

## Glutamic Pyruvic Transaminase, Enzyme Activity

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Catalog	Unit
TBP0070-1KU	1000 U
TBP0070-5KU	5000 U

### Product Details

Form: Freeze-dried powder

Solubility: Distilled water or dilute buffer

Stability: Store at -20° C (-4° F)

Activity: 100 U/mg

Protein: 40%

Contaminants: Lactate dehydrogenase <0.005%;  
Glyceraldehyde-3-P-dehydrogenase <0.001%;  
Malate dehydrogenase <0.002%;  
Glutamate oxaloacetate transaminase <0.001%

### Unit Definition

That amount of enzyme which will catalyze the conversion of one micromole of  $\alpha$ -ketoglutarate to L-glutamate, in potassium phosphate buffer, at pH 7.5 and 25°C.

### Assay Method

The decrease in the absorbance at 340 nm, caused by the oxidation of NADH, is proportional to the catalytic activity of GPT.

### Applications

(L-alanine:2 oxoglutarate aminotransferase; EC 2.6.1.2) Glutamic pyruvic transaminase (GPT) is also known as alanine aminotransferase. It catalyzes the following reaction:



Transamination reactions play a significant role in intermediary metabolism. Transaminases require pyridoxal phosphate as a coenzyme for their catalytic activity. GPT is found in many animal and plant tissues and its activity is especially high in mammalian heart and liver. The enzyme exists in two distinct isoenzyme forms in mammalian tissues, the mitochondrial form and the cytoplasmic form. GPT from porcine heart has been extensively studied. It has a molecular weight of 100,000. Human GPT levels in serum are used in clinical diagnosis of liver and heart disease.

### Reagents

- 0.1 M Potassium phosphate buffer, pH 7.5.
- 1.15 M L-Alanine (103 mg/ml) in buffer.
- 0.31 M  $\alpha$ -Ketoglutarate (45 mg/ml) in buffer.
- 0.008 M NADH disodium salt (5 mg/ml) in distilled water. Prepare fresh.
- Lactate dehydrogenase (LDH), 250 U/ml in buffer. Prepare fresh immediately prior to assay.
- Enzyme (GPT) solution. Prepare in buffer to yield a final concentration of 0.1-0.2 U/ml. Must be prepared fresh immediately prior to assay.

### Calculation

$$\text{Activity (U/mg)} = \frac{(\Delta E_{340\text{nm}/\text{min}})(\text{Total Vol.})(\text{Enz. Diln.})}{(6.22)(\text{Enz. Vol.})(\text{mg Enz./ml})}$$

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