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GGT – DAC.Lq

GAMMA-GLUTAMYLTRANSFERASE (γ-GT)
 KINETIC IFCC METHOD

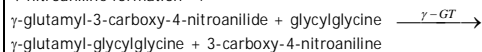
For «in vitro» use only
 Store at 2-8°C

Cod 2024G50 50 ml
 Cod 2024G200 200 ml

PRINCIPLE

Gamma-glutamyltransferase (γ-GT) catalyzes the transfer of the γ-glutamyl group from γ-glutamyl-3-carboxy-4-nitroanilide to glycyglycine, liberating 3-carboxy-4-nitroaniline.

The catalytic concentration is determined from the rate of 3-carboxy-4-nitroaniline formation^{1,2}.



CONTENTS AND COMPOSITION

Reagent A	pH 8,25
Glycylglycine	140 mmol/l
TRIS buffer	125 mmol/l
Sodium azide	1 g/l
<i>Irritant! Irritating to eyes and skin</i>	
Reagent B	
γ-glutamyl-3-carboxy-4-nitroanilide	22 mmol/l
Sodium azide	1 g/l

STORAGE AND STABILITY OF REAGENTS

Reagents are stable at 2-8°C until the expiry date shown on the label.

Indications of deterioration:

Reagents: Presence of particulate material, turbidity, absorbance of the blank over 1,000 at 405 nm (1 cm cuvette).

SAMPLES

Serum collected by standard procedures.

Gamma-glutamyltransferase in serum is stable for 5 days at 2-8°C.

REFERENCE VALUES

Men⁶: 11-50 U/l.

Women⁶: 7-32 U/l.

These ranges are given for orientation only; each laboratory should establish its own reference ranges.

QUALITY CONTROL

It is recommended to use the Sera N and Sera P to verify the performance of the measurement procedure.

Each laboratory should establish its own internal Quality Control scheme and procedures for corrective action if controls do not recover within the acceptable tolerances.

ADDITIONAL EQUIPMENT

Analyzer, spectrophotometer or photometer with cell holder thermostatable at 37°C and able to read at 405 nm.

Cuvettes with 1 cm light path. Dropper for 100 μl and 1,0 ml.

PRECAUTION

For in vitro diagnostics only.

Handle all patients' samples as potentially dangerous and treat as infectious. Precautions established for work with caustic and toxic substances should be observed while using the reagents.

REAGENT PREPARATION

Working Reagent can be prepared in the proportion:
 4 ml Reagent A + 1 ml Reagent B.

PROCEDURE

Method: kinetic UV
 Wavelength: 405 (±10) nm
 Light path: 1 cm
 Temperature: 37°C
 Blank: distilled water

1. Bring the Working Reagent and the instrument to reaction temperature (37°C).

2. Pipette into a cuvette:

Working Reagent	1,0 ml
Sample, Standard	100 μl

NB: Volumes of reagents and samples can be proportionally changed according to the cells working volumes of using analyzers.

3. Mix and insert the cuvette into the photometer.

4. After 1 minute record initial absorbance against the distilled water and record absorbance at 1 minute, intervals thereafter for 3 minutes.

5. Calculate the difference between consecutive absorbances and mean absorbance difference for 1 minute (ΔA/min).

CALCULATIONS

The γ-GT concentration in the sample (U/l) is calculated using the following general formula:

$$\frac{\Delta A / \text{min}_{\text{Sam}}}{\Delta A / \text{min}_{\text{St}}} \times C_{\text{St}} = C_{\text{Sam}}$$

Calculation using factor at 405 nm:

$$\text{Activity (U/l)} = \Delta A / \text{min}_{\text{Sam}} \times 1156$$

METROLOGICAL CHARACTERISTICS

Detection limit: 1.4 U/l.

Linearity limit: 700 U/l.

Repeatability (within run):

Mean Concentration	CV	n
22,2 U/l	1,89%	20
157 U/l	0,83%	20

Reproducibility (run to run):

Mean Concentration	CV	n
53 U/l	1,7%	25
201 U/l	1,64%	25

Trueness:

Results obtained with this reagent did not show systematic differences when compared with reference reagents. Details of the comparison experiments are available on request.

Interferences:

Bilirubin (50 mg/dl), lipid (10 g/l), glucose (10 g/l) and ascorbic acid (0,5 g/l) do not interfere.

Other drugs and substances may interfere⁴.

These metrological characteristics have been obtained using an analyzer.

Results may vary if a different instrument or manual procedures are used.

DIAGNOSTIC CHARACTERISTICS

Gamma-glutamyl transferase is found in highest concentration in liver, the renal tubules and intestines although it is also present in other tissues such as the pancreas, prostate, salivary glands, seminal vesicles, brain and heart.

Gamma-glutamyl activity is elevated in any and all forms of liver disease, showing highest values in cases of intra or posthepatic biliary obstruction.

High elevations are also observed in patients with metastatic neoplasm of the liver. In pancreatitis and some pancreatic malignancies, enzyme activity may be moderately elevated^{5,6}.

Clinical diagnosis should not be made on the findings of a single test result, but should integrate both clinical and laboratory data.

BIBLIOGRAPHY

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4. Young DS. Effects of drugs on clinical laboratory tests, 4th ed. AACC Press, 1995.

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