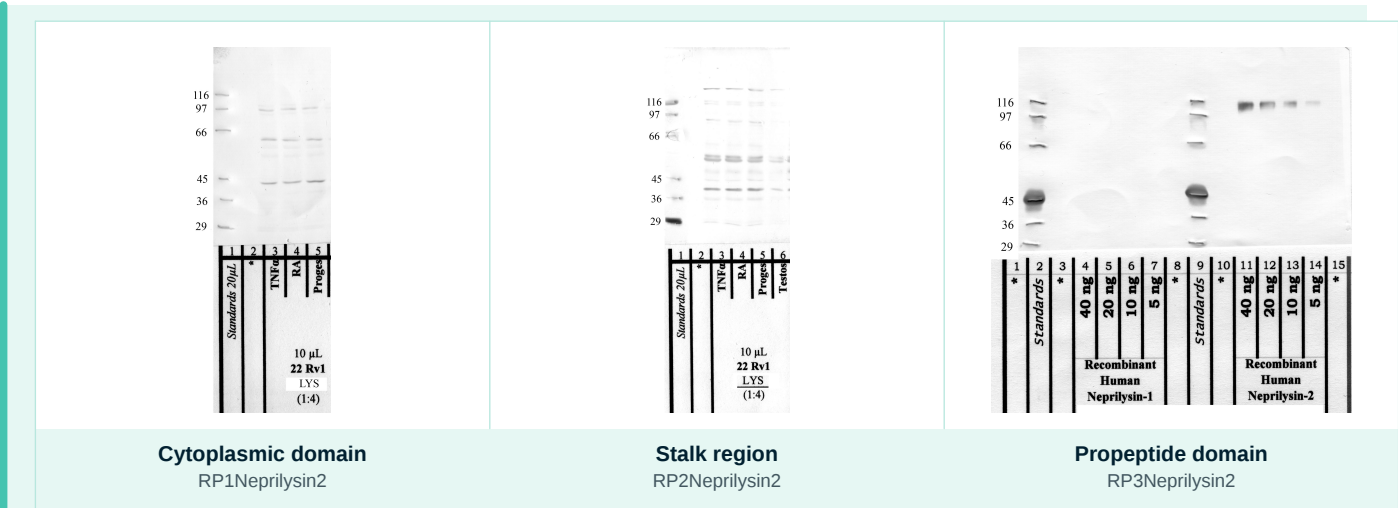


# Anti-MMEL1 Rabbit Polyclonal Antibody

Membrane metallo-endoropeptidase-like 1, EC 3.4.24.11, Membrane metallo-endoropeptidase-like 2, NEP2m,, Neprilysin II, NEPII, Neprilysin-2, NEP2, NL2,

Gene: MMEL1 UniProt: Q495T6 Host: Rabbit Clonality: Polyclonal (pAb)

## Product Image



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

Actual Western blot validation for anti-MMEL1 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-MMEL1 Rabbit Polyclonal Antibody                                                                                                                  |
| Gene Symbol            | MMEL1                                                                                                                                                  |
| Alternative Names      | Membrane metallo-endoropeptidase-like 1, EC 3.4.24.11, Membrane metallo-endoropeptidase-like 2, NEP2m,, Neprilysin II, NEPII, Neprilysin-2, NEP2, NL2, |
| UniProt ID             | Q495T6                                                                                                                                                 |
| 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-Pan, Monkey, Dog                                                                                                            |
| 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-2-rabbit-polyclonal-antibody                                                                                  |

Available Domain-Specific Variants

Triple Point Biologics produces antibodies to defined structural domains of MMEL1. 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 | <b>~1–27</b><br>Short N-terminal cytoplasmic tail of MMEL1, situated upstream of the single-pass transmembrane segment; this region is the minimal intracellular portion of the type II membrane topology and is accessible only from the cytoplasmic face of the plasma membrane                                                         | RP1Neprilysin2 | In catalog |
| Stalk Region       | <b>8–27</b><br>Extracellular juxtamembrane stalk segment of MMEL1, positioned immediately C-terminal to the transmembrane anchor and N-terminal to the large M13 peptidase ectodomain; this flexible linker region connects the membrane anchor to the catalytic domain and is exposed on the cell surface                                | RP2Neprilysin2 | In catalog |
| Propeptide Domain  | <b>1–87</b><br>N-terminal portion of the extracellular ectodomain in MMEL1, corresponding to the region upstream of the core catalytic subdomain; within the M13 family architecture this segment contributes to ectodomain folding and surface presentation prior to the zinc-binding catalytic module                                   | RP3Neprilysin2 | In catalog |
| Catalytic Domain   | <b>88–779</b><br>Large C-terminal M13 peptidase catalytic ectodomain of MMEL1, encompassing the zinc-coordinating active site (HEXXH motif) and the substrate-binding cleft; this domain is structurally homologous to the neprilysin (MME) catalytic domain and is responsible for endopeptidase activity toward neuropeptide substrates | RP4Neprilysin2 | In catalog |
| —                  | <b>1–779</b><br>Broad, multi-domain representation spanning the full-length MMEL1 protein, including the cytoplasmic tail, transmembrane segment, extracellular stalk, and the complete M13 peptidase catalytic ectodomain; suitable for detection of multiple epitopes across the full-length and truncated isoforms                     | RP-Neprilysin2 | In catalog |

