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New Item

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Antibodies to Proteinases

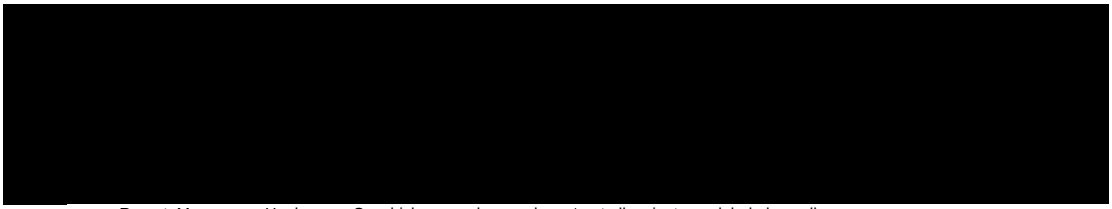
Anti-Neprilysin antibodies (Cat #: Nepr-101AP).

Other Nomenclature: CD10, Neutral Endopeptidase (NEP) Common Acute Lymphocytic Leukemia antigen (CALLA).

The mammalian neprilysin (NEP) family members are typically type II membrane endopeptidases responsible for the activation/inactivation of neuropeptides and peptide hormones. The substrate specificity and subcellualar localization of the 7 mammalian NEPs contribute to their functional heterogeneity. Proteolytic enzymes constitute around 2% of the human genome and are several stages of cell development from fertilization to cell death as a result of apoptosis. The identification of many novel proteases from genome-sequencing programs has suggested them as potential new therapeutic targets. In addition, several well-characterized metallopeptidases were recently shown to possess new biological roles in neuroinflammation and neurodegeneration. Neprilysin, a zinc-metalloendopeptidase, located on chromosome 3q21-q27 contains 24 exons and plays important role in the physiology and pathology of many diseases such as hypertension, cancer and Alzheimer's disease (AD). In AD the deposition of amyloid beta peptides (Abeta) in brain form plaques that are hallmark of AD codition. Neprilysin is the major Abeta degrading enzyme and a reduction in Neprilysin activity contribute to the extent of plaque formation in AD by increasing the steady state levels of Abeta (1). The levels of Abeta in the central nervous system are regulated by several catabolic proteases, including insulysin (IDE), BACE1, BACE2, presenilin1, presenilin2, gamma secretase and neprilysin (NEP). Gleevec, a known tyrosine kinase inhibitor, has been shown to lower Abeta secretion, and it is considered a potential basis for novel therapies for Alzheimer's disease. In vitro treatment of cells with Gleevec elevates neprilysin levels that caused an increased Abeta degradation (2).

Neutral endopeptiddase, Neprilysin is a major enzyme involved in the degradation and metablic inactivation of a number of biological peptides including enkephlins, substance P, bradykinin, incretin hormone glucagon like peptide 1 and arterial natriuretic peptides. Neprilysin hydrolyze the brain derived natriuretic peptide (BNP) but not the structurally related arterial or and C-type natriuretic peptides which are important cardioprotective hormones with essential function in sodium excretion, water balance, and blood pressure regulation. The Neprilysin is a 750 amino acid protein with predicted molecular weight of 86 kDa but as a result of abundant post translational modifications, specially glycosylation, the brain Neprilysin migrates between 98-110 kDa on denaturing SDS-PAGE. The Neprilysin is a membrane bound glycoprotein with a short N-termainl cytoplasmic tail, and TMD and a large C-terminal extracellular catalytic domain comprise of a zinc binding motif that also facilitates the small hydrophobic peptides. The Neprilysin is ubiquitously expressed in many tissues including intestinal BBM, kidney epithelial cells, neutrophils, thymocytes, lung, testis and in neuronal plasma brain (3).

The Neprilysin-selective antibodies were generated against unique antigenic sequences form near N and C-terminal end of Neprilysin (CD10) gene. The antibodies to Neprilysin are affinity purified over immobilized antigen based chromatography, and the purified immunoglobulins are stabilized in antibody stabilization buffer. FabGennix Int. Inc., will also provide limited quantities of antigenic blocking peptides for Nepr-101AP and Nepr-112AP antibodies. Antibodies to Neprilysin (Nepr-101AP and Nepr-112AP) will label Neprilysin protein in Western blot applications. FabGennix Int. Inc., carries several other Alzheimer-related target antibodies, for a complete listings visit www.FabGennix.com. *FabGennix Inc*. will also conjugate antibodies with secondary enzymes (alk-Pase or HRP) or fluorescent probes upon request at a nominal cost.



R = rat; M = mouse; H = human; C = chicken; monk = monkey ; * not all variants are labeled equally

Immunogen:	Synthetic peptides corresponding to Nepr-101AP (aa: 123-145: qepktedivavqkakalyrscin) and Nepr-112AP (aa: 734-750: crknsymnpekkcrvw) from N-terminal regions of Neprilysin protien, peptide sequences are unique to Neprilysin protein and are conserved in many species.
Concentration:	Nepr-101AP and Nepr-112AP: IgG concentration 0.72-0.78 mg/ml in antibody stabilization buffer.
Applications:	Antibody Nepr-101AP and Nepr-112AP are ideal for WB and ELISA applications, other applications have not been tested. This antibody does not cross react to other proteases. The species cross reactivity for this antibody is not examined. The dilutions for this antibody is for reference only, investigators are expected to determine the optimal conditions for specific assay. WB: > 1:500; IMM & i.p pull-down assays: n.d; IHC n.d. ELISA <1:10,000
Reactivity:	This antibody detects a single band of approximately 98kDa protein form PC-Nepr samples. The antibody does not cross reacts with other proteins of the BACE family members.
Protocols:	Standard protocol for various applications (WB; IMM and IHC) of this antibody can be requested by calling Technical support line, basic information on this antibody is provided with the product specification sheet, however, FabGennix Inc. strongly recommends investigators to optimize conditions for use of this antibody in their laboratories.
Form/Storage:	The affinity-purified antibodies are supplied as stabilized product. Store at -20°C for long-term storage. FabGennix Inc. does not recommend storage of very dilute antibody solutions unless they are prepared in specially formulated multi use antibody dilution buffer (Cat # DiluOBuffer). Working solutions of antibodies in DiluOBuffer should be filtered through 0.45□ filter after every use for long-term storage.

References:

1. Wood LS, Pickering EH, McHale D, Dechairo BM. Association between neprilysin polymorphisms and sporadic Alzheimer's disease. Neurosci Lett. 2007 Sep 20.
2. Eisele YS, Baumann M, Klebl B, Nordhammer C, Jucker M, Kilger E. Gleevec increases levels of the amyloid precursor protein intracellular domain and of the amyloid-beta degrading enzyme neprilysin. Mol Biol Cell. 2007 Sep;18(9):3591-600. Epub 2007 Jul 11. Links
3. Deng-Shun Wang,1* Dennis W. Dickson,2 and James S. Malter. β-Amyloid Degradation and Alzheimer's Disease. Biomed Biotechnol. 2006; 2006: 58406.

For users who may require large amounts of Nepr-101AP and Nepr-112AP, please enquire about bulk material discounts.
This Product is for Research Use Only and is NOT intended for use in humans or clinical diagnosis.

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