ADA- Adenosine Deaminase
Colorimetric – Kinetic
1 x 60 mL

Clinical Significance
ADA is an enzyme catalyzing the deamination reaction from adenosine to inosine. The enzyme is widely distributed in human tissues, especially high in T lymphocytes. Elevated serum ADA activity has been observed in patients with acute hepatitis, alcoholic hepatic fibrosis, chronic active hepatitis, liver cirrhosis, viral hepatitis and hepatoma. Increased ADA activity was also observed in patients with tuberculous effusions. Determination of ADA activity in patient serum may add unique values to the diagnosis of liver diseases in combination with ALT or γ-GT (GGT) tests. ADA assay may also be useful in the diagnostics of tuberculous pleuritis.

Principle
The ADA assay is based on the enzymatic deamination of adenosine to inosine which is converted to hypoxanthine by purine nucleoside phosphorylase (PNP). Hypoxanthine is then converted to uric acid and hydrogen peroxide (H₂O₂) by xanthine oxidase (XOD). H₂O₂ is further reacted with TOOS and 4-aminoantipyrine (4-AA) in the presence of peroxidase (POD) to generate quinone dye which is monitored in a kinetic manner. The entire enzymatic reaction scheme is shown below.

Adenosine + H₂O → Inosine + NH₃

Inosine + Pi → Hypoxanthine + Ribose 1-phosphate

Hypoxanthine + 2H₂O + 2O → Uric acid + 2H₂O₂

2H₂O₂ + 4-AA + TOOS → 4H₂O + Quinone dye

One unit of ADA is defined as the amount of ADA that generates one µmole of inosine from adenosine per min at 37°C.

Reagents
| R 1 | Tris-HCl pH 8.0 | 50 mM |
|     | 4-AA           | 2 mM  |
|     | PNP            | 0.1 U/mL |
|     | XO             | 0.2 U/mL |
|     | Peroxidase     | 0.6 U/mL |
|     | ADA CAL        | ADA Calibrator (1 mL) |
|     | ADA CTRL       | ADA Control (1 mL)(optional) |

Precautions
Solution R1 and CAL contain 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. All specimens used in this test should be considered potentially infectious.

Calibration
Recommend that this assay should be calibrated using the ADA CAL (ADA Calibrator) included in the kit.

Storage and Stability
All the components of the kit are stable until the expiration date on the label when stored tightly closed at 2-8°C, protected from light and contaminations prevented during their use.

Calculations
ADA (U/L) = ∆A_sample /min × Calibrator value /∆A_calibrator /min

Quality Control
Control sera are recommended to monitor the performance of assay procedures. If control values are found outside the defined range, check the instrument, reagents and technique for problems.

Reference Values
Serum/Plasma: 0 – 15 U/L
CSF: -
Normal: <10 U/L
Positive: >10 U/L

Pleural, Pericardial & Ascitic Fluids:
Normal: <40 U/L
Suspect: >40 U/L to <60 U/L
Positive: >60 U/L

Reagent Performance.
1. Linearity limit: The assay is linear up to ADA concentration of 200 U/L. If the results obtained were greater than linearity limit, dilute the sample 1/2 with NaCl 9 g/L and multiply the result by 2.
2. **Detection limit:** The minimum detectable concentration of ADA with an acceptable level of precision was determined as 1U/L.

3. **Precision:**

<table>
<thead>
<tr>
<th></th>
<th>Intra-assay (n=5)</th>
<th>Inter-assay (n=5)</th>
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</thead>
<tbody>
<tr>
<td>Mean (U/L)</td>
<td>33.24</td>
<td>28.56</td>
</tr>
<tr>
<td>SD</td>
<td>0.05</td>
<td>0.09</td>
</tr>
<tr>
<td>CV (%)</td>
<td>0.16</td>
<td>0.31</td>
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</tbody>
</table>

4. **Accuracy:** Results obtained using the above reagents (y) did not show systematic differences when compared with other commercial reagents (x). The results obtained were the following:

Correlation coefficient (r): 0.9998.

Regression equation: \( y = 0.9766x + 0.0206 \)

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

5. **Interferences**

Hemoglobin (up to 800 mg/dL), Intralipid (up to 1000 mg/dL) and Ascorbic acid (up to 50 mg/dL) do not interfere.

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**Notes**

Clinical diagnosis should not be made on findings of a single test result, but should integrate both clinical and laboratory data.

**Only for invitro use in Clinical laboratory (IVD)**

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**Bibliography**


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**Manufactured by:** Spinreact, S.A.

**Marketed By:** Euro Diagnostic Systems Pvt. Ltd., Millennium House, M.K.Srinivasan Nagar Main Road, No. 144, Old Mahabalipuram Road, Perungudi, Chennai – 600 096; Email: eurods@vsnl.net, www.eurods.in