OBio...
Supporting Care to Cure
A Division of Orchard Medical

Gamma-glutamyl transferase (Gamma-GT)

(Szasz mod. /IFCC stand.)

IVD

Order Information

Cat. No.	Kit Configuration
OAR1080	Reagent 1: 2 x 20 mL
	Reagent 2: 1 x 10 mL

Summary

Gamma-glutamyl transferase (Gamma-GT) is a cellular enzyme with wide tissue distribution in the body, primarily in the kidney, pancreas, liver and prostate. Measurements of gamma-glutamyl transferase (Gamma-GT) activity are used in the diagnosis and treatment of hepatobiliary diseases such biliary obstruction, cirrhosis or liver tumours. Clinical diagnosis should not be made on a single test result; it should integrate clinical and other laboratory data.

Method

Kinetic photometric test according to Szasz/Persijn. The test has also been standardized to the method according to IFCC (International Federation of Clinical Chemistry). Results according to IFCC are obtained using a special factor or, in case a calibrator is used, by use of the calibrator value given for the IFCC method.

Principle

Gamma-GT catalyzes the transfer of glutamic acid to acceptors like glycylglycine in this case. This process releases 5-amino-2- nitrobenzoate which can be measured at 405 nm. The increase in absorbance at this wavelength is directly related to the activity of gamma-GT.

L-Gamma-glutamyl-3-carboxy-4-nitranilide + Glycyl Glycine

Gamma-GT → Gamma-glutamyl-glycylglycine+5-Amino-2-nitrobenzoate

Reagent Storage Instructions and Stability

Reagent are stable up to the end of the indicated month of expiry, if stored at 2 – 8°C, protected from light and contamination is avoided. Do not freeze the reagents!

Reagent 1: Buffer
Solution Reagent 2:
Substrate Solution

Composition

TRIS 100 mmol/L, Glycylglycine 100 mmol/L, L-Gamma-glutamyl-3- carboxy-4-nitroanilide 3 mmol/L

Warnings and Precautions

1. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
2. Wear suitable gloves and eye/face protection.
3. Always use safety pipettes to pull the reagents into a pipette.
4. Reagents may contain some non-reactive and preservative components. It is suggested to handle carefully, avoid direct contact with skin and do not swallow.
5. The reagents contain sodium azide (0.95g/L) as preservative. Do not swallow. Avoid contact with skin and mucous membranes.
6. For professional use only!

Waste Management

Please refer to local legal requirements.

Reagent Preparation

Mix, 4 parts of reagent 1 and 1 part of reagent 2 = working reagent. The stability of the working reagent is 21 days at 2° - 8°C.
Protect the reaction solution from light.

Materials required but not provided

NaCl solution 9 g/L
General laboratory equipment

Specimen

Serum, heparin plasma or EDTA plasma
Stability: 1 month at 2° – 8 °C, 3 months at -20 °C Only freeze once!
Discard contaminated specimens.

Assay Procedure

Wavelength	405 nm (400-410 nm)
Light path	10 mm
Temperature	37°C
Measurement	against Water Blank

	Blank	Sample/Standard/Calibrator
Working Reagent	1000 µL	1000 µL
Distilled water	100 µL	-
Sample/Standard	-	100 µL
Mix, Incubate for 1 min. and read absorbance after every 1 min. for 3 min.		

Calculation:

ΔA/min x 1190 = U/L of Gamma-GT

Quality Control

For internal quality normal and abnormal controls should be assayed with each batch of samples.
Each laboratory should establish corrective action in case of deviations in control recovery.

Performance Characteristics Measuring Range

Measuring range of the assay is 2 U/L to 300 U/L. When values exceed 300 U/L, the samples should be diluted 1+9 NaCl solution (9 g/L) and the result multiplied by 10.

Specificity/Interferences

No interference was observed by, Ascorbic acid up to 30 mg/dL, Bilirubin up to 40mg/dL and Triglycerides up to 2000 mg/dL.

Sensitivity/Limit of Detection

The lower limit of detection is 2 U/L.

Linearity

The higher limit of detection is 300 U/L.

Precision

Intra assay n = 20	Mean [U/L]	SD [U/L]	CV [%]
Sample 1	23.58	1.03	4.37
Sample 2	75.40	1.80	2.39

Inter assay n = 20	Mean [U/L]	SD [U/L]	CV [%]
Sample 1	35.59	1.43	4.01
Sample 2	65.43	1.60	2.45

Method Comparison

A comparison of Nucleus Diagnosys Gamma GT (y) with a commercially available test (x) using 15 samples gave following results:
$y = 0.983x + 1.421$; $r^2 = 0.998$.

Reference Range

Women 7-32 U/L
Men 11-50 U/L
Each laboratory should check if reference ranges are transferable to its own patient population and determine own reference ranges if necessary.

Literature

1. **Tietz Textbook of Clinical Chemistry. 3rd edi. Philadelphia: W.B Saunders Company; 1999.p.809-61**
2. **Eur Heart J 1998: 19 1434-503.**
3. **Handbook of lipoprotein testing. Washington: ACC Press, 1997:99-114.**
4. **Handbook of lipoprotein testing. Washington: AACC Press, 1997:25 -48.**

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