ALPHA DIAGNOSTIC INTERNATIONAL

LIFE TECH Life Technologies™ Your Molecular & Cell Technology Partner

Product Specification Sheet

Beta-Site APP Cleaving Enzyme (BACE/Asp2/Memapsin2) Antibodies

Cat. # BACE11-P	Human BACE/Asp2 Control/blocking Peptide # 1	**SIZE**: 100 ug
Cat. # BACE11-S	Rabbit Anti-Human BACE/Asp2 antiserum # 1	**SIZE**: 100 ul
Cat. # BACE11-A	Rabbit Anti-Human BACE/Asp2 IgG # 1 (affinity pure)	**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, **BACE (Beta-site APP Cleaving Enzyme)** has been identified as **β-secretase**. BACE belongs to the family of **Aspartyl proteases (Asp)** also known as **Memapsins**. At least four related Asps, located on chromosome IV and X, have been cloned (**Asp1, Asp2, Asp3, and Asp4).** Human **BACE/Asp2/Memapsin2,** located on chromosome 11, is a transmembrane protein of 501 aa (signal peptide 1-21 aa, a proprotein domain 22-45 aa, 1 TM domain near the CT, and a short cytoplasmic CT- tail of 24 aa; mature protein 46-460 aa). BACE expression was most prominent in most areas of the rat brain and pancreas. It has been localized in the compartments of the secretory pathways.

Source of Antigen and Antibodies

Antigen	17-aa peptide of Human BACE/Asp2 ; **Designated (BACE11-P or control peptide)** conjugated to KLH; epitope location ~ C-terminus
Ab Host/type	Rabbit, Polyclonal Unpurified antiserum (cat #**BACE11-S**) Aff pure IgG (**cat #BACE11-A**) purified over antigen-agarose column
2-ab	**Goat Anti-rabbit IgG-HRP** cat # 20320 (AP, biotin, FITC conjugates also available)
-ve control IgG	# 20009-1, Rabbit (non-immune) IgG, purified, suitable for ELISA, Western, IHC as –ve control

Form & Storage of Antibodies/Peptide Control

Antiserum (unpurified)
100ul solution lyophilized powder
Supplied 0.05% azide, **Reconstitute** powder in 100 ul PBS

Affinity pure IgG
100 ug/100ul solution lyophilized powder
Supplied in **Buffer**: PBS+0.1% BSA
Reconstitute powder in PBS at 1mg/ml

Control/blocking peptide
100 ug/100 ul solution lyophilized powder
Supplied in Buffer: PBS pH 7.5,
Reconstitute powder in PBS at 1 mg/ml.

Storage
Short-term: unopened, undiluted liquid vials at -20OC and powder at 4oC or -20oC..
Long-term: at –20C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

Stability: 6-12 months at –20oC or below.
Shipping: 4oC for solutions and room temp for powder

Recommended Usage

Western Blotting (1:1K-5K for neat serum and 1-10 ug/ml for affinity pure using Chemiluminescence technique). BACE is approx 70 kDa, greater than the theoretical size of ~51 kDa, due to glycosylation (1). An antibody made to an epitope similar to BACE11-P has been used to visualize BACE/Asp2 (see Vassar et al 1999).

ELISA (1:10K-1:100K; using 50-100 ng of control peptide/well).

Histochemistry: Not tested**.** We recommend the use of 2:20 ug/ml of affinity pure antibody (1).

Specificity & Cross-reactivity

The human BACE11-P peptide sequence has high degree of homology (93%) with mouse and rat BACE/Asp2. No significant sequence homology exists with BACE2/Aps1, a homolog of BACE, or other Asps. Antibody crossreactivity in various species is not established. Control peptide, because of its low mol. Wt (<3 kDa), is not suitable for Western. It should be used for ELISA or antibody blocking experiments (use 5-10 ug control peptide per 1 ug of aff pure IgG or 1 ul antiserum) to confirm antibody specificity (see detailed protocol at the web site).

General References: 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; Bennett BD et al (2000) J. Biol. Chem. in press.

2. Citations for ADI Antibodies (see updates at the web site)
Uryu, K, 2007, Experimental Neurology, 208, 185-192, , IF
Malicdan MCV, 2007, Hum. Mol. Genet.,16: 115 - 128, WB,

*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
BACE11-S-A-P 71219A

India Contact:
Life Technologies (India) Pvt. Ltd.
306, Aggarwal City Mall, Opposite M2K Pitampura, Delhi – 110034 (INDIA). Ph: +91-11-42208000, 42208111, 42208222, Mobile: +91-9810521400, Fax: +91-11-42208444
Email: customerservice@lifetechindia.com Website: www.lifetechindia.com