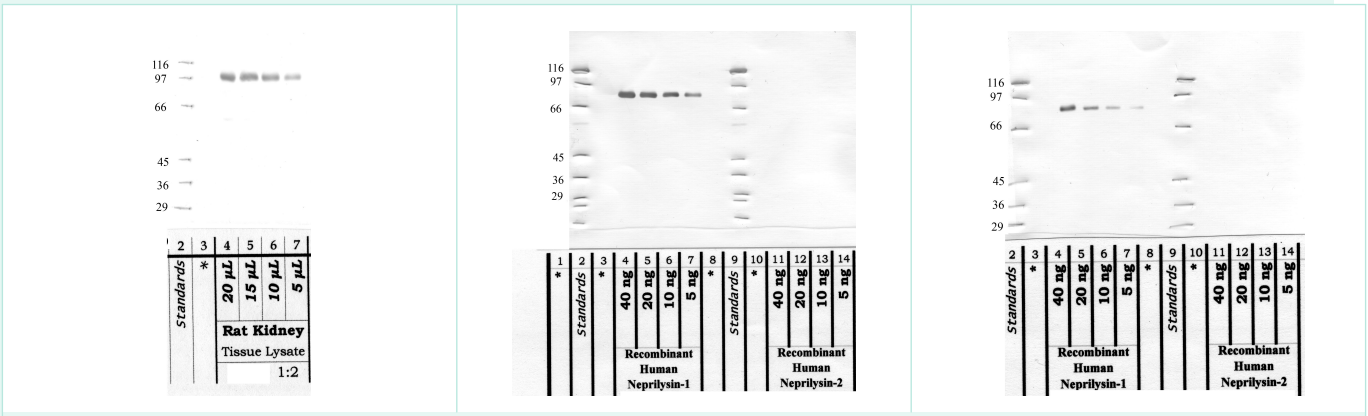
Anti-MME Rabbit Polyclonal Antibody

Neprilysin, EC 3.4.24.11, Atriopeptidase, Common acute lymphocytic leukemia antigen, CALLA, Enkephalinase, Neutral endopeptidase 24.11, NEP, Neutral endopeptidase, Skin fibroblast elastase, SFE, CD antigen CD10,

Gene: MME **UniProt:** P08473 **Host:** Rabbit **Clonality:** Polyclonal (pAb)

Product Image



Cytoplasmic domain
RP1Neprilysin

Stalk region
RP2Neprilysin

Propeptide domain
RP3Neprilysin

— Western Blot (4-panel validation across domain-specific antibody clones)

Actual Western blot validation for anti-MME rabbit polyclonal antibody. 4-panel validation across domain-specific antibody clones — each panel labeled with its catalog number and target domain. Reducing conditions; 10–20 µg/lane on 7.5–10% SDS-PAGE.

Key Product Facts

Supplier	Triple Point Biologics, Inc. (Sudbury, Ontario, Canada)
Product Name	Anti-MME Rabbit Polyclonal Antibody
Gene Symbol	MME
Alternative Names	Neprilysin, EC 3.4.24.11, Atriopeptidase, Common acute lymphocytic leukemia antigen, CALLA, Enkephalinase, Neutral endopeptidase 24.11, NEP, Neutral endopeptidase, Skin fibroblast elastase, SFE, CD antigen CD10,
UniProt ID	P08473
Host Species	Rabbit
Clonality	Polyclonal (pAb)
Isotype	IgG
Concentration	1mg/ml
Purity	Affinity purified
Pack Size	100ug
Validated Application	WB
Recommended Dilution	WB-1/1000
Species Reactivity	Validated- Human Potential
Immunogen Type	Synthetic Peptide from Uniprot Sequence
Conjugation	none
Buffer / Preservatives	Sodium Chloride 500 mM, Sodium Phosphate 10 mM, Potassium Phosphate 1.8 mM, Potassium Chloride 2.7 mM, Glycerol 50% (v/v)
Website	triplepointbiologics.com/anti-neprilysin-rabbit-polyclonal-antibody

Available Domain-Specific Variants

Triple Point Biologics produces antibodies to defined structural domains of MME. Each variant is directed at a specific structural region of the protein. Exact peptide sequences are proprietary; each variant is validated for the applications listed.

