

Enzymic synthesis of 1 alkyl 2 acyl sn glycerol 3 phosphorylethanolamines by the CDP ethanolamine: 1 radyl 2 acyl sn glycerol ethanolaminephosphotransferase from microsomal fraction of rat brain.

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Publication Date: 1972

Abstract:

The incorporation of radioactivity from cytidine 5' phosphate [³²P]phosphorylethanolamine into 1 alkyl 2 acyl sn glycerol 3 phosphorylethanolamines and 1,2 diacyl sn glycerol 3 phosphorylethanolamines was stimulated more than fourfold by 1 alkyl 2 acyl sn glycerols and 1,2 diacyl sn glycerols, respectively, with an ethanolamine phosphotransferase (EC 2.7.8.1) present in the microsomal fraction from brains of mature rats. The K(m) values, 0.28 mM for CDP ethanolamine and 1.9 mM for 1 alkyl 2 acyl sn glycerols, were similar to those obtained by other investigators with other 1 radyl 2 acyl sn glycerols. The formation of 1,2 diacyl sn glycerol 3 phosphorylethanolamines from endogenous 1,2 diacyl sn glycerols was inhibited by 1 alkyl 2 acyl sn glycerols. These properties indicate that the ethanolamine phosphotransferase lacks specificity for the type of group at the 1 position of the lipid substrate. The synthesis of 1 alkyl 2 acyl sn glycerol 3 phosphorylethanolamines from 1 alkyl 2 acyl sn glycerols and CDP ethanolamine by an enzyme from rat brain supports the inclusion of this reaction in the metabolic pathway for the synthesis of 1 alk 1' enyl 2 acyl sn glycerol 3 phosphorylethanolamines.