ALPHA DIAGNOSTIC INTERNATIONAL

Product Specification Sheet

Alpha-Secretase (TACE) Peptide Substrate

Cat. # TACE-SW Alpha-secretase (TACE) peptide substrate # 1 **SIZE**: 100 ug

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 15 aa peptide (**designated TACE-SW**) corresponding to the known α-secretase site of human APP605-619 was synthesized and purified >95% by HPLC (mol wt. 1861.00). The sequence of the peptides is as follows:

α-Secretase (TACE) Substrate Human APP605-619

acetyl-GYEVHHQK ↓ LVFFAED-amide

↓ denotes the known cleavage site of α-secretase.

This peptide sequences is slightly larger than previously used by Buxbaum et al (1998). They extend by 3 and 2 aa at the N and C-terminus, respectively, to facilitate their detection by HPLC.

Form & Storage

Control peptide Solution is provided in water at 1 mg/ml (100 ug/100 ul) (100 ul in solution or Lyophilized). It is also available as 1 mg vial in lyophilized form. **Lyophilized products** should be reconstituted in 100 ul water and gently mixed for 15 min at room temp. All peptide received in solution or reconstituted from lyophilized vials should be stored frozen at -20°C or below in suitable aliquots. It is not recommended to store diluted solutions. Avoid repeated freeze and thaw.

Recommended Usage

Alpha-secretase (TACE) enzymatic assay may be performed as follows: Synthetic peptide substrate (0.5 mM) is incubated with in 10 mM Tris, Ph 7.5 in the presence of enzyme (TACE) for 4 h at 37oC. Reaction products are detected by reverse phase HPLC [see details in Buxbaum JD et al (1998) J. Biol. Chem. 273, 27765-27767].

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.

Related material available from ADI

Ant-Beta amyloid 1-40, 1-42, APP, Parkin, Synucleins (α, β, γ), Presenilins 1, 2, BACE/Asp2 and BACE2/Asp1

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TACE-SW-1-10 71219A

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