

INTRODUCTION

Infinite Liquid GPT (ALT) is a reagent set for determination of GPT (ALT) activity in serum and plasma based on **UV - Kinetic method**.

Infinite Liquid GPT (ALT) is a **ready-to-use**, two liquid reagent system.

Infinite Liquid GPT (ALT) estimates GPT (ALT) activity in just **2½ minutes**.

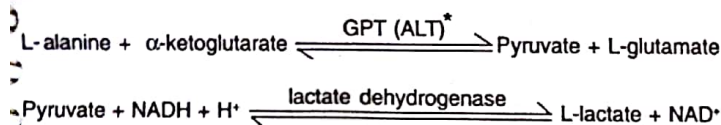
Infinite Liquid GPT (ALT) is **linear** upto 600 IU/l.

Infinite Liquid GPT (ALT) can be used on any **Spectrophotometer, Discrete semiautomated and Automated analyzers**. Programme can be designed for any specific analyzer upon request.

Infinite Liquid GPT (ALT) is **stable** till expiry at 2 - 8°C.

PRINCIPLE

α -ketoglutarate reacts with L-alanine in presence of GPT (ALT) to form pyruvate and L-glutamate. The increase in pyruvate is determined in an indicator reaction catalyzed by lactate dehydrogenase. The conversion of NADH to NAD⁺ at 340 nm. is proportional to the activity of GPT (ALT) in serum/plasma and is determined kinetically as rate of decrease in absorbance.



Abbreviations

ALT = Alanine transaminase
GPT = Glutamate pyruvate transaminase

PREPARATION OF WORKING SOLUTION

Prepare working solution by mixing **Reagent R₁** and **Reagent R₂** in the ratio 4 : 1 as per requirement.

REAGENT STORAGE STABILITY

The reagent kit should be stored at 2 - 8°C and is stable till the expiry date indicated on the label.

R₁ and R₂ reagents are stable till expiry at 2 - 8°C.

The working solution (4 R₁ + 1 R₂) is stable for 30 days at 2 - 8°C.

COMPONENTS & CONCENTRATION OF WORKING SOLUTION

Component	Concentration
• Tris buffer, pH 7.4	80 mmol/l
• L-alanine	500 mmol/l
• Lactate dehydrogenase	≥ 3000 IU/l
• NADH	0.23 mmol/l
• α -ketoglutarate	10 mmol/l

SPECIMEN COLLECTION & PRESERVATION

ood should be collected in a clean dry container. Although serum is preferred, plasma with heparin or EDTA can be used. Samples with any visible haemolysis are not acceptable. GPT (ALT) activity in serum/plasma is stable for 1 week at 2 - 8°C and 1 month at -20°C. The samples should be brought to room temperature prior to use.

PROCEDURE

- Reaction type UV - Kinetic
- Reaction direction Decreasing
- Wavelength 340 nm.
- Flowcell temperature 37°C
- Zero setting with Distilled water
- Delay time 60 seconds
- No. of readings 4
- Interval 30 seconds
- Blank absorbance limit ≥ 0.900 Abs.
- Sample volume 0.05 ml (50 μ l)
- Working solution volume (4 R₁ : 1 R₂) 1.0 ml (1000 μ l)
- Factor 3339
- Linearity 600 IU/l

MANUAL ASSAY PROCEDURE

Prewarm at 37°C the required amount of working solution before use. Perform the assay as given below :

1.0 ml procedure

Serum / plasma 0.05 ml

Working solution 1.0 ml (800 μ l R₁ + 200 μ l R₂)

Mix and aspirate. After the initial delay of 60 seconds, record the absorbance of the test at an interval of 30 seconds for the next 90 seconds at 340 nm. Determine the mean change in absorbance per minute and calculate test results.

Calculation:

Activity of GPT (ALT) in IU/l = Δ Abs/min x 3339

Conversion factors :

Following factors can be used for conversion of IU/l from one temperature to another :

Temperature Conversion

From 37°C to 30°C : 0.71

From 37°C to 25°C : 0.54

Note : Since temperature conversion factors are given only as an approximate conversion, it is suggested that values be reported at the temperature of measurement.

EXPECTED VALUES

Serum / Plasma

Temperature	at 25°C	at 30°C	at 37°C
MEN	≤ 22 IU/l	≤ 29 IU/l	≤ 41 IU/l
WOMEN	≤ 17 IU/l	≤ 22 IU/l	≤ 31 IU/l

Expected range varies from population to population. It is therefore recommended that each laboratory should establish its own normal range.