Malate Dehydrogenase Activity Assay Kit (Colorimetric) ab183305

Overview

Product name: Malate Dehydrogenase Activity Assay Kit (Colorimetric)
Detection method: Colorimetric
Sample type: Tissue, Adherent cells, Suspension cells
Assay type: Quantitative
Sensitivity: < 0.5 mU/well
Assay duration: Multiple steps standard assay
Species reactivity: Reacts with: Other species, Mammals

Product overview
In Abcam’s Malate Dehydrogenase Activity Assay Kit (Colorimetric) (ab183305), malate dehydrogenase (MDH) reacts with malate to form an intermediate, which in turn reacts with MDH Developer to form a colored product with strong absorbance at 450 nm. The assay is simple, sensitive and can detect less than 0.5 mU of MDH activity in various sample types.

This assay detects both isoforms of MDH: MDH1 and MDH2. If you want to detect enzymatic activity of each specific isoform, please consider MDH1 Activity Assay (ab200009) or MDH2 activity Assay (ab119693).

Notes
Malate Dehydrogenase (MDH) (EC 1.1.1.37) is an important enzyme which reversibly converts L-malate into oxaloacetate in the presence of NAD. In eukaryotic cells, malate dehydrogenase has 2 isoforms: MDH1 and MDH2. MDH1 is cytosolic & participates in the malate-aspartate shuttle, which transports malate into mitochondria for utilization in ATP generation whereas MDH2 is a mitochondrial enzyme and part of the citric acid cycle. MDH activity is increased in some neurodegenerative diseases such as Alzheimer’s disease, and abnormal MDH activity in serum can serve as a diagnostic tool for severe liver damage (e.g. Hepatocellular carcinoma).

Platform
Microplate

Storage instructions
Store at -20°C. Please refer to protocols.

Components
<table>
<thead>
<tr>
<th>Identifier</th>
<th>100 tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDH Assay Buffer</td>
<td>1 x 20ml</td>
</tr>
</tbody>
</table>
**Cellular localization**

MDH2: Mitochondrion matrix. MDH1: Cytoplasm.

**Images**

*Figure 1: NADH Standard Curve*

\[ y = 0.062x + 0.0016 \]

NADH (nmol) vs. OD 450 nm

*Figure 2: Malate Dehydrogenase Activity*

- Rat muscle extract (0.8 μg)
- Jurkat cell lysate (0.6 μg)
- Yeast mitochondria (1.2 μg)
- MDH positive control.

**Components**

<table>
<thead>
<tr>
<th>Component</th>
<th>Identifier</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDH Developer</td>
<td></td>
<td>1 vial</td>
</tr>
<tr>
<td>MDH Enzyme Mix</td>
<td></td>
<td>1 vial</td>
</tr>
<tr>
<td>MDH Positive Control</td>
<td></td>
<td>1 vial</td>
</tr>
<tr>
<td>MDH Substrate</td>
<td></td>
<td>1 vial</td>
</tr>
<tr>
<td>NADH Standard (Lyophilized)</td>
<td>Yellow</td>
<td>1 vial</td>
</tr>
</tbody>
</table>

**Images**

- NADH Standard Curve
- Malate Dehydrogenase Activity
Referenced MDH activity in Jurkat cell lysate, rat muscle extract and yeast mitochondrial lysate.

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