ALPHA DIAGNOSTIC INTERNATIONAL

Product Specification Sheet

Neprilysin (NEP) Antibodies

Cat. # NEP12-M Rat monoclonal Anti-Human Neprilysin IgG # 2(aff pure) **SIZE**: 100 ug

The amyloid β-peptide (**Aβ**) of 39 to 43 amino acids is constitutively produced in brain upon proteolysis of the β-amyloid precursor protein (**APP**) and exists as fragments of 40, 42 and 43 amino acids ($A\beta_{40}$, $A\beta_{42}$, $A\beta_{43}$). In the young and healthy humans, the secreted Aβ is rapidly catabolized before it can be deposited in the brain. However, upon aging or the onset of familial **Alzheimer's disease**, alterations in either synthesis or degradation/clearance of Aβ may contribute to amyloid depositions in the brain. Aβ carries cleavage sites for a number of *in vivo* and *in vitro* proteases like cathepsin D and M-13 metalloproteases. The M-13 family comprises several zinc-dependent metalloproteases like **DINE**, **PHEX**, **KELL**, **ECE**, **XCE**, **neprilysin** (**NEP**) and neprilysin-like proteases (**NEPL-α, NEPL-β, NEPL-γ**).

NEP [variously termed as **neutral endopeptidase-24.11 (NEP), neprilysin, enkephalinase, EC3.4.24.11, common acute lymphoblastic leukemia antigen (CALLA), CD10**] is the key *in vivo* enzyme degrading biopeptides Aβ, substance-P and enkephalin in brain; atrial natriuretic peptide, bradykinin and endothelin-1 in kidney. It is a 97 KDa ectoenzyme (mouse, rat, human 750aa) with a large extracellular domain containing its catalytic site, which can degrade Aβ on cell surface. NEP is ubiquitous but its high expression in brain is restricted to striatum, olfactory tubercle, substantia nigra, choroids plexes, endopeduncular nucleus, pontine nucleus, and cerebellum and in many peripheral tissues, particularly in brush-border membranes. The poor expression of NEP in the hippocampus and cerebral cortex is reflected in the selective deposition of $A\beta_{42}$ in these regions. NEP is also expressed in **soluble** form in human plasma and cerebrospinal fluid. NEP can degrade both synthetic and cell secreted $A\beta_{40}$ and $A\beta_{42}$ and may be a good therapeutic target for the treatment of Alzheimer's disease.

Source of Antigen and Antibodies

Antigen	Recombinant human Nep protein EC domain
Epitope Location	EC-domain
Ab Host/type	Rat, monoclonal IgG2b; Aff pure IgG (**cat #NEP12-M)**
2-ab	Cat #50320 , Rabbit anti-rat IgG-HRP (AP, biotin, FITC conjugates also available
-ve control	Cat # 20005-1, Rat (non-immune) Serum IgG, purified, suitable for ELISA, Western, IHC as –ve control

Form & Storage of Antibodies/Peptide Control

Affinity pure IgG

100 ug/100ul solution	50 ug/50 ul lyophilized powder

Buffer: PBS pH 7.5
Reconstitute in the original vol. of water

Storage

Short-term: unopened, undiluted vials for less than a week at 4oC.

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 (1-5 ug/ml for affinity pure using Chemiluminescence technique).

ELISA (1:5K-1:50K; using 50-100 ng of control peptide/well).

Histochemistry & Immunofluorescence: not tested.

Specificity & Cross-reactivity

The antibody reacts with human, mouse, and rat Neprilysin. Antibody reactivity in various species is not known. Recombinant purified mouse and human Neprilysin proteins are available as control.

General References: Chen CY et al (1997) J. Immunol. 148, 2817-2825; Malfroy B et al (1987) BBRC 144, 59-66; Bateman RC et al (1989) JBC 264, 6151-6157; Malfroy B et al (1988) J. Exp. Med. 168, 1247-1253; Shipp MA et al (1988) PNAS 85, 4819-4823; Letarte M et al (1988) J. Exp. Med. 168, 1247-1253; Iwata et al. (2001) Science 292, 1550; Ikeda et al. (2000) J. Biol. Chem. 274, 32469; Boileau et al. (2001) Biochem. J 355, 107; Kiryu-Seo et al. (2000) PNAS 97, 4345.

**This product is for In vitro research use only.*

Related materials available from ADI

Antibodies: NEP, NEP-alpha, -beta, -gamma, DINE, PHEX.

NEP12-M 70910J

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