TRUEchemie SGOT (AST) TEST KIT
(IFCC)

for the quantitative determination of Serum Glutamate Oxaloacetate Transaminase (SGOT) in human serum or plasma

INTENDED USE
The TRUEchemie SGOT (AST) liquid reagent test kit is used for the direct quantitative determination of Serum Glutamate Oxaloacetate Transaminase (SGOT) or Aspartate Aminotransferase (AST) in human serum or plasma.

INTRODUCTION
Serum Glutamic Oxaloacetic Transaminase (SGOT) also known as Aspartate Aminotransferase (AST) is a tissue enzyme that catalyzes the exchange of amino and keto groups between alpha-amino acids and alpha-keto acids. SGOT is widely distributed in tissue principally cardiac, hepatic, muscle and kidney. Injury to these tissues results in the release of the SGOT (AST) enzyme to general circulation. Following a myocardial infarction, serum levels of SGOT are elevated and reach a peak in 48 to 60 hours after onset. Hepatobiliary diseases, such as cirrhosis, metastatic carcinoma, and viral hepatitis also will increase serum SGOT levels.

AST catalyzes the transfer of an amino group between L-aspartate and 2-oxoglutarate. The oxaloacetate formed in the first reaction is then readded with NADH in the presence of malate dehydrogenase (MDH) to form NAD. AST activity is determined by measuring the rate of oxidation of NADH at 340 nm. Lactate dehydrogenase is included in the reagent to convert endogenous pyruvate in the sample to lactate during the lag phase prior to measurement.

PACK SIZE

<table>
<thead>
<tr>
<th>Kit no.</th>
<th>1 x 50 ml</th>
<th>2 x 50 ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call no.</td>
<td>ADX225</td>
<td>ADX226</td>
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</table>

REAGENTS COMPOSITION
SGOT Reagent-1 and 2 comes in separate containers, and both reagents are clear, colorless liquid in ready to use format. After combining SGOT R1 (Enzyme Reagent-1 (R1)) and R2 (Substrate Reagent-2 (R2)) the reagent composition:

**Working reagent composition**

- L-Aspartate : 240 mmol/L
- MDH (porcine muscle) : > 600 U/L
- LDH (rabbit muscle) : > 600 U/L
- Tris buffer, pH 7.5 : 80 mmol/L
- 2 - Oxoglutarate : 12 mmol/L
- NADH : 0.18 mmol/L
- Stabilizers and Preservatives

**STORAGE AND STABILITY**
The components of the kit, stored at 2 - 8 °C, will remain stable until the expiry date stated on the label.

REAGENT PREPARATION
The working reagent is prepared by mixing 4 volumes of R1 with 1 volume of R2. Add R2 reagent directly into R1 reagent and mix slowly. The working reagent is stable for 30 days at 2-8 °C (or) Take 0.800 ml of Reagent-1 (R1) and add 0.200 ml of Reagent-2 (R2) for each test.

SAMPLE / SPECIMEN AND STORAGE
SGOT is stable in non-hemolyzed serum or EDTA treated plasma or heparinized plasma for a minimum of 7 days at 2 - 8 °C.

WARNINGS AND PRECAUTIONS
1. For in vitro diagnostic use.
2. Specimens should be considered infectious and handled appropriately.
3. Avoid ingestion. DO NOT PIPETTE BY MOUTH.

MATERIALS REQUIRED BUT NOT PROVIDED
1. Pipettes to accurately measure required volumes.
2. Test tubes/rack
3. Timer
4. 37 °C heating block or water bath
5. Photometer capable of accurately measuring absorbance at 340 nm

TEST PROCEDURE

<table>
<thead>
<tr>
<th>Wavelength</th>
<th>Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>340 nm</td>
<td>37 °C</td>
</tr>
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</table>

Premax the reagent to reaction temperature.

Reading & Calculations
Blank the Photometer with 0.1 Water. Mix well, read the initial absorbance after 1 min. and repeat the absorbance reading after every 1°, 2° and 3° min.

Calculations:

\[ \Delta A = \text{Initial absorbance} - \text{Absorbance after 1°, 2° or 3° min} \]

Calculations determine the delta-M in every reading and find the mean value.

\[ \Delta A = (\text{Avg. Abs/em.}) \times 1768 = \text{U/L of SGOT} \]

NORMAL VALUES
Normal range: 8 - 33 U/L (37 °C)

It is strongly recommended that each laboratory establish its own normal range.

AUTOMATED PROCEDURE
Appropriate program sheet is available for different analyzers upon request.

LIMITATIONS

- Linearity: Up to 500 U/L
- Sensitivity: 2.65 U/L
- Samples that have SGOT values greater than 500 U/L should be diluted with saline (NaCl 0.9 %) 1:1, reassy and multiply the final results by 2.

INTERFERENCES
1. Hemolysis must be avoided as the concentration of AST in red cells is roughly 10 times that of serum.
2. Bilirubin levels up to 40 mg/dl does not interfere.
3. Triglyceride levels up to 2000 mg/dl does not interfere.
4. Certain drugs and other substances are known to affect AST values.

SYSTEMS PARAMETERS

<table>
<thead>
<tr>
<th>Mode</th>
<th>Kinetic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor</td>
<td>1768</td>
</tr>
<tr>
<td>Wave length</td>
<td>340 nm</td>
</tr>
<tr>
<td>Units</td>
<td>U/L</td>
</tr>
<tr>
<td>Flow cell temp</td>
<td>37 °C</td>
</tr>
<tr>
<td>Blank</td>
<td>Distilled water</td>
</tr>
<tr>
<td>Reagent volume</td>
<td>0.800 ml (R1) + 0.200 ml (R2)</td>
</tr>
<tr>
<td>Sample volume</td>
<td>0.100 ml</td>
</tr>
<tr>
<td>Log time / Delay time</td>
<td>60 sec. (1 min.)</td>
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<tr>
<td>Read time</td>
<td>180 sec. (3 min.)</td>
</tr>
<tr>
<td>Low normal</td>
<td>8</td>
</tr>
<tr>
<td>High normal</td>
<td>33</td>
</tr>
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REFERENCES