

PRODUCT INFORMATION



Acetylcholinesterase (human, recombinant)

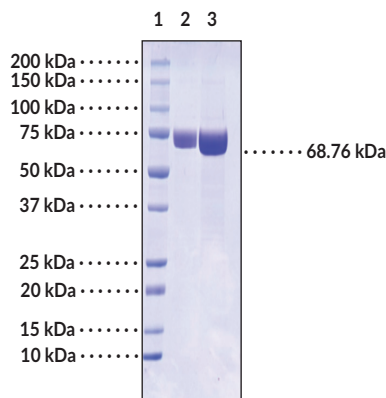
Item No. 39956

Overview and Properties

| | |
|-------------------------------|--|
| Synonyms: | Acetylcholinesterase (YT Blood Group), Acetylcholinesterase (Cartwright Blood Group), AChE, AcChoEase, ARACHE, EC 3.1.1.7 |
| Source: | Active recombinant human C-terminal His-tagged AChE expressed in Expi293F™ cells |
| Amino Acids: | 1-614 (full length) |
| Uniprot No.: | P22303 |
| Molecular Weight: | 68.76 kDa |
| Storage: | -80°C (as supplied) |
| Stability: | ≥1 year |
| Purity: | <i>batch specific</i> (≥95% estimated by SDS-PAGE) |
| Supplied in: | 50 mM HEPES, pH 7.6, with 150 mM sodium chloride |
| Protein Concentration: | <i>batch specific</i> mg/ml |
| Activity: | <i>batch specific</i> U/ml |
| Specific Activity: | <i>batch specific</i> U/mg |
| Unit Definition: | One unit is defined as the amount of enzyme required to produce 1 nmol of thiocholine per minute at 23°C in 1x PBS buffer, pH 7.4, with 1.5 mM acetylthiocholine as substrate. |

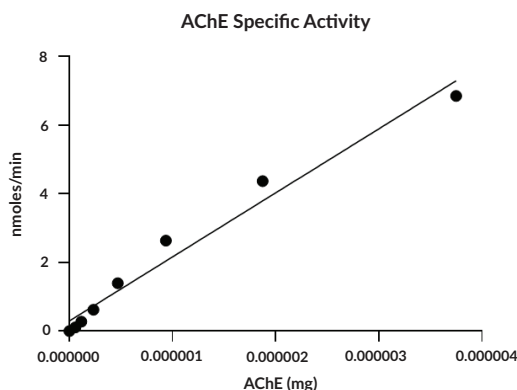
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Images



Lane 1: MW Markers
Lane 2: AChE (2 µg)
Lane 3: AChE (4 µg)

Representative gel image shown; actual purity may vary between each batch



WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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Description

Acetylcholinesterase (AChE) is a highly conserved homotetrameric carboxylesterase that is composed of four ~70 kDa subunits with each subunit containing a single active site.^{1,2} It is a product of alternative splicing and can be membrane bound *via* a glycosyl-phosphatidylinositol anchor in the membrane or a proline-rich membrane anchor (PRIMA) peptide linker for erythrocyte and synaptic AChE, respectively, or soluble in water, with each form demonstrating identical catalytic activity.³ AChE is primarily found in red blood cells as well as at neuromuscular junctions and in the brain at cholinergic synapses where it hydrolyzes acetylcholine to acetate and choline to terminate synaptic transmission.^{3,4} It accelerates amyloid- β (A β) fibrillogenesis *in vitro* and overexpression of AChE accelerates A β plaque formation and disease progression in the Tg2576 transgenic mouse model of Alzheimer's disease.⁵ AChE activity is also increased in islets of Langerhans in rats with diabetes induced by streptozotocin (Item No. 13104). Cayman's Acetylcholinesterase (human, recombinant) protein can be used for ELISA, enzymatic activity assay, and Western blot (WB) applications.

References

1. Xu, Y., Colletier, J.P., Weik, M., *et al.* Flexibility of aromatic residues in the active-site gorge of acetylcholinesterase: X-ray molecular dynamics. *Biophys. J.* **95**(5), 2500-2511 (2008).
2. Cartaud, J., Rieger, F., Bon, S., *et al.* Fine structure of electric eel acetylcholinesterase. *Brain Res.* **88**(1), 127-130 (1975).
3. Stasiuk, M., Janiszewska, A., and Kozubek, A. Phenolic lipids affect the activity and conformation of acetylcholinesterase from *Electrophorus electricus* (Electric eel). *Nutrients* **6**(5), 1823-1831 (2014).
4. Pohanka, M., Hrabínova, M., Kuca, K., *et al.* Assessment of acetylcholinesterase activity using indoxylacetate and comparison with the standard Ellman's method. *Int. J. Mol. Sci.* **12**(4), 2631-2640 (2011).
5. Mushtaq, G., Greig, N.H., Khan, J.A., *et al.* Status of acetylcholinesterase and butyrylcholinesterase in Alzheimer's disease and type 2 diabetes mellitus. *CNS Neurol. Disord. Drug Target* **13**(8), 1432-1439 (2014).

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