E119

Distribution and Some Characteristics of the Alkaline Phosphatase in the Midgut of the Earthworm, *Eisenia andrei*

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The distribution, isoenzyme pattern and sensitivities for some potent inhibitors of Alkaline Phosphatase(ALP) were investigated in the midgut of the earthworm, *Eisenia andrei*. The major distribution of ALP appeared to be associated with the apical portion of epithelial cells, with the minor distribution in the chloragogenous tissue. The intestinal ALP was separable into at least 3 types of isoenzyme by electrophoretic system employed in this experiment. A slow band seemed to be derived from epithelial tissue, while two fast-bands did to be derived from chloragogenous tissue. The slow and fast bands were considerably inhibited by levamisole and Zn^{2+}, respectively, but not by L-phenylalanine, a potent inhibitor of intestinal ALP of mammals. All isoenzyme forms were coeluted through gel filtration column using Sephacryl S-200 HR and an apparent molecular weight was approximately 200Kd. The characteristics, in detail, are under investigation.

E120

Purrification and Biochemical Characterization of Rat Organ-Specific Acid Phosphatase Isoenzymes

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Four acid phosphatase(AcP) isoenzymes were purified to homogeneity from rat liver, lung, kidney, and testis using affinity chromatography on L(+)-tartrate, an inhibitor of AcP, and gel filtration chromatogaphy. All had a similar molecular weight of approximately 350 kDa and showed multimeric subunit structures. These 4 phosphatases exhibited maximum enzymic activity at pH 4.0 in common and similar substrate affinities toward several phosphomonoester substrates. All of these AcP isoenzymes were strongly inhibited by orthovanadate, a classic inhibitor of protein tyrosine phosphatases, but were not affected at all by okadaic acid, an inhibitor of protein serine/threonine phosphatases. All these phosphatases exhibited high reactivities towards exogenous phosphotyrosyl-proteins with little activity towards phosphoseryl/threonyl proteins examined. These results indicate that the acid phosphatases of the rat liver, lung, kidney, and testis may function *in vivo* as protein tyrosine phosphatses.