

Liquick Cor-GGT

DIAGNOSTIC KIT FOR DETERMINATION OF γ -GLUTAMYLTRANSFERASE ACTIVITY



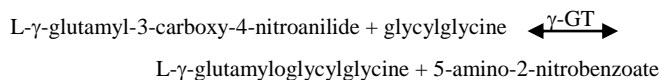
Kit name	Cat. No
Liquick Cor-GGT 500	1-318
Liquick Cor-GGT "bulk"	1-287

INTRODUCTION

γ -Glutamyltransferase (GGT, GGTP) is a membrane localized enzyme that catalyzes the transfer of glutamyl groups from glutathione to amino acids or peptides. Large GGT amounts are present in secretory organs: kidney, liver, bile duct, pancreas. Although the GGT activity is highest in renal tissue, serum GGT is generally elevated as a result of liver disease. Since alcohol induces GGT production, measurement of GGT activity is used for monitoring of abstinence in withdrawal treatment.

METHOD PRINCIPLE

IFCC method. Kinetic method with L- γ -glutamyl-3-carboxy-4-nitroanilide.



The rate of 5-amino-2-nitrobenzoate creation measured colorimetrically is directly proportional to γ -glutamyltransferase activity.

REAGENTS

Package	Liquick Cor-GGT 500	Liquick Cor-GGT "bulk"
1-GGT	3 x 400 ml	--*
2-GGT	1 x 300 ml	--*

*reagent volume is printed on the label.

The reagents when stored at 2-8°C are stable up to expiry date printed on the package. The reagents are stable for 12 weeks on board the analyser at 2-10°C. Protect from light and avoid contamination!

Working reagent preparation and stability

Assay can be performed with use of separate 1-GGT and 2-GGT reagents or with use of working reagent. For working reagent preparation mix gently 4 parts of 1-GGT with 1 part of 2-GGT. Avoid foaming.

Stability of working reagent in darkness:	4 weeks at 2-8°C
	5 days at 15-25°C

Protect from light and avoid contamination!

Concentrations in the test


Tris (pH 8.25)	100 mmol/l
glycylglycine	100 mmol/l
L- γ -glutamyl-3-carboxy-4-nitroanilide	4 mmol/l

Warnings and notes

- Product for in vitro diagnostic use only.
- 1-GGT and 2-GGT meeting the criteria for classification in accordance with Regulation (EC) No 1272/2008.

Ingredients:

1-GGT and 2-GGT contain reaction mass of: 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-2H-isothiazol-3-one, mixture (3:1).

 Warning
H317 - May cause an allergic skin reaction.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

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P333 + P313 If skin irritation or rash occurs: Get medical advice.
P363 Wash contaminated clothing before reuse.

ADDITIONAL EQUIPMENT

- automatic analyzer or photometer able to read at 405 nm;
- thermostat at 25°C, 30°C or 37°C;
- general laboratory equipment;

SPECIMEN

Serum, EDTA plasma free from haemolysis.

Do not use citrate, oxalate and fluoride as anticoagulants because of GGT activity inhibition!

Heparin causes turbidity in the reaction mixture!

GGT activity remains stable in specimen up to 2 days at 15-25°C or 1 week at 2-8°C or 1 month at -25°C. Freezing of sample causes a loss of enzyme activity. Frozen specimens should be thawed and kept at room temperature for 18 to 24 hours before measurement to achieve full enzyme reactivation.

Nevertheless it is recommended to perform the assay with freshly collected samples!

PROCEDURE

These reagents may be used both for manual assay (Sample Start and Reagent Start method) and in several automatic analysers. Applications for them are available on request.

Manual procedure

wavelength	405 nm
temperature	25°C / 30°C / 37°C
cuvette	1 cm

Sample Start method

Pipette into the cuvette:

working reagent	1000 μ l
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Bring up to the temperature of determination. Then add:

sample	100 μ l
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Mix and incubate at adequate temperature. After about 1 min. read the absorbance against air or water. Repeat the reading after exactly 1, 2 and 3 minutes. Calculate the mean absorbance change per minute ($\Delta A/\text{min.}$).

Calculation

GGT activity [U/l] = $\Delta A/\text{min.} \times 1511$
1 U/l = 0.0167 μ kat/l

Reagent Start method

The determination can be also performed with use of separate 1-GGT and 2-GGT reagents.

Pipette into the cuvette:

1-GGT	1000 μ l
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Bring up to the temperature of determination. Then add:

sample	100 μ l
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Mix well, incubate for 1 min. Then add:

2-GGT	250 μ l
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Mix well; perform measurement as described for Sample Start method.

Calculation

GGT activity [U/l] = $\Delta A/\text{min.} \times 1810$
1 U/l = 0.0167 μ kat/l

REFERENCE VALUES ⁷

serum / plasma	37°C
female	< 38 U/l (0.633 μ kat/l)
male	< 55 U/l (0.917 μ kat/l)

It is recommended for each laboratory to establish its own reference ranges for local population.

QUALITY CONTROL

For internal quality control it is recommended to use the CORMAY SERUM HN (Cat. No 5-172) and CORMAY SERUM HP (Cat. No 5-173) with each batch of samples.

For the calibration of automatic analysers systems the CORMAY MULTICALIBRATOR LEVEL 1 (Cat. No 5-174; 5-176) or LEVEL 2 (Cat. No 5-175; 5-177) is recommended.

The calibration curve should be prepared every 12 weeks, with change of reagent lot number or as required e.g. quality control findings outside the specified range.

PERFORMANCE CHARACTERISTICS

These metrological characteristics have been obtained using the automatic analyser Biolis 24i Premium. Results may vary if a different instrument or a manual procedure is used.

- **Sensitivity:** 11.2 U/l (0.187 µkat/l).
- **Linearity:** up to 580 U/l (9.667 µkat/l).
- **Specificity / Interferences**
Haemoglobin up to 0.16 g/dl, ascorbate up to 62 mg/l, bilirubin up to 20 mg/dl and triglycerides up to 1000 mg/dl do not interfere with the test.

- **Precision**

Repeatability (run to run) n = 20	Mean [U/l]	SD [U/l]	CV [%]
level 1	29.06	1.44	4.97
level 2	134.05	1.86	1.39

Reproducibility (day to day) n = 80	Mean [U/l]	SD [U/l]	CV [%]
level 1	29.05	2.14	7.36
level 2	132.33	3.50	2.64

- **Method comparison**

A comparison between GGT values determined at Biolis 24i Premium (y) and at ADVIA 1650 (x) using 30 samples gave following results:

$$y = 1.0181 x - 2.5022 \text{ U/l};$$

$$R = 0.9995 \quad (R - \text{correlation coefficient})$$

WASTE MANAGEMENT

Please refer to local legal requirements.

LITERATURE

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MANUFACTURER

PZ CORMAY S.A.
22 Wiosenna Street,
05-092 Łomianki, POLAND
tel.: +48 (0) 22 751 79 10
fax: +48 (0) 22 751 79 14
<http://www.cormay.pl>

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