



Product Information

β -Secretase, Extracellular Domain Human, Recombinant

Expressed in Schneider *Drosophila* S2 cells

Product Number **S 5067**

Storage Temperature: 2-8 °C

Synonyms: BACE, Asp 2, Memapsin 2

Product Description

BACE1 (β -secretase or β -site APP-cleaving enzyme) and γ -secretase are proteases that cleave the amyloid precursor protein (APP) to produce amyloid β peptide (A β). The accumulation of A β in the brain is believed to be a primary cause for the progression of Alzheimer's disease. Since there is no effective drug for the treatment of Alzheimer's disease, there is an intense interest in studying the inhibition of γ - and β -secretases for therapeutic intervention in Alzheimer patients.¹⁻⁴

Knockout studies show that BACE1 is critical for A β generation. Transgenic mice lacking BACE1 do not produce A β , but show an otherwise normal phenotype with no detrimental effects on viability or morphology.⁵ This raises the possibility that therapeutic BACE1 inhibition could be accomplished without major toxicity.

Specific Activity: Minimum 10,000 units per mg protein.

Unit Definition: One unit will hydrolyze 1.0 picomole of 7-methoxycoumarin-4-acetyl-[Asn⁶⁷⁰, Leu⁶⁷¹]-Amyloid β /A4 Precursor Protein 770 Fragment 667-676-(2,4-dinitrophenyl)-Lys-Arg-Arg amide substrate per 1 min. at pH 4.5 at 25 °C.

Purity: Minimum 90% (SDS-PAGE)

The protein concentration and the specific activity of every lot are detailed on the label.

Reagent

β -Secretase is supplied as a solution in 20 mM Hepes, pH 7.4, and 125 mM sodium chloride.

Precautions and Disclaimer

This product is for laboratory research use only, not for drug, household, or other uses. Please refer to the Material Safety Data Sheet (MSDS) for information regarding hazards and safe handling practices.

Storage/Stability

Store the product at 2-8 °C.

References

1. Mallende, W.D., et al., Characterization of recombinant, soluble β -secretase from an insect cell expression system. *Adv. Mol. Pharmacol.* **59**, 619-626 (2001).
2. Citron, M., β -Secretase as a target for the treatment of Alzheimer's disease. *J. Neurosci. Res.*, **70**, 373-379 (2002).
3. Hong, L., et al., Memapsin 2 (β secretase) as a therapeutic target. *Biochem. Soc. Trans.*, **30**, 530-534 (2002).
4. Rochette, M.J., and Murphy, M.P., γ -Secretase: substrates and inhibitors. *Mol. Neurobiol.*, **26**, 81-95 (2002).
5. Roberds, S.L., et al., BACE knockout mice are healthy despite lacking the primary β secretase activity in brain: implications for Alzheimer's disease therapeutics. *Hum. Mol. Genet.*, **10**, 1317-1324 (2001).

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