Alanine Aminotransferase (ALT)

Test principle: UV test

\[
\text{L-Alanine} + \alpha\text{-ketoglutarate} \xrightarrow{\text{ALT}} \text{pyruvate} + \text{L-glutamate}
\]

\[
\text{Pyruvate} + \text{NADH} + H^+ \xrightarrow{\text{LDH}} \text{L-lactate} + \text{NAD}^+
\]

Method according to the International Federation of Clinical Chemistry (IFCC), without pyridoxal-5'-phosphate. ALT catalyzes the reaction between L-alanine and \(\alpha\)-ketoglutarate. The pyruvate formed is reduced by NADH in a reaction catalyzed by lactate dehydrogenase (LDH) to form L-lactate and NAD+.

The rate of the NADH oxidation is directly proportional to the catalytic ALT activity. It is determined by measuring the decrease in absorbance at 340 nm.

Proposed reagent composition

approximately 3+1 formulation

**Reagent 1**

<table>
<thead>
<tr>
<th>Composition</th>
<th>Concentration</th>
<th>Catalog Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buffer (TRIS, pH 7.3)</td>
<td>230 mmol/l</td>
<td>10 153 265 001</td>
</tr>
<tr>
<td>L-Alanine</td>
<td>1100 mmol/l</td>
<td>10 136 921 103</td>
</tr>
<tr>
<td>Lactate dehydrogenase (LDH)</td>
<td>&gt;1.2 kU/l</td>
<td>10 679 666 103 or</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12 235 650 103</td>
</tr>
<tr>
<td>Detergent, preservative, stabilizer, such as Sodium azide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Triton X-100</td>
<td>0.01 %</td>
<td>10 743 119 103</td>
</tr>
<tr>
<td>Albumin</td>
<td>0.25 %</td>
<td>10 738 328 103</td>
</tr>
</tbody>
</table>

**Reagent 2**

<table>
<thead>
<tr>
<th>Composition</th>
<th>Concentration</th>
<th>Catalog Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\alpha)-Ketoglutarate, (\text{di-Na})</td>
<td>95 mmol/l</td>
<td>10 040 584 103</td>
</tr>
<tr>
<td>NADH</td>
<td>&gt;1.7 mmol/l</td>
<td>10 004 642 103</td>
</tr>
<tr>
<td>Preservative, such as Sodium azide</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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