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Produktinformation



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PRODUCT INFORMATION



BACE1 (human, recombinant)

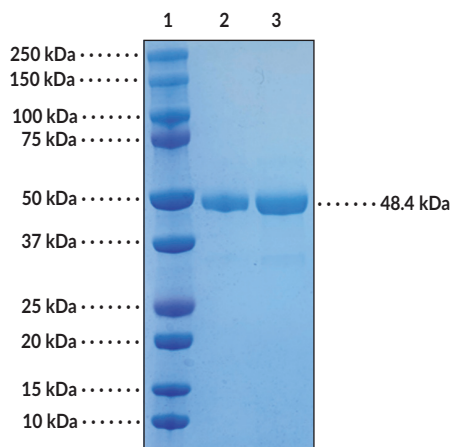
Item No. 14645

Overview and Properties

Synonyms:	β -site Amyloid Precursor Protein Cleaving Enzyme 1, ASP-2, BACE, Memapsin 2, Membrane-bound Aspartic Protease, β -secretase 1
Source:	Active recombinant human C-terminal His-tagged BACE1 expressed in insect cells
Amino Acids:	57-454
Uniprot No.:	P56817
Molecular Weight:	48.4 kDa
Storage:	-80°C (as supplied)
Stability:	≥ 6 months
Purity:	$\geq 85\%$ estimated by SDS-PAGE
Supplied in:	50 mM HEPES, pH 7.4, with 150 mM sodium chloride and 20% glycerol
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 EDANS per minute at 25°C in 50 mM sodium acetate, pH 4.5, containing 10 μ M fluorogenic β -secretase substrate IV.

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

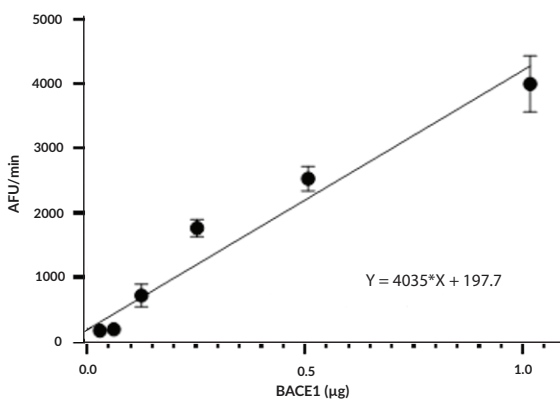
Images



Lane 1: MW Markers
Lane 2: BACE1 (2 μ g)
Lane 3: BACE1 (4 μ g)

SDS-PAGE Analysis of BACE1.

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



BACE1 (human, recombinant) activity was determined using a fluorescence assay. The cleavage of the substrate β -Secretase Substrate IV by BACE1 results in the release of EDANS and a subsequent increase in fluorescence.

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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PRODUCT INFORMATION



Description

β -Secretase 1 (BACE1) is an aspartic protease and member of the peptidase A1 protease family.¹ BACE1 is transcribed as a preprotein composed of an N-terminal signal peptide, a pro-peptide, a catalytic domain, a transmembrane domain, and a cytosolic domain. The N-terminal signal peptide traffics the BACE1 preprotein to the endoplasmic reticulum where furin-mediated cleavage of the propeptide produces mature BACE1. The transmembrane domain of mature BACE1 drives localization to the Golgi where BACE1 is post-translationally activated and functions at endosomal or Golgi membranes.^{1,2} BACE1 is expressed primarily in the brain and at lower levels in pancreatic β -cells, adipocytes, hepatocytes, and vascular cells. BACE1 cleaves amyloid precursor protein (APP) to initiate the generation of amyloid- β (A β), and BACE1 knockout rescues memory deficits and cholinergic dysfunction in transgenic mouse models of Alzheimer's disease.^{3,4} Additional BACE1 substrates include seizure-related 6 (SEZ6) and seizure-related 6-like (SEZ6L), and BACE1-mediated cleavage of Sez6 and Sez6L is increased in the brain in a mouse model of Niemann-Pick type C disease.⁵ Cayman's BACE1 (human, recombinant) protein can be used for enzyme activity assays.

References

1. Taylor, H.A., Przemyska, L., Clavane, E.M., *et al.* BACE1: More than just a β -secretase. *Obes. Rev.* **23(7)**, e13430 (2022).
2. Araki, W. Post-translational regulation of the β -secretase BACE1. *Brain Res. Bull.* **126 (Pt. 2)**, 170-177 (2016).
3. Yan, R., Fan, Q., Zhou, J., *et al.* Inhibiting BACE1 to reverse synaptic dysfunctions in Alzheimer's disease. *Neurosci. Biobehav. Rev.* **65**, 326-340 (2016).
4. Pietrak, B.L., Crouthamel, M.C., Tugusheva, K., *et al.* Biochemical and cell-based assays for characterization of BACE-1 inhibitors. *Anal. Biochem.* **342(1)**, 144-151 (2005).
5. Causevic, M., Dominko, K., Malnar, M., *et al.* BACE1-cleavage of Sez6 and Sez6L is elevated in Niemann-Pick type C disease mouse brains. *PLoS One* **13(7)**, e0200344 (2018).

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