GOT/AST

Aspartate aminotransferase NADH. Kinetic UV. IFCC. Liquid

Product information

24AST01-UN	**Meditest GOT/AST**	**4x40 mL 2x20 mL**
24AST01-AU	**Meditest GOT/AST**	**4x40 mL 2x20 mL**
24AST01-AB	**Meditest GOT/AST**	**4x40 mL 2x20 mL**
24AST01-ER	**Meditest GOT/AST**	**3x40 mL 3x10 mL**
24AST01-AR	**Meditest GOT/AST**	**3x40 mL 3x10 mL**

Purpose

In vitro assay for the quantitative determination of aspartate aminotransferase (AST) in human serum, plasma and urine.

Summary

AST is a cellular enzyme, found in the highest concentration in cardiac muscle, liver cells, skeletal muscle cells, and to a lesser extent in other tissues. Although the elevation of the level of AST in the serum is not specific to liver disease, it is mainly used to diagnose it, in combination with other enzymes such as ALT and ALP, to confirm the course of this disease.
It is also used in the control of patients after myocardial infarction, diseases of skeletal muscle and other conditions. Clinical diagnosis should not be based on a single test result, but clinical and other laboratory data should be integrated.

Test principle

Aspartate aminotransferase (AST), formerly called glutamate oxaloacetate (GOT), catalyzes the reversible transfer of an amino group from aspartate το α-ketoglutarate, forming glutamate and oxalacetate. The oxacetate produced is reduced to malate by malate dehydrogenase (MDH) and NADH:

$$\text{L-Aspartate} + \alpha\text{-Ketoglutarate} \xrightarrow{\text{AST}} \text{Glutamate} + \text{Oxalacetate}$$

$$\text{Oxalacetate} + \text{NADH} + H^+ \xrightarrow{} \text{Malate} + \text{NAD+}$$

The rate of decrease in NADH concentration, measured photometrically, is proportional to the catalytic concentration of AST present in the sample[1]

Reagents - working solutions

R 1 Buffer	TRIS pH 7.8	<80 mmol/L
	Lactate dehydrogenase (LDH)	<800 U/L
	Malate dehydrogenase (MDH)	>600 U/L
	L-Aspartate	<200 mmol/L
R 2 Substrate	NADH	<0.18 mmol/L
	⍰-Ketoglutarate	<12 mmol/L

Precautions warnings

It is intended for in vitro diagnostic use by healthcare professionals. Follow the normal precautions necessary in handling all laboratory reagents.
Infectious or microbial waste:
Warning: handle waste as potentially biohazardous. Dispose of waste according to accepted laboratory instructions and procedures.
Environmental hazards: Follow all relevant local disposal regulations to determine that it has been disposed of safely. If requested, a safety data sheet can be provided to professional users.
Inhibit foam formation in all reagents and sample types (sample, calibrator and control).
If there is any damage on the package, do not use it Read the user manual carefully before use, do not use the expired assay kit Do not mix different lot reagents.
All samples should be considered epidemic material, please dispose of them in accordance with the laboratory working standard of infectious diseases.
Take the necessary protective measures to prevent users from becoming infected during operation.

Use of reagents

Ready to use.

Storage and stability

All components of the kit are stable until the expiration date on the label when stored tightly closed at 2-8ºC, protected from light and contamination is avoided during their use.
Do not use reagents after the expiration date. Signs of reactive deterioration: Presence of particles and turbidity.

Sample collection and preparation

Use only suitable tubes and collection containers to collect and prepare specimens. Only the samples listed below have been tested and found acceptable.
Serum. Plasma: Liheparin and K2EDTA plasma
Centrifuge samples containing precipitate before performing the test. For detailed information on possible sample interactions, see the limitations and interactions section. Sample stability claims were determined by the manufacturer based on experimental data or reference literature and only for the temperatures/time frames specified in the method sheet. It is the responsibility of each laboratory to use all available references and/or their own work to determine specific stability criteria for their laboratory.
Stability: 4 days at 2025 °C
7 days at 48 °C
3 months at -20°C

Required Materials (not included in the kit)

1. Cat# 24BIO01-DC Meditest Diachem Calibrator
2. Cat# 24BIO01-DQ Meditest Diacheck Control L1
3. Cat# 24BIO02-DQ Meditest Diacheck Control L2
4. General laboratory equipment
5. Distilled or deionized water

Working Procedure

If you are using a spectrophotometer to perform this test, work with the following procedure. Ask your representative for the application data for fully automatic devices.

