INTENDED USE: For the quantitative determination of SGPT levels in serum or plasma.

CLINICAL SIGNIFICANCE:
Serum Glutamate Pyruvate Transaminase (SGPT), also called Alanine Aminotransferase (ALT), belongs to the Transferase class of enzymes. It is found to be distributed mainly in the liver and to a lesser extent in the kidney and muscles. In Hepatitis of different etiologies, SGPT is an important indicator not only in the diagnosis of the ailment but also in assessing the prognosis and progress of the disease. An elevated SGPT level is characteristic of Acute Hepatitis. It is useful to monitor liver function in cases of liver cirrhosis and in alcoholics.

In comparison to the colorimetric, End Point Method of Reitman & Frankel, the Modified IFCC Method is superior in terms of its linearity, specificity, reproducibility and rapidity.

PRINCIPLE:
Alanine aminotransferase (ALT/GPT) catalyzes the transfer of the amino group from alanine to oxoglutarate with the formation of glutamate and pyruvate. The latter is reduced to lactate by lactate dehydrogenase (LDH) in the presence of reduced nicotinamide adenine dinucleotide (NADH).

The reaction is monitored kinetically at 340 nm by the rate of decrease in absorbance resulting from the oxidation of NADH to NAD⁺.

Expected Values (nmol/min/ml)
- Male: Up to 37 IU/L at 37°C
- Female: Up to 30 IU/L at 37°C

It is recommended that each laboratory establish its own normal range representing its patient population.

SYSTEM PARAMETERS:
- Assay temperature: 37°C

Mix well and read absorbance against distilled water at 340 nm as follows:
A1 - exactly after 1 minute
A2 - A3 - exactly after every 30 seconds for 1 minute 30 sec

Calculate the average change in absorbance per minute (ΔA/min).

ΔA/min = \left( \frac{A_2 - A_1}{1} \right)

To ensure adequate quality control, the use of commercial reference control serum is recommended with each assay batch.

**Qualitative Control**

Sample | Mean | CV% | Mean | CV% | Mean | CV% |
--- | --- | --- | --- | --- | --- | --- |
Control 1 | 29 | 1.25 | 30 | 1.85 | 59 | 3.1 |
Control 2 | 80 | 1.85 | 78 | 2.32 | 158 | 4.17 |

LINEARITY:
The procedure is linear up to 450 IU/L. If values exceed this limit, dilute the sample with normal saline and repeat the assay. Calculate the value using the proper dilution factor.

REFERENCES:

**NOTE:**
1. Adherence to the reaction time should be meticulously followed.
2. Do not leave working reagent at Room Temperature.
3. If ΔA/min exceeds 0.26, repeat the test using serum diluted 1:10 with normal saline. Multiply the result with the factor, 10.
4. Discard the Working Reagent if it shows an initial absorbance below 0.85 against distilled water at 340 nm.
5. Highly icteric and lipaemic samples have to be diluted with normal saline and the result multiplied with the appropriate dilution factor.
6. Haemolysed samples will interfere with the test.
7. Programmes for specific analysers are available on request.
8. For accuracy of results the procedure has to be meticulously followed.
9. As with all diagnostic procedures, the physician should evaluate data obtained by the use of kit in light of other clinical information.