

GGT

Carboxy substrate. Kinetic. Liquid

Product information

24GGT01-UN	Meditest GGT	4x40 mL 2x20 mL
24GGT01-AU	Meditest GGT	4x40 mL 2x20 mL
24GGT01-AB	Meditest GGT	4x40 mL 2x20 mL
24GGT01-ER	Meditest GGT	4x40 mL 2x20 mL

Purpose

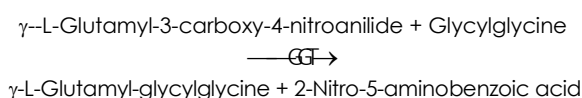
In vitro assay for the quantitative determination of GGT in human serum and plasma.

Summary

Gamma-glutamyl transferase (GGT) is a cellular enzyme with a wide distribution of tissues in the body, mainly in the kidney, pancreas, liver and prostate. Measurements of gamma-glutamyl transferase (GGT) activity are used in the diagnosis and treatment of hepatobiliary diseases such as biliary obstruction, cirrhosis, or liver tumors^{1,2,5,6}. Clinical diagnosis should not be based on a single test result, but clinical and other laboratory data should be integrated.

Test principle

Gamma-glutamyl transferase (γ -GT) catalyzes the transfer of the γ -glutamyl group from γ -glutamyl-p-nitroanilide to the acceptor glycylglycine according to the following reaction:



The rate of formation of 2-nitro-5-aminobenzoic acid, measured photometrically, is proportional to the catalytic concentration of γ -GT present in the sample^{1,2}

Reagents - working solutions

R 1 Buffer	TRIS pH 8.6 Glycylglycine	100 mmol/L 100 mmol/L
R 2 Substrate	L- γ -glutamyl-3-carboxy-4-nitroanilide	3 mmol/L

Precautions warnings

It is intended for in vitro diagnostic use by healthcare professionals. Follow the normal precautions necessary in handling all laboratory reagents.

Infectious or microbial waste:

Warning: handle waste as potentially biohazardous. Dispose of waste according to accepted laboratory instructions and procedures.

Environmental hazards: Follow all relevant local disposal regulations to determine that it has been disposed of safely. If requested, a safety data sheet can be provided to professional users.

Inhibit foam formation in all reagents and sample types (sample, calibrator and control). If there is any damage on the package, do not use it. Read the user manual carefully before use, do not use the expired assay kit. Do not mix different lot reagents.

All samples should be considered epidemic material, please dispose of them in accordance with the laboratory working standard of infectious diseases.

Take the necessary protective measures to prevent users from becoming infected during operation.

Use of reagents

Ready to use.

Storage and stability

All components of the kit are stable until the expiration date on the label when stored tightly closed at 2-8°C, protected from light and contamination is avoided during their use.

Do not use reagents after the expiration date. Signs of reactive decay: Presence of particles and turbidity- empty absorbance (A) at 340 nm <1.00.

Sample collection and preparation

Use only suitable tubes and collection containers to collect and prepare specimens. Only the samples listed below have been tested and found acceptable.

Serum. Plasma: Liheparin and K2EDTA plasma

Centrifuge samples containing precipitate before performing the test. For detailed information on possible sample interactions, see the limitations and interactions section. Sample stability claims were determined by the manufacturer based on experimental data or reference literature and only for the temperatures/time frames specified in the method sheet. It is the responsibility of each laboratory to use all available references and/or their own work to determine specific stability criteria for their laboratory.

Stability: 8 hours at 1525°C

3 days at 28 °C

1 month at -20°C

Required Materials (not included in the kit)

1. Cat# 24BIO01-DC Meditest Diachem Calibrator
2. Cat# 24BIO01-DQ Meditest Diacheck Control L1
3. Cat# 24BIO02-DQ Meditest Diacheck Control L2
4. General laboratory equipment
5. Distilled or deionized water

Working Procedure

If you are using a spectrophotometer to perform this test, work with the following procedure. Ask your representative for the application data for fully automatic devices.

1. Test Conditions:

Wavelength: . 405 nm

Cuvette: 1 cm light path

Temperature: . 25°C/30 °C/37°C 2. Set the appliance to zero with distilled water.

3. Place the pipettes in a cuvette.

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WR (mL)	1,0
Sample (μL)	100

- Mix, incubate for 1 minute.
- Read the initial absorbance (A) of the sample, start the stopwatch, and read the absorbances at 1-minute intervals for 3 min.
- Calculate the difference between absorbances and the average absorbance differences per minute ($\Delta A/\text{min}$).

Calculation

$$\Delta A/\text{min} \times 1190 = \text{U/L of GGT}$$

One international unit (IU) is the amount of enzyme that converts 1 μmol substrate per minute under standard conditions. The concentration is expressed in units per liter of sample (U/L).

Conversion factor: $\text{U/L} \times 0.0167 = \mu\text{kat/L}$

Expected values

Male	0-60 U/L (0-1 μkat/L)
Woman	0-40 U/L (0-0.67 μkat/L)

These values are for orientation purposes; Each laboratory should establish its own reference range

Limitations

Criterion: Recovery within 4 ± 4 U/L of initial values in ≤ 40 U/L samples and recovery within $10\% \pm$ for > 40 U/L samples
Icterus: 18
No apparent interactions until the I index is 50 for conjugated bilirubin and 20 for unconjugated bilirubin (approximate conjugated bilirubin concentration: 855 μmol/L or 50 mg/dL and approximate unconjugated bilirubin concentration: 342 μmol/L or 20 mg/dL).

Hemolysis: No apparent interaction until the H index is 200 (approximate hemoglobin concentration: 124 μmol/L or 200 mg/dL).

Lipemia (Intralipid): No obvious interaction until the L index is 700. There is a weak correlation between the L index (which corresponds to turbidity) and the concentration of triglycerides.

Drugs: No interactions were found at therapeutic concentrations when common drug panels were used. In very rare cases, gammopathy, especially type IgM (Waldenström macroglobulinemia), can cause unreliable results. When making a diagnosis, the results must be evaluated together with the patient's medical history, clinical examination and other findings.

Performance characteristics

Measuring range: 2-300 U/L

If the results obtained are greater than the linearity limit, dilute the sample by 1/10 with 9 g/L NaCl and multiply the result by 10.

Precision

	Intra-assay (n=20)		Inter-assay (n=20)	
Mean (U/L)	38,3	190	40,1	198
SD	0,39	0,53	0,82	2,30
CV (%)	1,03	0,28	2,05	1,16

Sensitivity: 1 U/L = 0.0008 ΔAbs/min

Accuracy: Results obtained using Meditest reagents (y) showed no systematic differences when compared to other commercial reagents (x). The results obtained using 50 samples are as follows:

Correlation coefficient (r)²: 0.99999

Regression equation $y = 1.334x - 1.493$

The results of the performance characteristics depend on the analyzer used.

References

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