Biomaghreb

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CE

# GAMMA GLUTAMYL TRANSFERASE

## IFCC kinetic colorimetric method

Quantitative Determination of Gamma Glutamyl Transferase Activity [EC 2.3.2.2] in Human serum

**IN VITRO DIAGNOSTIC USE**

IVD

| | | | | |
|---|---|---|---|---|
| REF | **09012** | **20 x 3 ml (60** T) | **R1:** 1 x 65 ml | **R2:** 20 Lyophilisates |
| REF | **09029** | **10 x 10 ml (**100 T) | **R1:** 1 x110 ml | **R2:** 10 Lyophilisates |
| REF | **09036** | **13 x 10 ml (130** T) | **R1:** 1 x140 ml | **R2:** 10 Lyophilisates |
| REF | **09043** | **10 x 3 ml (30** T) | **R1:** 1 x 35 ml | **R2:** 10 Lyophilisates |
| REF | **09050** | **5 x 3 ml (15** T) | **R1:** 1 x 35 ml | **R2:** 5 Lyophilisates |

## CLINICAL SIGNIFICANCE

Serum gamma-glutamyl transferase (GGT) is exclusively of hepatobiliary origin. It is involved in amino acid metabolism, through the transfer of the gamma-glutamyl group to peptides, or other amino acids. Determination of GGT activity is part of a liver workup in individuals with high risk of liver injury such as hepatitis, cirrhosis, excessive alcohol consumption, steatosis, or biliary tract obstruction. Other conditions that can lead to elevated GGT such as heart failure, diabetes, pancreatic damage, and overmedication. On the other hand, low GGT levels may indicate hypothyroidism.

## PRINCIPLE

Gamma Glutamyl Transferase (Gamma-GT) catalyzes the transfer of glutamic acid to glycylglycine to produce the 4-amino2-nitrobenzoate detected at 405 nm.

Glupa Carboxy + Glycylglycine

↓ **GGT**

T L- Y Glutamylglycylglycine + 5 amino 2 nitrobenzoate

The increase in absorbance at this wavelength is directly proportional to the activity of the GammaGT.

## REAGENT COMPOSITION

| | | |
|---|---|---|
| **Reagent 1** Buffer | Glycylglycine Buffer pH 7,9 at 30°C | 150 mmol/l |
| **Reagent 2** Substrate | Glupa Carboxy | 6 mmol/l |

## SAFETY CAUTIONS

Biomaghreb reagents are intended for use by qualified personnel for in vitro use (do not pipette by mouth).

- Refer to the current MSDS available on request or on www.biomaghreb.com.
- Check the integrity of the reagents before use.
- Disposal of waste: comply with applicable legislation.

For safety reasons, treat any specimen or reagent of biological origin as potentially infectious. Observe the applicable legislation.

## REAGENT PREPARATION

Work Solution :

Mix the substrate with 3 ml REF (09012), REF (09043) and REF (09050) or with10ml REF (09029) and REF (09036) of buffer R1.

## SAMPLE COLLECTION AND HANDLING

Serum without hemolysis.

## PRESERVATION AND STABILITY

Stored in the original, tightly stoppered bottle at 2-8°C, the reagents are stable if used and stored under the recommended conditions:

- Before opening : Until the expiry date indicated on the label of the box at +4°C;
- After opening : (Working Solution) :
  24 hours at 20-25°C;
  7 days at 2-8°C.

## ADDITIONAL EQUIPMENT

- Basic equipment of the medical analysis laboratory ;
- Spectrophotometer or Clinical BiochemistryAnalyzer

## LIMITS

Plasma containing Citrates, Oxalates or EDTA cannot be used in this assay.

## CONTROLE DE QUALITE

External quality control program.

It is recommended to control in the following cases:

- At least one test per series.
- Change of reagent bottle.
- After maintenance work on the analyzer.

If a control value is outside the confidence limits, repeat the procedure using the same control.

Use normal and pathological control sera.

## LINEARITY

The method is linear up to 500 U/l at 37°C.

If the activity is higher, repeat the test by diluting the serum 1/10 with a 9 g/l Na Cl solution. Multiply the result by 10.

## PROCEDURE

Wavelength: 450 nm (410 nm);

Temperature: 25 - 30 or 37 ° C;

Tank: 1 cm thick ;

Adjust the spectrophotometer zero to air or distilled water.

| **Working Solution** | 1 ml | 3 ml |
|---|---|---|
| Pre-incubate at the selected temperature (25, 30 or 37°C). | | |
| **Sample** | 100 µl | 300 µl |
| Mix and incubate 1 minute.<br>Measure the decrease in optical density per minute for 1 to 3 minutes. | | |

## CALCULATION AND CALIBRATION

- Use the theoretical factor at wavelength 405 nm, UI/l = Δ DO/mn x 1346 ;
- or REF CB20003 Calbio Multicalibrator BIOMAGHREB ;
- or IFCC standard solution.

## REFERENCE VALUES

| | 25°C | 30°C | 37°C |
|---|---|---|---|
| **Women** | 4 - 18 UI/l | 5 - 25 UI/l | 7 - 32 UI/l |
| **Men** | 6 - 28 UI/l | 8 - 38 UI/l | 11 - 50 UI/l |

## REFERENCES

Lum G. and Gabino S.R. Clin. Chem. 18, 358 (1972) ;

Szasz G., Clin. Chem., 15, 124 (1969).

Manufacturer | Use by | IVD In Vitro Diagnostic | Temperature Limitation | REF Catalogue number | See insert | Store away from light | Sufficient for < n > essais | LOT Batch number