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제 목	Effect of Cold Stress on Activities of Protein kinase C Subspecies in Rat Brain Regions
연구자	이 재란 · 최 명언
소 속	서울대학교 자연과학대학 화학과

내 용

Protein kinase C (PKC) participates in many cellular signal transduction. Previously we found that PKC activity of whole rat brain was altered after an exposure to cold temperature of 4 ℃ (Lee and Choi, *Exp. Neurobiol.*, 2, 6, 1993). In this time PKC activity in each region of rat brain was investigated in order to know each regions is affected mostly by the stress.

PKC activities were examined in both cytosol and particulate fractions and in various brain regions such as cortex, cerebellum, midbrain, hypothalamus, hippocampus, and striatum. It was found that the cold stress could change PKC activities of cytosol and particulate fractions by differential patterns in different brain regions. The alteration of PKC activities were also affected by the length of time in which rats were exposed to the stress. At 30 min's sustaining time PKC of cerebellum and midbrain were activated to 111-115 % of the control, and PKC of other regions were unaffected under this condition. When rats were exposed to cold stress for 150 min, PKC of cortex, hypothalamus, and hippocampus were considerably activated to 118-126 % of the control, but on the contrary PKC of striatum was deactivated to 80 % of the control.

These observation were further extended to the subspecies activities of PKC by employing hydroxyapatite HPLC. The activities of PKC subspecies which are distributed dissimilarly in different brain regions also revealed some differences after the cold stress.