ALPHA DIAGNOSTIC INTERNATIONAL

**Product Specification Sheet**

**Endoplasmic Reticulum Associated Aβ Binding Protein (ERAB) Antibodies**

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| **Cat.** ERAB12-S | Rabbit Anti-Human ERAB Antiserum # 2 | **SIZE**: 100 ul |
| **Cat.** ERAB12-A | Rabbit Anti- Human ERAB Ig G # 2 (aff pure) | **SIZE**: 100 ug |
| **Cat.** ERAB12-P | Human ERAB 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).

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

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| **Antigen** | 14aa peptide of human ERAB ; (Gene Accession #Q99714) **Designated (ERAB12-P or control peptide). conjugated to KLH. Epitope location** ~ Middle region |
| **Ab Host/type** | Rabbit, polyclonal; Unpurified antiserum (cat #ERAB12-S) Aff pure IgG (**cat #ERAB12-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 ERAB1 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 14 AA human ERAB12 sequences is 100% homologous with mouse and 93% in rat ERAB (1). It also has 100% homology with the human probable short chain type alcohol-dehydrogenase/reductase and 3-hydroxyacyl-CoA dehydrogenase (2). Antibody crossreactivity in various other 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

ERAB12-S-A-P 71222A

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