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In Vitro Synthesis of Superoxide Dismutases of Rat Liver.

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The syntheses of copper, zinc-superoxide dismutase (Cu,Zn-SOD) and manganese-superoxide dismutase (Mn-SOD) *in vitro* were studied. Both Cu,Zn-SOD and Mn-SOD were preferentially synthesized by free polysomes. Mn-SOD was synthesized as a large precursor (26,000 daltons), which was processed to the mature size (22,500 daltons) by *in vitro* incubation with a rat liver mitochondrial fraction. On the the other hand, Cu, Zn-SOD was synthesized as the mature size product. It was shown that Cu, Zn-SOD and Mn-SOD synthesized *in vitro* represented 0.018% and 0.016% of the total translation products of free polysomes, respectively.

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Serum Manganese-Superoxide Dismutase Level in Patients with Liver Diseases.

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Changes in serum manganese-superoxide dismutase (Mn-SOD) level in the course of liver diseases were monitored. Mn-SOD level had good correlations with some other enzyme activities in patients with acute hepatitis, liver cancer, liver cirrhosis and alcoholic cirrhosis, but it had no correlation with such enzyme activities in case of subacute hepatitis and chronic hepatitis. Studies on the clinical course in liver diseases demonstrated that Mn-SOD may be increased not only due to release from the injured cells, but also due to induction in order to exclude the superoxide anion radical which is produced in inflammation.

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Role of Alkaline Phosphatase in Phosphate Uptake into Brush Border Membrane Vesicles from Human Intestinal Mucosa.

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The effects of various inhibitors and antibody to human intestinal alkaline phosphatase on phosphate uptake into brush border membrane vesicles were investigated. The results indicated that phosphate uptake was affected by various inhibitors and the antibody to human intestinal alkaline phosphatase, but L-homoarginine, levamisole, and ouabain had no effect. From the above findings, it is strongly suggested that human intestinal alkaline phosphatase may function as a phosphate binding protein at low phosphate concentrations under physiological conditions.