GAMMA GT

(IFCC Kinetic)

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BIO LAB DIAGNOSTICS

ISO 9001:2015
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CE

CLINICAL SIGNIFICANCE

Gamma-glutamyltransferase (GGT) is a membrane-localized peptidase mainly present in kidneys, pancreas, liver and prostate. This enzyme plays a significant role in glutathione metabolism and takes part in the transport of amino acids into the cells.

The rise of GGT activity, often isolated (earlier and longer increase compared to other enzymes), is one of the most sensitive indicators of an affection of the liver or bile ducts. The strongest increases are observed in cases of intrahepatic or posthepatic biliary obstructions (reaching levels from 5 to 30 times normal), primary or secondary neoplasms, acute or chronic pancreatitis, and other pancreatic malignancies (especially those associated with hepatobiliary obstructions). More moderate elevations are observed during infectious hepatitis, cirrhosis and hepatic steatosis. Alcohol in chronic ingestion, some drugs like Phenobarbital and phenytoine or contraceptives can also increase GGT rate in the serum.

PRINCIPLE

Optimized kinetic determination of γ-glutamyl transferase (γ-GT) activity :

GLUPA-C + Glycylglycine $\xrightarrow{\gamma\text{-GT}}$ L-γ-Glutamyl-glycylglycine + 5-Amino-2-nitrobenzoic acid

The increase in absorbance at 405 nm due to the formation of 5-amino-2-nitrobenzoic acid is proportional to γ-GT activity.

REAGENTS COMPOSITION

GGT Reagent 1 : R1

1. Tris buffer, pH 8.25 (30°C)	133 mmol/L
2. Glycylglycine	138 mmol/L

GGT Reagent 2 : R2

1. GLUPA -C	23 mmol/L

STORAGE AND STABILITY

When stored at 2-8°C and protected from light, the reagents are stable until the expiry date stated on the label.

Preparation and Stability of Working Reagent

Mix in proportion of -

Reagent 1	400 µL
Reagent 2	100 µL

Working Reagent Stability

5 days at 20-25°C, 30 days at 2-8°C

SAMPLES

Serum or plasma which has no sign of haemolysis. Specimen should be stored in dark till the test is being performed. No Prior patient preparation is needed. (All samples should be handled as potential infective agents as no laboratory methods make conclusive finding for its safety. Therefore, adequate protective laboratory measures should be taken while handling such materials).

PROCEDURE

Program the analyzer using system parameter zero set with distilled water .

Pipette in to a test tube (12 × 75 mm)	Test
Working Reagent ..... µL	500
Sample ..... µL	50

Mix and read for 60 second after one minute incubation at 37°C. Reagent and Sample Volume can be altered proportionately.

SYSTEM PARAMETERS

Reaction Type	Kinetic
Wave Length	405 nm.
Cuvette Temp.	37°C
Delay Time	60 Sec.
Read Time	60 Sec.
Sample Volume	**50µL**
Reagent Volume	**500µL**
Zero Setting	D/W.
Light Path	1cms.
Factor	1158

RESULTS CALCULATION

GGT Activity (U/L) = ΔA/min. × 1158

EXPECTED VALUES

	Men	Women
Serum (37°C) :	< 50 U/L	< 40 U/L

Note : It is recommended for each laboratory to establish and maintain its own reference values. The given data are only an indication.

As with all diagnostic methods, the final diagnosis should not be made on the result of a single test as well as laboratory diagnosis must be confirmed with clinical manifestations.

LINEARITY

Up to 300 IU/L. Sample with values greater than 300 IU/L should be diluted 1:9 with normal saline and Final result should be multiplied by 10.

LIMITATION

1) Storage conditions mentioned in the insert must be adhered.
2) Use clean and dry glassware free from dust or debris.
3) Avoid contamination during assay procedure.
4) Hemoglobin up to 500 mg/dl, Bilirubin up to 28 mg/dl as well as lipids up to 600 mg/dl does not interfear the results.

WARNING

This reagent system is for *invitro* use Only.

This reagent system is containing preservatives and components that have not established for safety if contacted on broken skin or eye or taken orally. In case of such incidents wash off with plenty of water, or consult a physician.

QUALITY CONTROL

To ensure adequate quality control, each kit should be tested against standard control sera. It should be realized that the use of quality control material checks both instrument and reagent function together. Factors which might affect the performance of this test include proper instrument function, temperature control, cleanliness of glass wares and accuracy of pipetting.

It is appropriate to establish each laboratory's accuracy constant and interpret values accordingly. Similarly, laboratory findings should be established by clinical manifestations.

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