fluorophores which transfers emission energy from donor to acceptor for excitation. We have shown that FRET can be used for sensing neurotransmitters which are related with brain diseases such as Alzheimer's disease, Parkinsonism, and High blood pressure. In this paper, FRET between two Alexa Fluors has been investigated and the effect of FRET efficiency depending on dopamine concentration has been studied. Alexa Fluor 594 (AF594) as a donor has been labeled to protein A (PA), and conjugated with anti-dopamine labeled by Alexa Fluor 546 (AF546) which is used as an acceptor. The fluorescent excitation and emission scans for two fluorophores have been obtained using photoluminescence spectroscopy (PL). The FRET efficiency was obtained from intensity ratio of the fluorescent spectra with and without acceptor group.