## Applications & Recommended Dilutions

| App. | Species                                          | Dilution Range | Notes                                                         |
|------|--------------------------------------------------|----------------|---------------------------------------------------------------|
| WB   | Validated-Human<br>Potential-Pan,<br>Monkey, Dog | 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

### Family & General Biology

Neprilysin-2 (MMEL1; EC 3.4.24.11) is a type II transmembrane zinc metalloendopeptidase belonging to the M13 (neprilysin) family of neutral endopeptidases. It shares approximately 40% amino-acid identity with classical neprilysin (MME/CD10) and retains the three catalytic residues — two histidines and a glutamate — that coordinate the active-site zinc ion. The 779-residue human protein (UniProt Q495T6) comprises a short cytoplasmic N-terminal tail, a single-pass transmembrane anchor, an extracellular stalk region, and a large C-terminal M13 peptidase catalytic domain characteristic of the family.

### Expression & Localisation

MMEL1 transcript and protein expression are highly enriched in the testis and epididymis, with lower but detectable levels in brain, kidney, and certain epithelial tissues. Within the testis, expression is concentrated in spermatogenic cells and Sertoli cells. The protein localises to the plasma membrane with its catalytic ectodomain facing the extracellular space, consistent with its role in processing extracellular or pericellular peptide substrates. Alternative splicing generates a truncated isoform (NEP2m/NEP2(m)) that lacks the transmembrane domain and may be secreted or cytosolic.

### Substrate Specificity & Catalytic Mechanism

Like classical neprilysin, MMEL1 functions as a zinc-dependent endopeptidase that cleaves peptides on the N-terminal side of hydrophobic residues, preferring substrates smaller than approximately 3 kDa bearing bulky aliphatic or aromatic residues at the P1' position. Documented substrates include neuropeptides such as substance P, bradykinin, and atrial natriuretic peptide (ANP), which are shared with MME. Catalysis proceeds through nucleophilic attack by a zinc-activated water molecule on the scissile amide bond. The enzyme requires zinc at the active site and is sensitive to chelating inhibitors including thiorphan and phosphoramidon.

### Role in Reproductive Biology

The predominant expression of MMEL1 in male reproductive tissue implicates it in the regulation of peptide signalling within the seminiferous tubule microenvironment. Orthologous neprilysin-family enzymes in model organisms influence fertility parameters including sperm motility and early embryonic development, and the conserved substrate profile of MMEL1 suggests analogous functions in humans. Peptide hormones and growth factors active in spermatogenesis — including ANP and locally produced neuropeptides — represent candidate substrates through which MMEL1 may modulate the intra-testicular signalling milieu.

### Neuropeptide Regulation & CNS Relevance

Although expressed at lower levels in the brain than classical neprilysin, MMEL1 has been detected in discrete neuronal populations and contributes to neuropeptide catabolism in neural tissue. Classical neprilysin is a principal amyloid- $\beta$ -degrading

enzyme, and MMEL1 has been shown to cleave amyloid-β peptides in vitro, raising interest in its potential contribution to amyloid clearance. Its restricted CNS distribution relative to MME suggests a modulatory rather than dominant role, but its capacity to process overlapping substrate pools positions MMEL1 as a relevant factor in neurodegeneration research.

Disease Relevance & Inhibitor Profile

MMEL1 is inhibited by the well-characterized neprilysin inhibitors thiorphan, phosphoramidon, and sacubitril's active metabolite LBQ657, reflecting conservation of the active-site topology across the M13 family. Its expression has been reported to be altered in prostate and other urogenital cancers, where dysregulated neuropeptide and growth-factor processing may influence tumour microenvironment signalling. Loss-of-function variants in MMEL1 have been catalogued in population genomic datasets, and the gene resides in a chromosomal region associated with neurodevelopmental phenotypes, motivating ongoing investigation into its broader physiological significance.

Gene & Protein Reference

|                      |                                                                                                                     |
|----------------------|---------------------------------------------------------------------------------------------------------------------|
| Gene Symbol          | MMEL1                                                                                                               |
| HGNC                 | HGNC:14668                                                                                                          |
| NCBI Gene ID (Human) | 79258                                                                                                               |
| NCBI Gene ID (Mouse) | 241297                                                                                                              |
| Ensembl              | ENSG00000130711                                                                                                     |
| OMIM                 | 607156                                                                                                              |
| UniProt (Human)      | Q495T6                                                                                                              |
| UniProt (Mouse)      | Q8C1N2                                                                                                              |
| Protein Family       | M13 (neprilysin) family of zinc metalloendopeptidases                                                               |
| Predicted MW         | ~87 kDa (full-length 779 aa; ~49 kDa for short isoform NEP2m)                                                       |
| Observed MW          | ~90–95 kDa (full-length, glycosylated); ~50–55 kDa (short isoform)                                                  |
| Chromosome           | 1p36.12                                                                                                             |
| Paralogue            | MME (neprilysin/CD10; M13 family); PHEX; ECE1; ECE2                                                                 |
| Key Substrates       | Substance P, bradykinin, atrial natriuretic peptide (ANP), amyloid-β peptides, enkephalins                          |
| Activated by         | Constitutively active as expressed; no known zymogen activation step                                                |
| Inhibited by         | Thiorphan, phosphoramidon, LBQ657 (sacubitril active metabolite), EDTA (chelation of active-site Zn <sup>2+</sup> ) |

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](http://www.triplepointbiologics.com)

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