Domain / Variant	Epitope Region (approx. residues)	Cat. No.	Availability

Cytoplasmic domain	**~1–26** Region within the short cytoplasmic N-terminal tail of human neprilysin, upstream of the single transmembrane helix; this domain is oriented toward the intracellular space and is accessible in denatured and permeabilized-cell preparations	RP1Neprilysin	In catalog
Stalk Region	**9–28** Region within the juxtamembrane extracellular stalk of human neprilysin, lying immediately C-terminal to the transmembrane helix and proximal to the large ectodomain; this segment connects the membrane anchor to the catalytic ectodomain and is exposed on the cell surface	RP2Neprilysin	In catalog
Propeptide Domain	**1–55** Region spanning the propeptide segment of human neprilysin that occludes the active site in the zymogen form; removal of this sequence by proteolytic processing is required for catalytic activation of the mature enzyme	RP3Neprilysin	In catalog
Catalytic Domain	**56–750** Region within the large extracellular catalytic ectodomain of human neprilysin, which harbors the conserved HEXXH zinc-binding motif and the hydrophobic S1′ substrate-recognition pocket; this domain constitutes the majority of the protein mass and is responsible for endopeptidase activity	RP4Neprilysin	In catalog
—	**2–750** Epitope spanning multiple structural domains of human neprilysin, including cytoplasmic, transmembrane, stalk, and catalytic regions; this broad-coverage antigen design is intended to maximize detection of the full-length protein across a range of experimental conditions	RP-Neprilysin	In catalog

Applications & Recommended Dilutions

App.	Species	Dilution Range	Notes
WB	Validated-Human Potential	1:1000	Optimal dilution should be determined per laboratory and lot.

Optimal dilutions should be determined by each laboratory for each application. Triple Point Biologics antibodies include a peptide-neutralized negative control aliquot for specific-signal confirmation.

Storage & Handling

Short-term Storage	+4°C (1–2 weeks)
Long-term Storage	Aliquot and store at -20°C
Shipping Conditions	Shipped in styrofoam cooler on blue ice
Hazard Warning	Product may contain Sodium Azide — POISONOUS AND HAZARDOUS. Handle by trained personnel only.
Shelf Life	12 months from date of receipt under recommended conditions

Target Background

General Biology and Family

Neprilysin (MME; EC 3.4.24.11) is a type II single-pass transmembrane zinc metallopeptidase belonging to the M13 (neprilysin) family of endopeptidases. It shares a thermolysin-like active-site architecture, coordinating a catalytic zinc ion through a conserved HEXXH motif. The enzyme acts on the amino side of hydrophobic residues in peptide substrates generally up to ~30 amino acids in length. MME is the founding member of a small subfamily that includes ECE-1, ECE-2, PHEX, and XCE, all of which are type II ectoenzymes with extracellular catalytic domains and short cytoplasmic N-terminal tails.

Expression and Localisation

Neprilysin is expressed at highest levels in the brush border of renal proximal tubules and in the lung, with significant expression also detected in vascular endothelium, intestinal epithelium, testis, peripheral and central nervous system neurons, and skin fibroblasts. It is a well-established surface marker for common acute lymphocytic leukemia, giving rise to its designation as CALLA/CD10. In the brain, neprilysin is concentrated at synaptic membranes, consistent with its role in neuropeptide catabolism. The enzyme resides at the plasma membrane with its large extracellular catalytic ectodomain facing the extracellular space, where it encounters soluble peptide substrates.

Activation Mechanism and Structural Architecture

MME is synthesized as an inactive zymogen bearing a short propeptide that occludes the active site and must be removed for catalytic competence. The mature enzyme comprises a short cytoplasmic N-terminal tail (approximately residues 1–26), a single transmembrane helix (approximately residues 27–51), a stalk or juxtamembrane region, and a large extracellular catalytic domain (approximately residues 52–750) that harbors the zinc-binding motif. Proteolytic shedding of the ectodomain by ADAM family sheddases can generate a soluble circulating form of neprilysin. No accessory cofactors are required for catalysis once the propeptide is removed; substrate recognition is governed by the S1′ hydrophobic pocket.

