

# Recombinant human Acetylcholinesterase/ACHE protein

Catalog Number: ATGP4058

## PRODUCT INFORMATION

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### Expression system

HEK293

### Domain

32-614aa

### UniProt No.

P22303

### NCBI Accession No.

NP\_000656.1

### Alternative Names

AChE, ACEE, ACES\_HUMAN, Acetylcholinesterase, ACHE, ARACHE, N-ACHE, VT, Acetylcholinesterase isoform E4-E6

## PRODUCT SPECIFICATION

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### Molecular Weight

65.6kDa (592aa)

### Concentration

0.25mg/ml (determined by Absorbance at 280nm)

### Formulation

Liquid. In Phosphate-Buffered Saline (pH 7.4) containing 10% glycerol

### Purity

> 95% by SDS - PAGE

### Endotoxin level

< 1 EU per 1ug of protein (determined by LAL method)

### Biological Activity

Specific activity is > 6,000 nmol/min/mg, and is defined as the amount of enzyme that cleaves 1.0 nmol acetylthiocholine per minute at pH7.5 at 25C.

### Tag

His-Tag

### Application

SDS-PAGE, Enzyme Activity

### Storage Condition

Can be stored at +2C to +8C for 1 week. For long term storage, aliquot and store at -20C to -80C. Avoid repeated freezing and thawing cycles.

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## BACKGROUND

### Description

ACHE, also known as Acetylcholinesterase, is a member of the type-B carboxylesterase/lipase family. It is an enzyme that catalyzes the breakdown of acetylcholine and of some other choline esters that function as neurotransmitters. During neurotransmission, ACH is released from the presynaptic neuron into the synaptic cleft and binds to ACH receptors on the post-synaptic membrane, relaying the signal from the nerve. ACHE, also located on the post-synaptic membrane, terminates the signal transmission by hydrolyzing ACH. This protein is thought to be involved in the pathology of Alzheimers disease (AD) by accelerating the assembly of A beta peptides into fibrillar species through forming complexes with A beta via the peripheral anionic site on ACHE. ACHE inhibitors have been used to delay symptoms of AD patients by virtue of their ability to enhance ACH availability, as well as reduce amyloidogenesis and subsequent neurotoxicity. Recombinant human ACHE, fused to His-tag at C-terminus, was expressed in HEK293 cell and purified by using conventional chromatography techniques.

### Amino acid Sequence

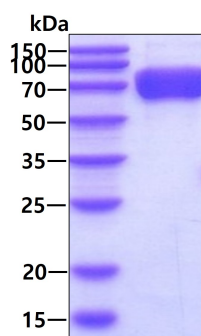
<DGS>EGREDAE LLVTVRGGRL RGIRLKTPGG PVSAFLGIPF AEPPMGPRRF LPPEPKQPWS GVVDATTFQS VCYQYVDTLY PGFEGTEMWN PNRESEDCL YLNWVTPYPR PTSPTPVLVW IYGGGFYSGA SSLDVYDGRF LVQAERTVLV SMNYRVGAFG FLALPGSREA PGNVGLLDQR LALQWVQENV AAFGGDPTSV TLFGESAGAA SVGMHLLSPP SRGLFHRAVL QSGAPNGPWA TVGMGEARRR ATQLAHLVGC PPGGTGGNDT ELVACLRTTRP AQVLVNHWEWH VLPQESVFRF SFVPPVVDGDF LSDTPEALIN AGDFHGLQVL VGVVKDEGSY FLVYGAPGFS KDNESLISRA EFLAGVRVGV PQVSDLAEEA VVLHYTDWLH PEDPARLREA LSDVVGDHNV VCPVAQLAGR LAAQGARVYA YVFEHRASTL SWPLWMGVPH GYEIEFIFGI PLDPSRNYTA EEKIFAQRLM RYWANFARTG DPNEPRDPKA PQWPPYTAGA QQYVSLDLRP LEVRRGLRAQ ACAFWNRFLP KLLSATDTLD EAERQWKAEF HRWSSYMVHW KNQFDHYSKQ DRCSDL<HHHH HH>

### General References

Grisaru, D. et al, (1999) Eur. J. Biochem. 264:672-686.  
 Harry M. Greenblatt et al, (2003) J. Mol. Neurosci. 20:369-383.

## DATA

### SDS-PAGE



3ug by SDS-PAGE under reducing condition and visualized by coomassie blue stain