



ALT (GPT)

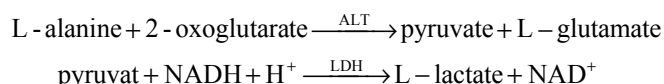
*Alanine aminotransferase / liquid
(According to IFCC)*

Cat.No. 101-0437

Size: 4x250 ml / 4x30 ml

PRINCIPLE:

ALT catalyzes the transfer of amino group from L-alanine to 2-oxoglutarate resulting in the formation of pyruvate and L-glutamate. The pyruvate thus formed undergoes reduction with simultaneous oxidation of NADH to NAD in the lactate dehydrogenase catalyzed indicator reaction. Oxidation of NADH causes a decrease in absorbance at 340 nm (334 or 365 nm) and the rate of absorbance change is directly proportional to ALT activity.



SAMPLE:

Serum or heparinized plasma.

REAGENTS:

- | | |
|--|-------------|
| 1. Reagent 1 (Buffer/Substrate) | |
| Tris buffer pH 7.8 | 100 mmol/L |
| LDH | 1200 U/L |
| L-alanine | 500 mmol/L |
| 2. Reagent 2 (Enzyme/Coenzyme/ α -oxoglutarate) | |
| α -oxoglutarate | 15 mmol/L |
| NADH | 0.18 mmol/L |

Store at +2 °C to +8 °C.

REAGENT PREPARATION :

All reagents are ready to use.

Monoreagent method: mix 9 vol R1 + 1 vol R2

Working reagent is stable for 72 hours at +15 °C to +25 °C or 21 days at +2 °C to +8 °C.

PROCEDURE:

- | | |
|--------------|-------------------------|
| Wavelength: | 340, 334, 365 nm |
| Cuvette: | 1 cm light path |
| Temperature: | 25 °C, 30 °C, 37 °C |
| Zero: | air or H ₂ O |

	Macro-test	Semimicro-test
Sample	200 μ l	100 μ l
Working reagent	2.0 ml	1.0 ml
Mix and wait 1 minute. Read absorbance decreasing every 60 sec during 1-3 min. Calculate $\Delta A/\text{min}$.		

CALCULATION:

$$\frac{\Delta A/\text{min} \times 10^6 \times TV}{6.3 \times 10^3 \times l \times V} = \Delta A/\text{min} \times F = U/l$$

Where is :

- | | |
|-------------------|--|
| ΔA | = change in absorbance |
| min | = minute |
| 6.3×10^3 | = molar absorptivity of NADH at 340 nm |
| 10^6 | = conversion of mol to μ mol |
| l | = light path in cm |
| TV | = total reaction volume in ml |
| V | = sample volume in ml |

$\Delta A_{340 \text{ nm}}/\text{min} \times 1750 = \text{U/L ALT}$

$\Delta A_{334 \text{ nm}}/\text{min} \times 1790 = \text{U/L ALT}$

$\Delta A_{365 \text{ nm}}/\text{min} \times 3240 = \text{U/L ALT}$

EXPECTED VALUES:

	25 °C	30 °C	37 °C	UNIT
Men	up to 22	up to 29	up to 40	U/L
Women	up to 18	up to 22	up to 32	U/L

Temperature conversion factors

Assay temperature	Desired temperature		
	25 °C	30 °C	37 °C
25 °C	1.00	1.32	1.82
30 °C	0.76	1.00	1.39
37 °C	0.55	0.72	1.00

LINEARITY:

If the absorbance change per minute ≥ 0.150 at 340 nm and 334 nm or ≥ 0.08 at 365 nm dilute the sample 1:10 with physiological solution and reassay (result x 10).

NOTE:

- Avoid haemolysis as it interferes with assay.
- Solution 1 contains sodium azide. Avoid ingestion or contact with skin or mucous membranes.

QUALITY CONTROL:

- | | | |
|----------|-----------|-------------------|
| CONTRO-N | 20 x 5 ml | Cat. No. 101-0083 |
| CONTRO-P | 20 x 5 ml | Cat. No. 101-0084 |

REFERENCE:

- Bergmeyer, H.U. at al., Clin.Chem 24, 58-73, (1978).
- Bergmeyer H.U. and Horder M., Clin.Chem Acta 105, 147 F (1980).