Key Substrates and Inhibitor Profile

Neprilysin cleaves a broad spectrum of bioactive peptides. Established physiological substrates include the enkephalins (Leu- and Met-enkephalin), substance P, bradykinin, neurotensin, atrial natriuretic peptide (ANF/ANP), brain natriuretic peptide (BNP), endothelin-1, and amyloid-beta peptides Aβ40 and Aβ42. The enzyme is potently and competitively inhibited by the phosphoramidon class of inhibitors and by the clinical drug sacubitril (prodrug form LCZ696 component), a neprilysin inhibitor used in combination with valsartan (Entresto) for heart failure. Thiorphan and its prodrug racecadotril are additional pharmacological inhibitors used experimentally and clinically as enkephalinase blockers.

Disease Relevance

Neprilysin has well-documented involvement in several human diseases. In Alzheimer disease, MME is considered a primary amyloid-beta-degrading enzyme in the brain; reduced neprilysin activity is associated with increased parenchymal and vascular Aβ deposition, and gene-transfer studies in rodent models have established that overexpression can reduce plaque burden. In cardiovascular physiology, neprilysin-mediated degradation of natriuretic peptides modulates blood pressure and fluid homeostasis, underpinning the clinical rationale for sacubitril/valsartan in heart failure with reduced ejection fraction. CD10/MME expression is used diagnostically to subtype acute lymphocytic leukemias, and its expression is altered in prostate cancer and other epithelial malignancies.

Research Utility

Antibodies targeting distinct structural domains of neprilysin serve different experimental purposes. The cytoplasmic domain is accessible in denatured samples and in permeabilized cells, making it well-suited for Western blot and intracellular immunofluorescence. The extracellular stalk and catalytic domain epitopes support detection of the surface-expressed or shed forms. Propeptide-directed reagents can distinguish the zymogen from the mature enzyme. Given neprilysin's clinical relevance in Alzheimer disease, heart failure, and hematologic malignancy, robust domain-specific detection tools are widely used across neuroscience, cardiology, and oncology research contexts.

Gene & Protein Reference

Gene Symbol	MME
HGNC	HGNC:7154
NCBI Gene ID (Human)	4311
NCBI Gene ID (Mouse)	18236
Ensembl	ENSG00000196549
OMIM	120520
UniProt (Human)	P08473
UniProt (Mouse)	Q61391
Protein Family	M13 neprilysin family; zinc metallopeptidase
Predicted MW	~86 kDa (unglycosylated); ~94–110 kDa (glycosylated)
Observed MW	~100–110 kDa on SDS-PAGE (due to N-linked glycosylation)
Chromosome	3q25.2
Paralogue	ECE-1 (endothelin-converting enzyme 1); ECE-2; PHEX
Key Substrates	Enkephalins (Leu-, Met-), atrial natriuretic peptide (ANP/ANF), brain natriuretic peptide (BNP), substance P, bradykinin, neurotensin, endothelin-1, amyloid-beta (Aβ40, Aβ42)
Activated by	Propeptide removal (proteolytic activation); no obligate cofactor required for the mature form
Inhibited by	Phosphoramidon; thiorphan; sacubitril (active metabolite LBQ657); racecadotril

About Triple Point Biologics

With over 30 years dedicated to antibody production, Triple Point Biologics is a Canadian company and the premier resource for proteinase and proteinase inhibitor research. Products have been cited in thousands of peer-reviewed publications.

The domain-specific antibody strategy — available in standard, ATK, SPA, and GSK kit formats — delivers predefined epitopes, built-in peptide-neutralized negative controls, and superior specificity for Western blot.

Website: www.triplepointbiologics.com

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Product specifications subject to change. Contact Triple Point Biologics for current product and availability information.