PRODUCT INFORMATION

Acetylcholinesterase (eel)

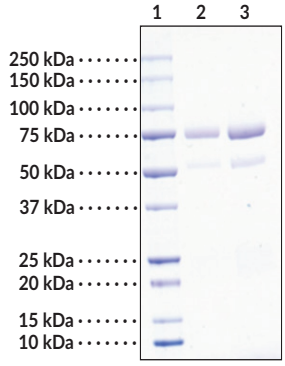
Item No. 44687

Overview and Properties

Synonym:	AChE
Source:	Native AChE purified from electric eel
Amino Acids:	1-633 (full length)
Uniprot No.:	O42275
Molecular Weight:	71.81 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥70% estimated by SDS-PAGE
Supplied in:	20 mM potassium phosphate, pH 7.4
Protein Concentration:	***batch specific*** mg/ml
Activity:	***batch specific*** U/ml
Specific Activity:	***batch specific*** U/mg
Unit Definition:	One unit is defined as the amount of AChE required to produce 1 µmol of thiocholine per minute at room temperature in 1X PBS buffer, pH 7.4, containing 1 mM acetylthiocholine as a substrate.

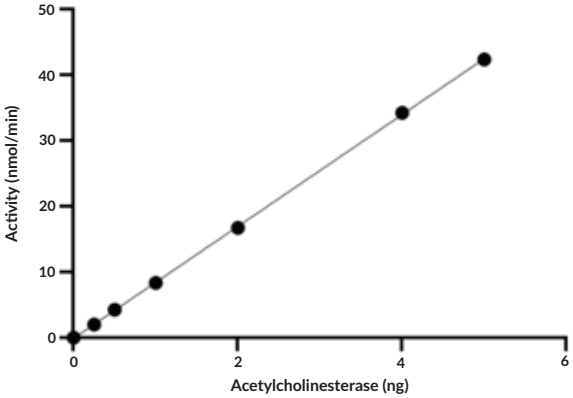
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Images



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

SDS-PAGE Analysis of Acetylcholinesterase.



Native acetylcholinesterase activity was measured using 1 mM acetylthiocholine (Item No. 34313) as a substrate in 1X PBS, pH 7.4 at room temperature.

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Description

Acetylcholinesterase (AChE) is a highly conserved homotetrameric carboxylesterase that is composed of four ~70 kDa subunits, each containing a single active site.[1-3] In the electric eel (*E. electricus*), AChE is highly expressed in the electric organs at the posterior innervated membrane, where it hydrolyzes acetylcholine to acetate and choline to terminate synaptic transmission between electromotor neurons and electrocytes.[4] AChE has commonly been used in biomedical research in assays, such as ELISA, for the detection or quantification of target molecules.[5] It has also been used in the detection of organophosphate and carbamate pesticides due to their ability to inhibit AChE activity. Cayman's Acetylcholinesterase (eel) protein can be used for ELISA, enzyme activity assay, and Western blot applications.

References

1. Ha, Z.H., Matthew, S., and Yeong, K.Y. Butyrylcholinesterase: A multifaceted pharmacological target and tool. *Curr. Protein Pept. Sci.* **21(1)**, 99-109 (2020).
2. Cartaud, J., Rieger, F., Bon, S., *et al.* Fine structure of electric eel acetylcholinesterase. *Brain Res.* **88(1)**, 127-130 (1975).
3. Rosenberry, T.L., Chen, Y.T., and Bock, E. Structure of 11S acetylcholinesterase. Subunit composition. *Biochemistry* **13(15)**, 3068-79 (1974).
4. Gotter, A.L., Kaetzel, M.A., and Dedman, J.R. Electrophorus electricus as a model system for the study of membrane excitability. *Comp. Biochem. Physiol. A Mol. Integr. Physiol.* **119(1)**, 225-241 (1998).
5. Liu, D.-M., Xu, B., and Dong, C. Recent advances in colorimetric strategies for acetylcholinesterase assay and their applications. *Trends Analyt. Chem.* **142**, 116320 (2021).

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