Aspartate Aminotransferase

AST/SGOT - AcNADH method

Intended Use

For **IN VITRO** diagnostic use in the determination of **AST (SGOT)** in serum using manual or automated applications.

Method Principle

The Aspartate Aminotransferase (AST) enzyme catalyzes the conversion of alpha-Ketoglutarate and L-Aspartate to L-Glutamate and Oxalacetate. The Oxalacetate produced is then quantitatively determined by the MDH-AcNADH reaction. The decrease in absorbance due to the oxidation of AcNADH to AcNAD is monitored at 340 nm. The rate of decrease in absorbance of the reaction mixture is directly proportional to the AST enzyme activity in the serum sample. The reaction scheme below illustrates the reactions that occur in this method.

$$\text{L-Aspartate + alpha-KG} \xrightarrow{\text{AST}} \text{L-Glutamate + Pyruvate}$$

$$\text{Pyruvate + AcNADH} \xrightarrow{\text{MDH}} \text{L-Malate + AcNAD}$$

Method Performance Characteristics

Sensitivity: 0.0002 absorbance units per U/L.
Linear Range: 0 – 1000 U/L
Precision: Within-run and day-to-day precision is summarized below.

AST	Within-Run Precision		Day-to-Day Precision	
MEAN	SD	CV	SD	CV
U/L	U/L	%	U/L	%
26	1.0	3.8	1.8	6.9
69	2.4	3.5	3.1	4.5
385	9.2	2.3	11.6	3.0

Correlation

A comparison of this method using a discrete random access analyzer and a reference procedure based upon the recommendations of IFCC resulted in the following regression statistics:

Correlation Data	
Parameter	Data Observed
N	122
Range	15-440 U/L
Regression	Y = 0.99x + 0.94
Correlation	r = 0.99
$S_{y,x}$	3.4