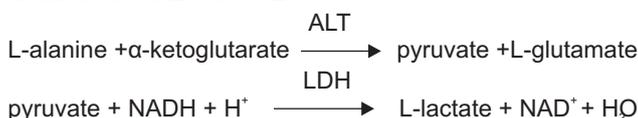


CLINICAL SIGNIFICANCE :

Alanine Aminotransferase (ALT), also referred to as glutamate pyruvate transaminase (GPT), is an enzyme involved in amino acid metabolism. It is found in many tissues, but the highest levels are found in liver and kidney tissues. Tissues destruction leads to the release of the intracellular enzyme into the circulating blood. Markedly elevated serum ALT levels may be found in a variety of diseases which involve the liver, such as hepatitis, mononucleosis, and cirrhosis. These very high levels of ALT are not usually observed in other disease processes, e.g., myocardial infarction; thus, ALT is regarded as a reasonably specific indicator of liver disease.

TEST PRINCIPLE :

ALT present in the sample catalyzes the transfer of the amino group from L-alanine to α -ketoglutarate, forming pyruvate and L-glutamate. Pyruvate in the presence of NADH and lactate dehydrogenase is reduced to L-lactate. In this reaction NADH is oxidized to NAD. The reaction is monitored by measuring the rate of decrease in absorbance at 340nm due to the oxidation of NADH to NAD.



REAGENTS COMPOSITION :

Working Reagent (R1 + R2)

NADH 0.18mmol/L, L-alanine 500mmol/L
 α ketoglutarate 15mmol/L, LDH 1200U/L
Tris Buffer(pH=7.50) 100mmol/L

All the components of the kit are stable until the expiration date on the label when stored tightly closed at 2 - 8 °C, and contaminations prevented during their use. Do not use reagents over the expiration date. Once opened the reagent is stable upto 1 month at 2-8°C.

KIT CONTENTS

CODE No.	PT01	PT02	PT03
Pack size :	(5 x 10 ml)	(5 x 25 ml)	(5 x 100 ml)
Reagent 1	5 x 8 ml	5 x 20 ml	5 x 80 ml
Reagent 2	1 x 10 ml	1 x 25 ml	1 x 100 ml

REAGENT PREPARATION

Working Reagent is prepared by mixing 4 part of Reagent 1 with 1 part of Reagent 2. The working reagent is stable upto 28 days at 2 - 8 °C . It is recommended to use by prepare of a fresh WR based on its workload.

SAMPLES : Serum or Heparinised / EDTA Plasma
Serum should be separated from blood as soon as possible.

MATERIALS REQUIRED BUT NOT PROVIDED :

SGPT/ALT Control (Use of assayed QC sera is recommended to validate test result).

INTERFERENCES

Gross haemolysed and lipemic sample should not be used
The following analytes were tested up to the levels indicated and found not to interfere Hb 500 mg/dl, TG 1000 mg/dl
Bilirubin (Total) 40 mg/dl, Ascorbic Acid: 50 mg/dl

ASSAY CONDITIONS:

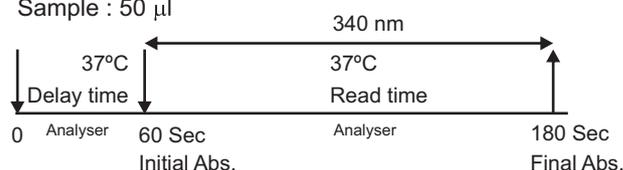
Wavelength : 340 nm
Cuvette: 1 cm light path
Constant temperature 37°C
Reaction (Mode)..... Kinetic
Kinetic Factor..... 1746
Delay 60 sec
Read time..... 180 sec
Linearity..... 400 IU/L
Unit..... IU/L
Blank..... D. Water
Reaction Slope Decreasing

PROCEDURE :

- Mix 50 μ l sample with 500 μ l Working Reagent, mix and read initial absorbance after 60 sec. and measure final absorbance after 180 sec against distilled water blank at 340 nm by an Analyser.
- Calculate absorbance change per minute ($\Delta A/\text{min}$).

Assay Procedure summary:

R1 : 400 μ l + R2 : 100 μ l
Sample : 50 μ l



CALCULATIONS :

$$\text{SGPT (U/L)} = \Delta \text{ Abs} / \text{mint} \times 1746$$

REFERENCE RANGE :

Upto 42 IU/L

The above reference range is guideline and all the laboratories must establish their own normal reference range. Final diagnosis should be made with correlation of clinical factors.

PRECAUTIONS :

- Storage conditions as mentioned on the kit to be adhered.
- Use clean glassware and microtips while pipetting Reagents
- Avoid contamination of the reagent during the assay process.
- Before the assay begins, bring all the reagents to room temperature.
- If a larger volume of reagent is required for the absorbance reading, requisite volume can be taken in multiples, keeping the same ratio of reagent to specimen/standard.
- Do not freeze or expose the reagents to high temperature and protect from direct sunlight as it will affect the performance of the kit.
- Programmes for specific autoanalysers are available on request.
- For accuracy of results, the assay procedure, reagent preparation and storage has to be meticulously followed.
- As with all the diagnostic procedures, the physician should evaluate data obtained by the use of this kit in light of other clinical information.

LINEARITY AND DETECTION LIMIT :

The assay is linear up to SGPT activity of 400 IU/L. The results of the performance characteristics depend on the analyzer used. If the results obtained were greater than linearity limit, dilute the sample 1 : 10 with Normal Saline and multiply the result by 10.

BIBLIOGRAPHY

- Wroblewski F, La Due J.S: Ann Intern Med. 1956; 45:801.
- Wroblewski F, La Due J.S: Proc Soc Exp Biol Med 1956; 91:569.
- Bergmeyer HU, Bowers GN Jr, et al: Clin Chem 1977; 23: 887.