ALT/GPT (UV) (BR-160/ BR-120) Kinetic-IFCC Method

IVD

PRODUCT
CODE CZ003

INTENDED USE
This reagent is intended for *in vitro* quantitative determination of ALT/GPT in serum or plasma.

METHOD
Optimized UV KINETIC-TEST according to IFCC (International Federation of Clinical chemistry).

CLINICAL SIGNIFICANCE
Alanine Aminotransferase (ALT or GPT), is present in high concentrations in the liver and to a lesser extent in kidney, heart and skeletal muscle, pancreas, spleen and lung. Increased levels of ALT however are generally a result of liver disease associated with some degree of hepatic necrosis such as cirrhosis, carcinoma, viral or toxic hepatitis and obstructive jaundice. Characteristically ALT is generally higher than AST in acute viral or toxic hepatitis, whereas for most patients with chronic hepatic disease, ALT levels are generally lower than AST levels. Elevated ALT levels have also been found in extensive trauma and muscle disease, circulatory failure with shock, hypoxia, myocardial infarction and haemolytic disease.

PRINCIPLE
The amino group is enzymatically transferred by ALT present in the sample from alanine to the carbon atom of 2-oxoglutarate yielding pyruvate and L-glutamate. Pyruvate is reduced to lactate by LDH present in the reagent with the simultaneous oxidation of NADH to NAD+. The reaction is monitored by measuring the rate of decrease in absorbance at 340nm due to the oxidation of NADH.

$$\text{L-Alanine} + \text{2-Oxoglutarate} \xrightarrow{\text{ALT/GPT}} \text{Pyruvate} + \text{L-Glutamate}$$

$$\text{Pyruvate} + \text{NADH} + H^{+} \xrightarrow{\text{LDH}} \text{D-Lactate} + \text{NAD}^{+}$$

REAGENT COMPOSITION

REAGENT 1 (ENZYME REAGENT) Tris pH 7.5	100 mmol/L
L-Alanine	500 mmol/L
LDH	≥ 1200 u/L
REAGENT 2 (SUBSTRATE)	
2-Oxoglutarate	15 mmol/L
NADH	0.18 mmol/L

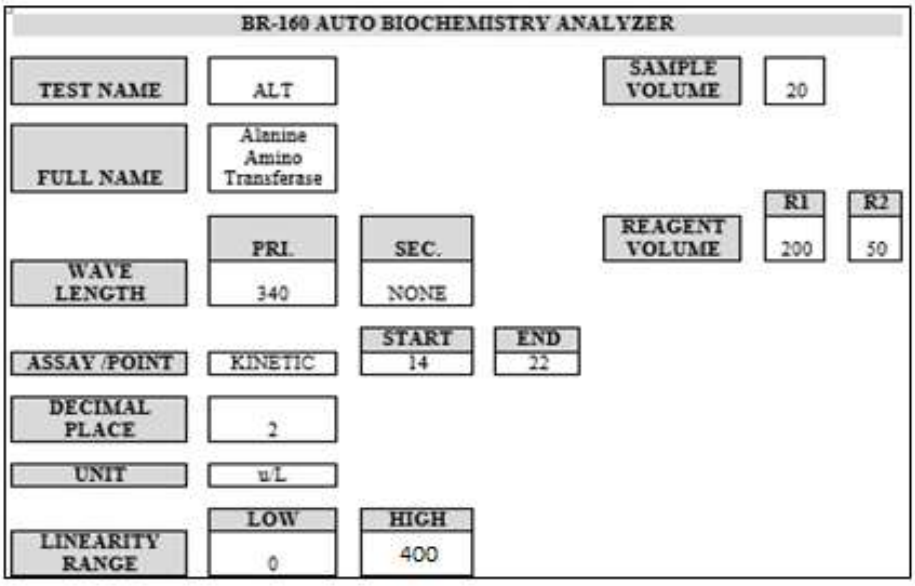
REAGENT PREPARATION Reagent is ready for use.

Note: Discard the working reagent if the blank absorbance less than 1.0 at 340 nm

SPECIMEN
Serum, heparinized plasma

PRECAUTION
1- The reagents contain sodium azide as preservative. Do not swallow and avoid contact with skin and mucous membranes.
2- To avoid contamination, use clean laboratory wares. Avoid direct exposure of reagent to light.

PROCEDURE
APPLICATION ON AUTO BIOCHEMISTRY



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BR-120 AUTO BIOCHEMISTRY ANALYZER						
TEST NAME	ALT			SAMPLE VOLUME	20	
FULL NAME	Alanine Amino Transferase					
					R1	R2
	PRI.	SEC.		REAGENT VOLUME	200	50
WAVE LENGTH	340	NONE				
		START	END			
ASSAY /POINT	KINETIC	23	33			
DECIMAL PLACE	2					
UNIT	u/L					
	LOW	HIGH				
LINEARITY RANGE	0	400				

LINEARITY

Up to 400 U/L, the sample should be diluted 1 + 9 with 0.9 % NaCl solution, if ΔA/min exceeds 0.16 at 340 nm or 334 nm, or 0.08 at 365 nm. Multiply the result by 10.

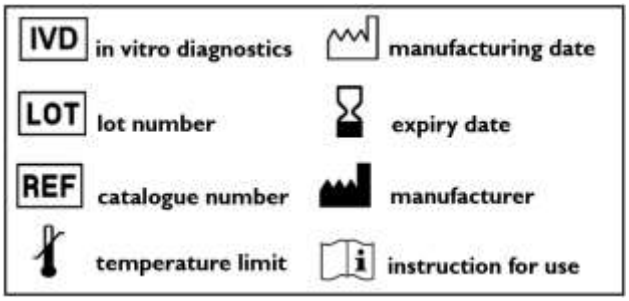
NORMAL RANGE

Men up to 42 U/L
Women up to 32 U/L
Each laboratory should establish reference ranges for it s own patients' population.

QUALITY CONTROL

All control sera with values determined by this method can be used.

SYMBOL ON LABELS



BIBILOGRAPHY

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2- .Thefeld W. ET. AI. DT . MED. WSCHR. 99 (1974) 343.