Tribioscience

Lysozyme, Enzyme Activity

Catalog	Unit
TBP0080-1G	1 g
TBP0080-5G	5 g

Product Details

Form: Freeze-dried

Solubility: Soluble in distilled water or dilute buffer

Stability: -20° C; -4° F

Activity: 50,000 U/mg

Protein: 95%

Catalog No.: 097A50000

Unit Definition

That amount of enzyme causing a decrease in absorbance at 450 nm of 0.001 per minute at 25°C and pH 6.24 with Micrococcus lysodeikticus as substrate.

Assay Method

The rate of lysis of Micrococcus lysodeikticus, catalyzed by lysozyme, is proportional to the decrease in extinction at 450 nm.

Applications

Lysozyme (EC 3.2.1.17) catalyzes the hydrolysis of §-1,4 glucosidic linkages which occur in the cell walls of microorganisms. It is widely distributed in animals and plants. Lysozyme from chicken egg white has been extensively studied. It is a basic protein with a molecular weight of approximately 14,000.

Lysozyme is normally present in plasma (5.9 mg/l) but only in trace amounts in urine. In certain renal disorders, urinary excretion of lysozyme is significantly increased, which could be of diagnostic significance. Analysis of serum lysozyme levels could also be used as a diagnostic tool in acute and chronic myelocytic leukemia and in acute lymphocytic leukemia.

Reagents

1. 0.1 M Potassium phosphate buffer, pH 6.24.
2. Micrococcus lysodeikticus suspension (substrate). Suspend 9 mg of dried Micrococcus lysodeikticus cells in 25 ml of 0.1 M Potassium phosphate buffer, pH 6.24. Dilute to a final volume of 30 ml with the same buffer.
3. Lysozyme (enzyme) solution. Dissolve enzyme in 0.1 M phosphate buffer to yield a concentration of 1 mg/ml. Keep refrigerated. Using potassium phosphate buffer as solvent, dilute this stock enzyme solution to yield a concentration of 100-200 U/ml. Prepare fresh immediately prior to assay.

Procedure

1. Set spectrophotometer (equipped with strip chart recorder and temperature control) at 450 nm and 25°C.
2. Into a cuvette, pipette 2.9 ml Micrococcus lysodeikticus suspension and incubate in spectrophotometer at 25°C for 5 minutes.
3. Calculate the decrease in absorbance at 450 nm per minute (µE450 nm/min).

Calculation

$$\text{Activity (U/mg)} = \frac{(\Delta E_{450nm/min})(\text{Total Vol.})(\text{Enz. Diln.})}{(0.001)(\text{Enz. Vol.})(\text{mg Enz./ml})}$$

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