ALPHA DIAGNOSTIC INTERNATIONAL

Product Specification Sheet

TACE Substrate, Fluorogenic

Cat. # TACE-SW2 TACE peptide substrate, Fluorogenic **SIZE**: 1 mg

β-amyloid **(Aβ)** deposition in the brain is the hallmark of Alzheimer's Disease (**AD**). To initiate Aβ formation, **β-secretase** cleaves APP at the N-terminus of Aβ to release APPsβ (~100 kDa soluble NT-fragment), and C99, a 12-kDa CT membrane fragment. Alternatively, **α-secretase** cleaves within the Aβ to prevent the formation of Aβ. Cleavage by α-secretase produces a soluble N-terminal fragment, APPsα, and a 10-kDa membrane C-terminal fragment, C83. Both C99 and C83 can be further cleaved by **γ-secretase** releasing Aβ and a nonpathogenic p3 peptide, respectively.

Recently TACE, a member of the ADAM family (A Disintegrin And Metalloprotease family) protease has been shown to play a central role in a regulated cleavage of human APP. Inhibition of TACE affects both APP secretion and Aβ formation in cultured cells (1). Membrane-bound TNF-α, like APP, is transmembrane protein that can undergo TACE-mediated proteolysis to release the extracellular domain as soluble TNF-α. TACE contain an autoinhibitory domain that must be removed for activity, a proteolytic domain, a disintegrin domain, a cysteine-rich domain, and a Transmembrane domain.

Source of Peptide

A fluorescence energy transfer (FRET) peptide substrate for tumor necrosis factor (TNF) - ⟨ convertase (TACE) (Km ~ 19 ⌈M). Cleavage of this TACE substrate II occurs between the alanine and valine residues.

Useful for the screening of TACE inhibitors.

Recommended usage: 50 mM Tricine buffer, pH 7.5, containing 100 mM NaCl, 10 mM $CaCl_2$, and 1 mM$ZnCl_2$, 10 ⌈M TACE Substrate II, 600 nM TACE; incubate at 27℃ with mechanical shaking; reaction can be quenched with 50 mM EDTA (final concentration) ; cleavage monitored by excitation at ~ 320 nm and emission at ~ 395 nm.

Form & Storage

Form: Lyophilized Solid

Mol Wt: 1638.7

Mol Formula: C69H103N23o24

Sequence:

MCA-Pro-Leu-Ala-Gln-Ala-Val-Dpa-Arg-Ser-Ser-Ser-Arg-NH_2

Dpa = N-3-(2,4-Dinitrophenyl)-L-2,3-diaminopropionyl.

MCA = (7-Methoxycoumarin-4-yl)acetyl

Purity: ε97% by HPLC

Solubility: DMSO (up to 100 mg/ml)

Storage: Freezer (-20°C). Protect from light. Following reconstitution, aliquot and freeze (-20₀C). This product is stable for 2 years as supplied. Stock solutions are stable for 3 months at -20₀C.

General References: Buxbaum JD et al (1998) J. Biol. Chem. 273, 27765-27767; Hall L (1998) Gene Accession # AJ012603; Lammich S et al (1999) PNAS 96, 3922-3927; Vassar R et al (1999) Science 286, 735-741; Yan R et al (1999) Nature 402, 533-537; Sinha S et al (1999) Nature 537-540; Hussain I et al (1999) Mol. Cell Neurosci. 14, 419-427; Lin X et al (2000) PNAS 97, 1456-1460

*This product is for In vitro research use only.

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