Tribioscience

Leucine Aminopeptidase, Enzyme Activity

Catalog	Unit
TBP0076-100U	100 U
TBP0076-500U	500 U

Product Details

Form: Freeze-dried

Solubility: Soluble in distilled water or dilute buffer

Stability: -20° C; -4° F

Activity: 20 U/mg protein

Protein: 90%

Unit Definition

That amount of enzyme which catalyzes the hydrolysis of one micromole L-leucinamide per minute at 25°C at pH 8.5.

Assay Method

The assay method is based on the one described by Binkley and Torres. The rate of decrease in absorbance at 238 nm, resulting from the hydrolysis of L-leucinamide, is proportional to the catalytic activity of the enzyme.

Applications

Leucine aminopeptidase (LAP) is a proteolytic enzyme which hydrolyzes the peptide bond adjacent to a free amino group. It is called leucine aminopeptidase because it rapidly catalyzes the hydrolysis of leucine containing peptides. However, it also catalyzes the hydrolytic release of other amino acids located at the N-terminal end of various peptides and proteins. The enzyme from porcine kidney has been extensively studied. It has a molecular weight of 255,000 and it consists of four subunits each having one atom of zinc.

Determination of microsomal leucine amino peptidase activity in serum is of clinical significance, since serum LAP levels are elevated in obstructive jaundice, liver cirrhosis, liver carcinoma and also during the later part of pregnancy. Leucine amino-peptidase is also extensively used in determination of the amino acid sequence of proteins and peptides.

Reagents

1. 0.5 M Tris-HCl buffer, pH 8.5.
2. 0.025 M Maganese chloride.
3. 0.0625 M Magnesium chloride.
4. 0.06 M L-leucinamide-HCl (11 mg/ml) in buffer.
5. Leucine aminopeptidase (enzyme) solution. Dissolve in buffer to a concentration of 1000-2000 U/ml.

Calculation

$$\text{Activity (U/mg)} = \frac{(\Delta E_{238nm/min})(\text{Total Vol.})(\text{Enz. Diln.})}{(0.011)(\text{Enz. Vol.})(\text{mg Enz./ml})}$$

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