Product datasheet

Acetylcholinesterase Assay Kit (Colorimetric) ab138871

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Overview

Product name  Acetylcholinesterase Assay Kit (Colorimetric)
Detection method  Colorimetric
Sample type  Serum, Plasma, Cell culture extracts, Cell Lysate, Tissue Lysate
Assay type  Enzyme activity
Sensitivity  1 mU/ml
Assay time  0h 30m

Product overview

Acetylcholinesterase Assay Kit ab138871 provides a convenient colorimetric assay for the detection of AChE activity in blood, cell extracts and other samples from mammals and other species.

The acetylcholinesterase assay protocol uses DTNB to quantify the thiocholine produced from the hydrolysis of acetylthiocholine by AChE. The absorption intensity of DTNB adduct (410 nm) is used to measure the amount of thiocholine formed, which is proportional to the AChE activity.

The assay will detect as little as 0.1 mU AChE in a 100 µL assay volume (1 mU/mL).

Acetylcholinesterase assay protocol summary:
- add standards and samples to wells
- add acetylthiocholine reaction mix and incubate for 10-30 min at room temp
- analyze with a microplate reader

Notes

Please note this product does not differentiate between acetylcholesterase (AchE) or butyrylcholinesterase (BChE) activity as both enzymes can hydrolyze acetylcholine. However, an acetylcholinesterase inhibitor like Donepezil hydrochloride can be used as a control.

If you are looking for a fluorometric kit, we recommend Acetylcholinesterase Assay Kit (Fluorometric-Green) (ab133872) (Ex/Em = 490/520 nm) or Acetylcholinesterase Assay Kit (Fluorometric-Red) (ab133873) (Ex/Em = 540/590 nm).

Platform

Microplate reader

Properties

Storage instructions  Store at -20°C. Please refer to protocols.
Function
Terminates signal transduction at the neuromuscular junction by rapid hydrolysis of the acetylcholine released into the synaptic cleft. Role in neuronal apoptosis.

Tissue specificity
Isoform H is highly expressed in erythrocytes.

Sequence similarities
Belongs to the type-B carboxylesterase/lipase family.

Cellular localization
Cell membrane; Cell junction > synapse. Secreted. Cell membrane and Nucleus. Only observed in apoptotic nuclei.

Evaluation of acetylcholinesterase (AChE) activity using ab138871
Morzelle M et al., PLoS One, 11(11). Fig 6. doi: 10.1371/journal.pone.0166123 Reproduced under the Creative Commons license http://creativecommons.org/licenses/by/4.0/

ab138871 was used to determine AChE activity in the cortex and in the hippocampus. AChE activity was measured at 410 nm.

<table>
<thead>
<tr>
<th>Components</th>
<th>200 tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetylcholinesterase Standard</td>
<td>1 x 5 units</td>
</tr>
<tr>
<td>Acetylthiocholine</td>
<td>1 vial</td>
</tr>
<tr>
<td>Assay Buffer</td>
<td>1 x 25ml</td>
</tr>
<tr>
<td>DTNB</td>
<td>1 vial</td>
</tr>
</tbody>
</table>

Components

- **Acetylcholinesterase Standard** (1 x 5 units)
- **Acetylthiocholine** (1 vial)
- **Assay Buffer** (1 x 25ml)
- **DTNB** (1 vial)

Images

Evaluation of acetylcholinesterase (AChE) activity using ab138871

Morzelle M et al., PLoS One, 11(11). Fig 6. doi: 10.1371/journal.pone.0166123 Reproduced under the Creative Commons license http://creativecommons.org/licenses/by/4.0/
AChE measured in mouse tissue lysates showing quantity (mU) per mg protein of tested sample

AChE measured in cell lysates showing quantity (mU) per 1 mln of tested cells
AChE measured in biological fluids showing quantity (mU) per mL of tested sample

Acetylcholinesterase dose response was measured in a white/clear bottom 96-well plate with ab138871 Acetylcholinesterase Assay Kit (Colorimetric) using a microplate reader. As low as 0.1 mU/well of acetylcholinesterase can be detected with 30 minutes incubation (n=3)

Sample Standard Curve for Acetylcholinesterase

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