ALPHA DIAGNOSTIC INTERNATIONAL

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Product Specification Sheet

Endoplasmic Reticulum Associated Aβ Binding Protein (ERAB)

Cat. ERAB11-S	Rabbit Anti-Human ERAB Antiserum #1	**SIZE**: 100 ul
Cat. ERAB11-A	Rabbit Anti- Human ERAB Ig G #1 (aff pure)	**SIZE**: 100 ug
Cat. ERAB11-P	Human ERAB11 Control peptide	**SIZE**: 100 ug

Alzheimer's Disease (AD) is a neurodegenerative disorder characterized by progressive loss of memory and cognition in the elderly. A number of genes have been linked in the initiation and development of AD. One of the most important and initial step involves proteolytic cleavage of amyloid precursor protein (APP, chromosome 21) releasing short 40, 42 & 43 aa peptides (beta amyloid1-40, 1-42, and 1-43). Polymerization of beta-amyloid (Ab) and subsequent neuronal deposit (amyloid) leads to the degeneration of neurons involved in memory and cognition. Mutations in the APP gene cause some forms of familial AD (FAD) by releasing an increased amounts of b-amyloid. The AD Ab deposits also contain anti-chymotrypsin (ACT), and Apolipoprotein (Apo-E) that may promote Ab polymerization. Although, Ab deposits or plaques are central to neuropathogenesis and neurodegeneration, it is not clear how it affect neuronal functions. An early onset of FAD has been linked to some 30 mutations in two related genes, Presenilins-1 (PS-1 on chromosome 14; 467 aa) and Presenilins-2 (PS-2 on chromosome 1; 448 aa). PS-1/2 has been co-localized in subcellular sites involved in cell cycle regulation and mitosis (the nuclear membrane, interphase kinetochore, etc).

Most recently, an intracellular protein termed ERAB (262 aa, Endoplasmic reticulum associated binding protein on chromosome X) has been cloned and linked with Ab neurotoxicity. ERAB has structural homology with short-chain alcohol dehydrogenases (hydroxysteroid dehydrogenases and acetyl-CoA reductases). Interestingly, ERAB localizes to endoplasmic reticulum despite the absence of a classical transmembrane sequence. However, in the presence of Ab, ERAB- Ab complex translates to the inner plasma membrane. Alzheimer patients have strong ERAB activity. Normal brains have virtually no ERAB. In addition, Ab neurotoxicity can be reduced by blocking ERAB.

Source of Antigen and Antibodies

Antigen	17aa peptide of Human ERAB ; (Gene Accession #Q99714) **Designated (ERAB11-P or control peptide). conjugated to KLH. Epitope location** ~ N-terminal
Ab Host/type	Rabbit, polyclonal; Unpurified antiserum (cat #ERAB11-S) Aff pure IgG (**cat #ERAB11-A**)
2-ab	**Goat Anti-rabbit IgG-HRP** cat # 20320 (AP, biotin, FITC conjugates also available)
-ve control	# 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 in Buffer: 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). An antibody made to the ERAB11 epitope has detected ~ 27 kDa protein in the brain.

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

Histochemistry & Immunofluorescence. We recommend the use of affinity purified antibody at 10-30 ug/ml in formaldehyde fixed, paraffin-embedded tissues (1).

Specificity & Cross-reactivity

The 17 AA human ERAB11 sequences is 77% homologous with rat, 72% with mouse ERAB (1). It also has 100% homology with the human probable short chain type alcohol-dehydrogenase/reductase and bovine 3-hydroxyacyl-CoA dehydrogenase (2). Actual crossreactivity of antibodies in all 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: Yan SD et al (1997) Nature 389, 689; Zuchenko OP et al (1997) Accession # Q99717; Furuta S et al (1997) BBA 1350, 317-324.

*This product is for in vitro research use only.

Related material available from ADI

Antibodies to Synucleins and Presenilins
ERAB11-S-A-P 71222A

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