

Mouse Acetylcholinesterase / ACHE Protein (His Tag)

Catalog Number: 50543-M08H



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General Information

Gene Name Synonym:

ACHE

Protein Construction:

A DNA sequence encoding the mouse ACHE (NP_033729.1) (Met 1-Leu 614) was expressed, with a polyhistidine tag at the C-terminus.

Source: Mouse

Expression Host: HEK293 Cells

QC Testing

Purity: > 95 % as determined by SDS-PAGE

Bio Activity:

Measured by its ability to cleave Acetylthiocholine. The specific activity is > 250 nmols/min/μg.

Endotoxin:

< 1.0 EU per μg of the protein as determined by the LAL method

Stability:

Samples are stable for up to twelve months from date of receipt at -70 °C

Predicted N terminal: Glu 32

Molecular Mass:

The recombinant mouse ACHE consists of 594 amino acids and has a predicted molecular mass of 66.2 kDa as estimated in SDS-PAGE under reducing conditions.

Formulation:

Lyophilized from sterile PBS, pH 7.4

Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween80 are added as protectants before lyophilization. Specific concentrations are included in the hardcopy of COA. Please contact us for any concerns or special requirements.

Usage Guide

Storage:

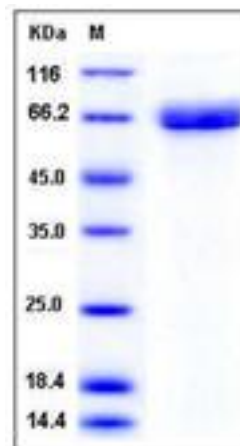
Store it under sterile conditions at -20°C to -80°C upon receiving. Recommend to aliquot the protein into smaller quantities for optimal storage.

Avoid repeated freeze-thaw cycles.

Reconstitution:

Detailed reconstitution instructions are sent along with the products.

SDS-PAGE:



Protein Description

Acetylcholinesterase, also known as ACHE, is an enzyme that degrades (through its hydrolytic activity) the neurotransmitter acetylcholine, producing choline and an acetate group. Acetylcholinesterase plays a crucial role in nerve impulse transmission at cholinergic synapses by rapid hydrolysis of the neurotransmitter acetylcholine (ACh). ACHE appears to be a potential therapeutic target at muscle injuries including organophosphate myopathy. It is an externally oriented membrane-bound enzyme and its main physiological role is termination of chemical transmission at cholinergic synapses and secretory organs by rapid hydrolysis of the neurotransmitter acetylcholine (ACh). ACHE plays important roles in the cholinergic system, and its dysregulation is involved in a variety of human diseases. ACHE was significantly down-regulated in the cancerous tissues of 69.2% of hepatocellular carcinoma (HCC) patients, and the low ACHE expression in HCC was correlated with tumor aggressiveness, an elevated risk of postoperative recurrence, and a low survival rate. Both the recombinant ACHE protein and the enhanced expression of ACHE significantly inhibited HCC cell growth in vitro and tumorigenicity in vivo. ACHE as a tumor growth suppressor in regulating cell proliferation, the relevant signaling pathways, and the drug sensitivity of HCC cells. Thus, ACHE is a promising independent prognostic predictor for HCC recurrence and the survival of HCC patients. ACHE is responsible for the hydrolysis of acetylcholine in the nervous system. It is inhibited by organophosphate and carbamate pesticides. However, this enzyme is only slightly inhibited by organophosphorothionates.

References

1. Zhao Y, *et al.* (2011) Acetylcholinesterase, a key prognostic predictor for hepatocellular carcinoma, suppresses cell growth and induces chemosensitization. *Hepatology*. 53(2): 493-503.
2. Roepcke CB, *et al.* (2010) Analysis of phosphorothionate pesticides using a chloroperoxidase pretreatment and acetylcholinesterase biosensor detection. *J Agric Food Chem*. 58(15): 8748-56.
3. Zaheer-ul-Haq, *et al.* (2010) Benchmarking docking and scoring protocol for the identification of potential acetylcholinesterase inhibitors. *J Mol Graph Model*. 28(8): 870-82.

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