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1.Test Conditions:
Wavelength: . 340 nm
Cuvette: . . . . . 1 cm light path
Temperature: . 37ºC / 15 25ºC 2.Set the appliance to zero with distilled water.
3.Place the pipettes in a cuvette.

WR (mL)	1,0
Sample (µΛ)	100

4.Mix, incubate for 1 minute.
5. Read the initial absorbance (A) of the sample, start the stopwatch, and read the absorbances at 1-minute intervals for 3 min.
6. Calculate the difference between absorbances and the average absorbance differences per minute (ΔA/µιν).

Calculation

ΔA/min x 1750 = U/L of AST

One international unit (IU) is the amount of enzyme that converts 1 µmol substrate per minute under standard conditions. The concentration is expressed in units per liter of sample (U/L).

Conversion factor: U/L x 0.0167 = µkat/L

Expected values

Male 0-40 U/L (0.67 µkat/L)
Woman 0-32 U/L (0.53 µkat/L)

To convert from 25 ^{0}C to 37 ^{0}C, 2.13 is used as the factor.
These values are for orientation purposes; Each laboratory should establish its own reference range

Limitations
Criterion: Recovery within 10% of baseline at 30 U/L (0.50 µcat/L) AST activity within ± of baseline.
Icterus: No apparent interaction for conjugated and unconjugated bilirubin until the I index is 60 (approximate concentration of conjugated and unconjugated bilirubin: 1026 µmol/L or 60 mg/dL).
Hemolysis: No apparent interaction until the H index is 40 (approximate hemoglobin concentration: 25.6 µmol/L or 40 mg/dL). Since the analyte level in erythrocytes is higher than in normal serum, contamination with erythrocytes will increase the results. The level of interaction may vary depending on the analyte content in fragmented erythrocytes.
Lipemia (Intralipid): No obvious interaction until the L index is 150. There is a weak correlation between the L index (which corresponds to turbidity) and the concentration of triglycerides. Lipemic specimens may cause the Abs warning sign to be given >.

Drugs: No interactions were found at therapeutic concentrations when common drug panels were used. Physiologic plasma concentrations of Sulfasalazine or Sulfapyridine may lead to false results.

Performance characteristics
Measuring range: 0-467 U/L
If the results obtained are greater than the linearity limit, dilute the sample by 1/10 with 9 g/L NaCl and multiply the result by 10.

Precision

	Intra-assay (n=20)		Inter-assay (n=20)	
Mean (U/L)	48,1	159	47,4	156
SD	0,56	0,57	1,42	4,35
CV (%)	1,16	0,36	3,00	2,79

Sensitivity: 1 U/L = 0.00053 ΔA/min
Accuracy: Results obtained using Meditest reagents (y) showed no systematic differences when compared to other commercial reagents (x). The results obtained using 50 samples are as follows:
Correlation coefficient (r)²: 0, 99956.
Regression equation y= 1.042x - 0.342

The results of the performance characteristics depend on the analyzer used.

References

1. Murray R. Aspartate aminotransferase. Kaplan A et al. Clin Chem The C.V. Mosby Co. St Louis. Toronto. Princeton 1984; 1112-116.
2. Young DS. Effects of drugs on Clinical Lab. Tests, 4th ed AACC Press, 1995.
3. Young DS. Effects of disease on Clinical Lab. Tests, 4th ed AACC 2001.
4. Burtis A et al. Tietz Textbook of Clinical Chemistry, 3rd ed AACC 1999.
5. Tietz N W et al. Clinical Guide to Laboratory Tests, 3rd ed AACC 1995.

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