Mitochondrial Aspartate Aminotransferase (mAST) Assay Kit

Method:Enzymatic Inhibition Method

Cat.NO.	Package Size
GS8061G GK8061G	R1:1×60 ml R2:1×15 ml
GS8061G/B	R1:2×60 ml R2:1×30 ml
GB8060G GM8061G	R1:1×60 ml R2:1×15 ml
GB8060G/B	R1:2×60 ml R2:1×30 ml
GX8061G	R1:1×60 ml R2:1×15 ml
GT8061G	R1:1×40 ml R2:1×10 ml
GH8061G	R1:1×40 ml R2:1×10 ml
GD8061G	R1:24×3.8ml R2:6×3.8 ml

This assay kits apply to biochemistry analyzers: Hitachi7180/7080/7060/7020,AU400/5800,TBA40FR,DXC800,Bayer1800, Dimension RXL Max, etc.

INTENDED USE

For quantitative determination of Mitochon-Drial Aspartate Aminotransferase (mAST) in human serum.

CLINICAL SIGNIFICANCE

The AST exists in two isoenzymic forms: one is cAST which is mainly from the cytoplasm while the other one is mAST present in the mitochon-dria. cAST is commonly performed in mild tissue injury. High concentrations of AST are found with severe tissue damage as mAST is easily released into the blood in severe tissue damage. Increased serum mAST can reflect the severity of subcellular structural damage. Therefore, mAST is commonly used as a clinical marker for liver damage and myocardial infarction. mAST is also measured to monitor treatment of patients with liver damage and Myocardial infarction.

ASSAY PRINCIPLE

L-aspartate+α-ketoglutaricacid $\xrightarrow{\text{mAST}}$

Oxaloacetate + L-glutamic acid

Oxaloacetate + NADH + H^+ $\xrightarrow{\text{MDH}}$ Malic acid + NAD^+ + H2O

NADH is quantitated colormetrically at 340 nm , the rate of descent is directly proportional to the mAST activity in the sample.

REAGENTCOMPOSITON

Contents	Concentration of Solutions
Reagent 1	
Tris Buffer	5.0mmol/L
L-aspartate	200mmol/L
MDH	>600 U/L
cAST hydrolyzed agent	1.5g/L
Reagent 2	
α-ketoglutarate	14.0 mmol/L
NADH	0.18mmol/L

SAMPLE COLLECTION AND PREPARATION

Fresh Serum or heparinized plasma. Avoid haemolysis.

STABILITY AND PREPARATION OF REAGENTS

The reagents should be stored at 2-8° C. Do not freeze. The reagents should be stable when stored as instructed until the expiration date on the label.Please prevent cross-contamination if opened.

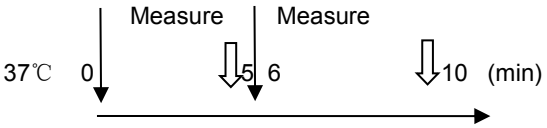
ASSAY PROCEDURE

Test Procedure for Analyzers (Hitachi)

Assay Mode: Rate

Wave length (sub/main): 405/340nm

Sample 25 μl
R1: 200μl R2: 50 μl



CALIBRATION

Gcell mAST Calibrator (GC-mAST) is recommended.

CALCULATION OF RESULTS

$$\text{Concentration} = \frac{\Delta A_{sample}/\text{min}}{\Delta A_{calibrator}/\text{min}} \times \text{Calibrator value}$$

QUALITY CONTROL

Gcell Control (GQ-mAST) is recommended as daily quality control serum. Please confirm the values should be within a specific range. If not, Please check:

1. The instrument settings and light source;
2. Reaction temperature;
3. Expiration date of kit and contents.

REFERENCE RANGE

Serum or plasma: ≤ 18U/L

It is recommended that each laboratory establish its own reference range to reflect the age, sex, diet and geographical location of the population.

PERFORMANCE CHARACTERISTICS

PRECISION

The coefficient of variation (CV) for both Intra assay precision and Inter assay precision is below 10%

Intra assay precision		
N=20	Sample 1	Sample 2
Mean(U/L)	23.04	14.43

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SD	0.51	0.19
CV(%)	2.2	1.3

Inter assay precision			
N=5	Batch 1	Batch 2	Batch 3
Mean(U/L)	22.48	22.50	22.92
$\bar{x}$	22.63		
(Xmax-Xmin)/$\bar{x}$	1.94%		

Inter assay precision			
N=5	Batch 1	Batch 2	Batch 3
Mean(mmol/L)	12.43	12.81	13.02
$\bar{x}$	12.76		
(Xmax-Xmin)/$\bar{x}$	4.65%		

LINEARITY

Linearity is 5-300 U/L. Samples that exceeded the linearity limit (300 U/L) should be diluted with an equal volume of water. Multiply the result by two.

INTERFERENCE

The following analytes are tested up to levels indicated and found not to interfere:

Bilirubin: 40 mg/dL
Hemoglobin: 200 mg/dL
VC: 40mg/dL

CORRELATION

Tested the serum samples with Gcell mAST assay kit and a well-known brand kit at the same time. The correlation formula is Y=0.940X+0.894 R^2=0.998

SENSITIVITY

The change rate of absorbance should be between 0.0020～0.0200 under the concentration of 18U/L.

SAFETY PRECAUTIONS AND WARNINGS

1. For in vitro diagnostic use only. Do not pipette by mouth. Exercise the normal precautions required for handling laboratory reagents.
2. Reagent contains Sodium Azide. Avoid ingestion or contact with skin or mucous membranes. In case of skin contact, flush affected area with copious amounts of water. In case of contact with eyes or if ingested, seek immediate medical attention.
3. Sodium Azide reacts with lead and copper plumbing, to form potentially explosive azides. When disposing of such reagents flush with large volumes of water to prevent azide from building up. Exposed metal surfaces should be cleaned with 10% sodium hydroxide.
4. Specimens should be treated as potentially infectious (HIV, Hepatitis B virus, Hepatitis C virus, etc.) and handled with appropriate caution.
5. Reagents with different lot numbers should not be interchanged or mixed.

REFERENCES

1.Rong Luo,Zhuocheng Li,Jianxiong Chen,Xiongying. Dynamic changes and clinical significance of serum mAST / AST ratio in patients with liver.Journal of Tropical Medicine, 2008, 6(8) :567-569.
2.Lindstrom,F.,Diehl,.h.,Anal.Chem.1960 32:1123
3.Gindler,E.M.,Heth D.A.,ClinChem 1987.17:662

INDEX OF SYMBOLS

	Manufacture
REF	Catalogue Number
LOT	Lot number
	Date of manufacture
	Use by(Expiration date)
IVD	For In-Vitro Diagnostic use only
2℃ 8℃	Stored at 2-8℃
	Attention:See instruction for use
EC REP	Authorized Representative in the European Company

Manufacture：Beijing Strong Biotechnology, Inc.
Address： No. 15, Yanqi North Second Street, Yanqi Economic Development Area, Huairou District, Beijing 101400, P. R. China
Tel：+86 10 61667168

EC REP :Lotus NL B.V.
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