

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  $\gamma$ -glutamyl-3-carboxy-4-nitroanilide to glycylglycine forming glutamyl glycylglycine and 5-amino-2-nitrobenzoate.



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- $\gamma$ -Glutamyl-3-carboxy-4-nitroanilide <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 Pippetes 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  
1 year : at - 20°C

Discard contaminated specimens.

#### Unit Conversion

U/l x 0.017 =  $\mu$ mol/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

Intra-assay precision Within run (n=20)	Mean (U/L)	SD (U/L)	CV (%)
Sample 1	55.59	1.49	2.68
Sample 2	176.45	2.74	1.55

Inter-assay precision Run to run (n=20)	Mean (U/L)	SD (U/L)	CV (%)
Sample 1	87.68	2.93	3.35

#### Comparison

A comparison between Beacon GGT (y) and a commercially available test (x) using 20 samples gave following results :

y = 1.036 x - 1.979 U/L  
r = 0.997

#### Interferences

Following substances do not interfere :

haemoglobin up to 5 g/l, bilirubin up to 40 mg/dl, triglycerides up to 2000 mg/dl.

#### 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. ( $\Delta A/\text{min}$ ).

#### Calculation

Using factor:

GGT activity (U/L) =  $\Delta A/\text{min} \times 2210$

**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



Catalogue Number



Manufacturer



See Instruction for Use



Lot Number



Content



Storage Temperature



Expiry Date



In Vitro Diagnostics

BEA/24/GGT/LS/IFU-01

08/01/2022

