SGPT (ALT)

IFCC method without pyridoxal phosphate (P-5[1]-P)
Kinetic. UV.

Code: 11030 **(5x10 ml)**

(For the analyser estimation of ALT/SGPT in Serum/ Plasma)

In VITRO USE Only.

SUMMARY & EXPLANATION OF TEST :

Alanine aminotransferase (ALT) also known as glutamate pyruvate transaminase (GPT) is a transaminase. ALT catalyses the transfer of the aminogroup of L-alanine to a ketoglutarate to give L-glutamate. The highest levels are found in the liver and kidneys, and in smaller amounts in heart and skeletal muscle.

ALT concentration is increased when hepatic cells are damaged (liver cell necrosis or injury of any cause). Indeed, viral and toxic hepatitis induce a market elevation of ALT activity in serum. Intake of alcohol, delirium tremens, and administration of various drug induce slight or moderate elevation of ALT. ALT concentration in serum is also slightly increased in various conditions such as : muscular dystrophy, haemolytic disease, myocar-dial infarction....

ALT is more liver specific than AST (Aspartate aminotrasferase). Measurement of both AST and ALT has some value in distinguishing hepatitis from other parenchymal lesions.

ALT serum level can decrease in case of vitamin B_6 deficiency.

PRINCIPLE :

Kinetic determination of the alanine aminotransferase (ALT) activity :

L-Alanine + α- Ketoglutarate $\xrightarrow{ALT}$ Pyruvate + L-Glutamate

Pyruvate + NADH + H^+ $\xrightarrow{LDH}$ L-Lactate + NAD^+

REAGENTS :

01. Enzyme Reagent	4x10ml
02. Substrate Reagent	1x10 ml

The reagents are ready to use and usable to the expiration date when stored at 2 - 8^{0}C & Protected from light, if contamination is avoided.

SAMPLE :

Serum
Heparin or EDTA plasma

EXPECTED RANGE:

Normal : <40 U/L

LINEARITY :

S G P T kit is linear upto 300 U/L

INSTRUCTIONS :

1. The reagents R1 & R2 contain less than 0.1 % sodium azide.Sodium azide can react with copper and lead plumbing to form explosive metal azides.
2. Use clean or single use glass material only to avoid contaminations.
3. High ALT values may induce falsely low results due to the depletion of the substrate (total consumption of NADH before reading of the result). If an analyser is used, verify the presence of a depletion factor on the application.

DIRECTIONS FOR USE ON ANAL YSERS :

Reaction Type	:	Kinetic with factor
Wave Length	:	340nm
Incubation Temp	:	37^{0}C
Incubation Time	:	1 min.
Read Time	:	3 min
No. of Readings	:	4
Interval Time	:	1 min.
Sample Volume	:	0.1 ml
Reagent Volume	:	1 ml
Unit	:	U/L
Factor	:	1746

PREPARATION AND STABILITY OF WORKING REAGENT:

Mix 4 volumes of the reagent 1 with 1 volume of reagent 2 this working reagent is stable upto 3 weeks at 2-8°C.

PROCEDURE:

One Reagent procedure

Working Reagent	:	1ml
Sample	:	0.1 ml

Mix and after a 1 minute incubation, measure the change of optical density per minute (ΔOD/min.) during 3 minutes.

Two Reagent procedure

Reagent 1	:	1ml
Sample	:	0.125 ml
Mix, wait 1 minute and add		
Reagent 2	:	0.250 ml

Mix and after a 1 minute incubation, measure the change of optical density per minute (ΔOD/min.) during 3 minutes.

CALCULATION:

At 340nm, with the one-reagent procedure and the two reagent procedure: Activity (U/L)=ΔOD/min. x 1746.

NOTES:

★ Due to variations in inter - laboratory assay conditions, instruments and demography, it is recommended that each laboratory should establish its own normal range. To ensure adequate quality control, each run should include a normal and abnormal assayed controls. The assigned value of the control must be confirmed by this methodology.

★ Final diagnosis should be based on a co-relation of test results with other clinical observations / Diagnostic tools.

BIBLIOGRAPHY:

1. Henderson, A.R., Moss, D.W., Enzymes Tietz Fundamentals of Clinical Chemistry, 5th Ed., Burtis, C.A. & Ashwood, E.R. (W.B. Saunders eds. Philadelphia USA), (2001), 352.

2. Tietz, N.W., Clinical guide to laboratory tests, 3rd Ed., (W.B. Saunders eds. Philadelphia USA), (1995), 76.

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