AST Assay Kit
IFCC without pyridoxal

Cat.No: OttoBC127

Summary & Explanation

Aspartate aminotransferase (glutamate-oxaloacetate-transaminase) belongs to the transaminases, which catalyze the interconversion of amino acids and a-keto acids by transfer of amino groups. Aspartate aminotransferase is commonly found in human tissue. Although heart muscle is found to have the most activity of the enzyme, significant activity has also been seen in the brain, liver, gastric mucosa, adipose tissue, skeletal muscle, and kidneys. AST is present in both the cytoplasm and mitochondria of cells. In cases involving mild tissue injury, the predominant form of AST is that from the cytoplasm, with a smaller amount coming from the mitochondria. Severe tissue damage results in more of the mitochondrial enzyme being released. Elevated levels of the transaminases can signal myocardial infarction, hepatic disease, muscular dystrophy, and organ damage. The International Federation of Clinical Chemistry (IFCC) recommended in 1977 and 1980 standardized procedures for AST determination, including optimization of substrate concentrations, employment of TRIS* buffers, preincubation of combined buffer and serum to allow side reactions with NADH to occur, substrate start, and optional pyridoxal phosphate activation. In 2002 the IFCC confirmed their recommendation and extend it to 37°C. This method is derived from the IFCC reference method. *TRIS = Tris(hydroxymethyl)- aminomethane

Test Principle

UV test according to a standarrized method Sample and addition of R1 (buffer) Addition of R2 and start of reaction:

α-ketoglutarate + L-aspartate ⟶ L- glutamate + oxaloasetate

AST is the enzyme which catalyzes this equilibrium reaction. The oxaloacetate in- crease is measured in a subsequent indicator reaction which is catalyzed by malate dehydrogenase.

oxalacetate + NADH + H+ ⟶ L-Malate + NAD+

In the second reaction, NADH is oxidized to NAD. The rate of decrease in NADH (Measured photometrically) is directly proportional to the rate of formation of oxaloasetate, and thus the AST activity.

Kit Companents

Content	Explanation	Shelf life
Reagent-1	1x30ml	6 months
Reagent-2	1x10ml	6 months
Calibrator	1x0.5ml	6 months
Q.Control	1x0.5ml	6 months

Storage & Stability

Reagent: Stable up to expiry date when stored capped and at +4°C even after start using

Calibration and Quality Control: Reconstitute the contents of with 0.5 ml of redistilled water . Stable for 2 days when stored at +4°C

Reactivity

Universal

Specimen

Collect serum using standard sampling tubes. Heparin or EDTA plasma.
Stability: 7 days at +2°C - +8°C, 30 days at - 70°C

Assay Range

3 - 400 U/l

Refference Range

Each laboratory is recommended to establish their own reference values.

Analytical Performance

Inter Assay Coefficent of Variation (CV) % 2.7
Intra Assay Coefficent of Variation (CV) % 2.8

Procedure

Wavelength	340nm (±10nm)
Sample or Standard	25µl
Reagent-1	200µl
Mix, incubate 1-5 min. Then Add;	
Reagent-2	50 µl
Mix, incubate for 1 min. and start stopwatch simultaneously. Read again after exactly 1, 2 and 3 minutes	
Zero Adjustment	Sample blank

Calculation

Hg 365 nm 3235 x A/min
Hg 340 nm 1746 x A/min
Hg 334 nm 1780 x A/min

Warning

For in vitro use only
Do not pipette by mouth
Do not use reagents beyond the expiry date.

References

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