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[Lab. of Molecular Biology]

Kinetics of Hydrolysis of Micellar Substrates Catalyzed by Snake Venom Phospholipase A2.

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Effects of Ca^{2+} on the kinetic parameters for the hydrolysis of mixed micelles of 1,2-di-palmitoyl-sn-glycero-3-phosphorylcholine (diC 16PC) with Triton X-100, catalyzed by a cobra (*Naja naja atra*) (Group I) and a Habu (*Trimeresurus flavoviridis*) (Group II) PLA2s, were studied and compared with the results reported for the other Group I and II enzymes. The substrate bindings to Group I enzymes were independent of the Ca^{2+} binding, whereas the substrate bindings to Group II enzymes were facilitated more than 10 times by the Ca^{2+} binding to the enzymes. Consequently, it was concluded that the increases in the PK values of His 48 and Tyr 52 on binding of micellar substrates to PLA2s were a property common to both types of enzymes (Groups I and II).

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[Lab. of Molecular Biology]

Fluorometric Enzyme Immunoassay of Basic Fibroblast Growth Factor with Monoclonal Antibodies.

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We compared three different strategies for measuring basic fibroblast growth factor (bFGF) by fluorometric enzyme immunoassay (EIA). After optimizing conditions, we found that a primary anti-bFGF MAb directly conjugated with peroxidase gave the best detection limit for recombinant bFGF (30 ng/L, 3 pg/assay tube) in a two-site sandwich assay. Using the most sensitive EIA examined in this study, we made a preliminary measurement of immunoreactive bFGF in sera of apparently healthy people and found it to be 190 (SD 32) ng/L (n=48), in agreement with an earlier reported value (30-206 ng/L). Also, the concentration of immunoreactive bFGF in sera was above normal in 19 of 31 patients with stomach cancer.

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[Lab. of Molecular Biology]

Effect of 4-Methylcatechol on Sciatic Nerve Growth Factor Level and Motor Nerve Conduction Velocity in Experimental Diabetic Neuropathic Process in Rats.

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This study examined the effects of 4-methylcatechol (4-MC), a monoamine catechol compound, on the neuropathic process of streptozotocin (STZ)-induced diabetic rats. 4-MC is one of the potent stimulators of nerve growth factor (NGF) synthesis at the cellular level and in cultured sciatic nerve segments of rats. The results suggest that decreased NGF levels in the sciatic nerve of the experimental diabetic rat may be involved in the developmental diabetic neuropathic process and that 4-MC, which can elevate endogenous NGF levels *in vivo*, may compensate for the inhibitory effect of STZ on the NGF level in progressive diabetic neuropathy.