LIQUIZYME

# GAMMA GT

(SASZ Method)

| Code | Product Name | Pack Size |
|---|---|---|
| LS020A | Liquizyme Gamma GT | 25 ml |

**Intended Use**

Diagnostic reagent for quantitative in vitro determination of GGT in human serum and plasma.

**Clinical Significance**

Although GGT is present in a variety of tissues, the serum enzyme appears to be primarily from the hepato-biliary system. Consequently, GGT is elevated in all forms of liver disease or damage. It is clinically useful in detecting obstructive jaundice, cholangitis and cholecystitis. Elevated levels are also observed with drug use (alcohol, sedatives, anticonvulsants and tranquilizers).

**Principle**

GGT present in the sample catalyzes the transfer of the glutamyl group from the substrate γ-glutamyl-3-carboxy-4-nitroanilide to glycylglycine forming glutamyl glycylglycine and 5-amino-2-nitrobenzoate.

L-γ-glutamyl-3-carboxy-4-nitronilide + glcylglycine $\xrightarrow{\text{GGT}}$ L-γ-glutamylglycylglycine + 5-amino 2nitrobenzoate

The rate of formation of 5-amino-2-nitrobenzoate is proportional to the activity of GGT present in the sample and can be measured kinetically at 400 – 420 nm.

**Reagent Composition**

**Reagent 1 : Buffer Reagent**

Tris buffer (ph 8.25) : >125 mmol/L
Glycyl Glycine : >125 mmol/L

**Reagent 2 : Substrate Reagent**

L-γ-Glutamyl-3-carboxy-4-nitronilide <20 mmol/L

**Reagent Preparation**

Reagents are liquid, ready to use.

**Stability And Storage**

The unopened reagents are stable till the expiry date stated on the bottle and kit label when stored at 2–8°C.

**Materials Required But Not Provided**

- Clean & Dry container.
- Laboratory Glass Pipettes or Micropipettes & Tips
- Colorimeter or Bio-Chemistry Analyzer.

**Working Reagent Preparation**

**Mix 4 portion of reagent R1 with 1 portion of reagent R2.**

**Stability :**

14 days : at +2 – +8°C

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**Specimen Collection And Handling**

Use serum, plasma (EDTA).
It is recommended to follow NCCLS procedures (or similar standardized conditions).

**Stability In Serum / Plasma :**

3 days : at +20 – +25°C
7 days : at +4 – +8°C

Discard contaminated specimens.

**Unit Conversion**

U/l x 0.017 = µmol/l

**Expected Values**

At +37°C
Male : 10 - 45 U/L
Female : 5 - 32 U/L

**It is recommended that each laboratory verify this range or derives reference interval for the population it serves.**

**Performance Data**

Data contained within this section is representative of performance on Beacon system.
Data obtained in your laboratory may differ from these values.

**Limit of Quantification** : 1.68 U/L
**Linearity** : 500 U/L
**Measuring range** : 1.68 – 500 U/L
**Precision**

| Intra-assay precision Within run (n=20) | Mean (U/L) | SD (U/L) | CV (%) |
|---|---|---|---|
| Sample 1 | 46.25 | 0.44 | 0.96 |
| Sample 2 | 168.90 | 1.94 | 1.15 |

| Inter-assay precision Run to run (n=20) | Mean (U/L) | SD (U/L) | CV (%) |
|---|---|---|---|
| Sample 1 | 96.0 | 1.96 | 2.05 |

**Comparison**

A comparison between Beacon GGT (y) and a commercially available test (x) using 20 samples gave following results :
y = 1.024x - 0.925U/L
r = 1.0

**Interferences**

Following substances do not interfere :
haemoglobin up to 5 g/l, bilirubin up to 40 mg/dl, triglycerides up to 2000 mg/dl.

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**Warning And Precautions**
For in vitro diagnostic use. To be handled by entitled and professionally educated person.

**Waste Management**
Please refer to local legal requirements.

**Assay Procedure**
**Wavelength** : 405 nm
**Cuvette** : 1 cm

| Addition Sequence | Volume |
|---|---|
| Working Reagent | 1000 µl |
| Sample | 50 µl |

Mix and read the initial absorbance after 60 sec at 37°C and repeat the reading after every 1,2 and 3 minutes. Calculate the mean absorbance change per minute. (ΔA/min).

**Calculation**
Using factor:
GGT activity (U/L) = ΔA/min x 2210

**Applications for automatic analysers are available on request.**

**Assay Parameters For Photometers**

| Mode | Kinetic |
|---|---|
| Wavelength 1 (nm) | 405 |
| Sample Volume (µl) | 50 |
| Working Reagent Volume (µl) | 1000 |
| Lag time (sec.) | 60 |
| Kinetic Interval (sec.). | 60 |
| No. of Interval | 3 |
| Kinetic Factor | 2210 |
| Reaction temp. (°C) | 37 |
| Reaction Direction | Increasing |
| Normal Low (U/L) | 10 |
| Normal High (U/L) | 45 |
| Linearity Low (U/L) | 1.68 |
| Linearity High (U/L) | 500 |
| Blank with | Water |
| Unit | U/L |

**References**

1. Szasz G., Weimann G. Suhler F., Wahlefrld A.W., Presijn J. P. : Z Klin. Chem. Klin. Biochem. 12, 228 (1994).
2. Persijn & van der Slik W. : J. Clin. Chem. Clin. Biochem. 14, 421-427 (1976).
3. Tietz Textbook of Clinical Chemistry and Molecular Diagnostics. Burtis, C.A., Ashwood, E.R., Bruns, D.E.; 5th edition, WB Saunders Comp., 2012.


**Symbols Used On Labels**

| | | | |
|---|---|---|---|
| REF | Catalogue Number | | Manufacturer |
| | See Instruction for Use | LOT | Lot Number |
| CONT | Content | | Storage Temperature |
| | Expiry Date | IVD | In Vitro Diagnostics |


BEA/24/GGT/LS/IFU Ver-02
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