[Biochim. Biophys. Acta, 1218, 163-172 (1994)] [Lab. of Pharmaceutics]

Expression of heterodimeric (placental-intestinal) hybrid alkaline phosphatase in KB cells.

HIROHIKO KODAMA, KENTARO ASAI, TETSUO ADACHI, YUKIO MORI, KYOZO HAYASHI, KAZUYUKI HIRANO*, TORGNY STIGBRAND

A hybrid heterodimeric alkaline phosphatase expressed in KB cells, consisting of placental and intestinal (fetal) subunits, was purified by use of two different immunoaffinity columns using the monoclonal antibodies 2HIMS-1 and HPMS-1. The closely related subunits were found to yield a dimeric active enzyme glycosylated as the mature heterodimeric forms. The results confirm that some cell lines can synthesize hybrid alkaline phosphatases.

[Jpn. J. Clin. Chem., 23, 203-208 (1994)] [Lab. of Pharmaceutics]

ELISA for human tissue-unspecific (liver/bone/kidney) alkaline phosphatase.

YUJI HAYASHI, YUTAKA NISHIHARA, ATSUSHI MURATA, TOSHIYUKI YASUDA, MASANORI MINAGAWA, TAKAHIKO MITANI, TETSUO ADACHI, KAZUYUKI HIRANO*

We established an enzyme-linked immunosorbent assay for tissue-unspecific alkaline phosphatase using specific monoclonal antibodies prepared against liver alkaline phosphatase. The concentration of serum tissue-unspecific alkaline phosphatase was determined in the range of 1.5 to 100 ng/ml. This method can be clinically applied. In serum of a patient with infantile hypophosphatasia which is one of six types of hypophosphatasia that is deficient in tissue-unspecific alkaline phosphatase, both the concentration and the activity of serum tissue-unspecific alkaline phosphatase were lower than those in the sera of healthy individuals.

[Clin. Chim. Acta, 229, 123-131 (1994)] [Lab. of Pharmaceutics]

Quantitative and qualitative changes of extracellular-superoxide dismutase in patients with various diseases.

TETSUO ADACHI*, MAKOTO NAKAMURA, HARUTAKA YAMADA, ARAO FUTENMA, KATSUMI KATO, KAZUYUKI HIRANO

Extracellular-superoxide dismutase (EC-SOD) is a secretory glycoprotein that is the major SOD isozyme in extracellular fluids. We report here on the EC-SOD levels in the sera of patients with various diseases. The EC-SOD levels were distinctly higher in patients with renal diseases and moderately higher in liver diseases and diabetes than those in normal healthy persons. In patients with renal diseases, the increase of EC-SOD was accompanied by the lack of renal function. It is probable that the high serum EC-SOD level in hemodialysis patients was due to two possible factors: the genetic transmitted factor and unknown pathophysiological factor(s).