

제목 : Reaction of Phospholipid with Brain Glutamate Decarboxylase

연구자 : B.R.Lee¹, S.H.Jang¹, M.S.Song¹, S.Wee¹, E.Y.Choi¹, K.S.Lee² and S.Y.Choi¹

소속 : ¹ Dept. of Genetic Engineering, ²Dept. of Biology, Hallym Univ.
Chunchon, Korea

We investigated the effect of derivatized phospholipid, P-pyridoxyl dipalmitoylphosphatidylethanolamine (P-pyr-DPPE), on the catalytic activity of purified porcine brain glutamate decarboxylase(GAD) which catalyzes the synthesis of GABA known as major inhibitory neurotransmitter in CNS. When the P-pyr-DPPE was incorporated into dipalmitoylphosphatidylcholine(DPPC) or phosphatidylserine(PS) vesicles, these vesicles enhanced the catalytic activity of GAD. P-pyr-DPPE also interacted with apoglutamate decarboxylase(apoGAD) and produced the free pyridoxal-5-phosphate(PLP) which is the natural cofactor of GAD. This result indicated that apoGAD catalyzed the cleavage reaction of the P-pyridoxyl moiety of the derivatized phospholipid to generate free PLP, and then free PLP bound to the apoGAD resulting in restoration of the catalytic activity of the enzyme.