ALPHA DIAGNOSTIC INTERNATIONAL

Product Specification Sheet

Neprilysin (NEP) Protein Control

Cat. # NEP11-C	Recombinant **Mouse** Neprilysin protein for WB +ve control	**SIZE**: 100 ul
Cat. # NEP12-C	Recombinant **Human** Neprilysin protein for WB +ve control	**SIZE**: 100 ul

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. 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

Mouse (# NEP11-C) and human (#NEP12-C) NEP proteins (Tyr45-Trp743; total of 699 residues) was expressed in baculovirus cell line Sf21 and purified to >95% purity. The purified protein migrates as ~90 kDa in SDS-PAGE due to glycosylation. **For WB +ve control** (**Cat # NEP11-C**), it is formulated in SDS-PAGE sample buffer (reduced). This preparation is not biologically inactive. It is not suitable for ELISA or other applications where native protein is required. It is supplied in 100 ul/vial. For WB, heat once and load 10 ul/lane and visualize with appropriate antibodies. If the product has been stored for several weeks, then it may be preferable to add 5 ul of fresh 2x sample buffer per 10 ul of the NEP11-C solution prior to heating and loading on gels. Store frozen in suitable aliquots. Do not freeze, thaw, or hear repeatedly.

Recommended Usage

For Western blot use only. This preparation is intended for qualitative purpose and not to serve as standard of known concentration. It is designed to produce good intensity band when used with appropriate ADI antibodies.

WB +control formulation is not suitable for ELISA, dot blots or other applications requiring native protein. We supply another formulation (Cat # NEP15-R-5, and NEP16-R-5) in buffers that retain biological activity.

General References: Chen CY et al (1997) J. Immunol. 148, 2817; Malfroy B et al (1987) BBRC 144, 59; Bateman RC et al (1989) JBC 264, 6151; Malfroy B et al (1988) J. Exp. Med. 168, 1247; Shipp MA et al (1988) PNAS 85, 4819; Letarte M et al (1988) J. Exp. Med. 168, 1247; Iwata et al. (2001) Science 292, 1550; Ikeda et al. (2000) J. Biol. Chem. 274, 32469

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: Room temp or in cold paks.

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

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