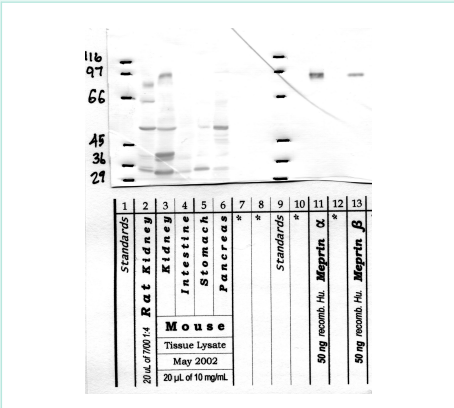


Anti-MEP1A Rabbit Polyclonal Antibody

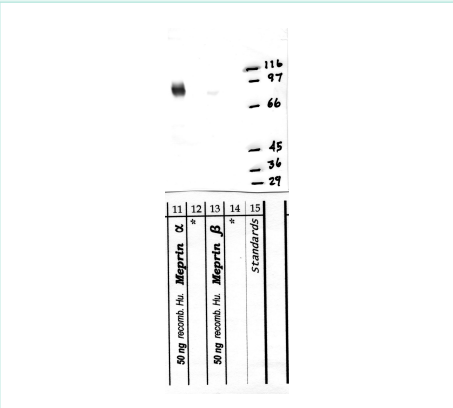
Meprin A subunit alpha, EC 3.4.24.18, Endopeptidase-2, N-benzoyl-L-tyrosyl-P-amino-benzoic acid hydrolase subunit alpha, PABA peptide hydrolase, PPH alpha,

Gene: MEP1A UniProt: Q16819 Host: Rabbit Clonality: Polyclonal (pAb)

Product Image



Metalloproteinase domain
RP1MeprinA



MAM domain
RP2MeprinA



MATH domain
RP3MeprinA

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

Actual Western blot validation for anti-MEP1A 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-MEP1A Rabbit Polyclonal Antibody
Gene Symbol	MEP1A
Alternative Names	Meprin A subunit alpha, EC 3.4.24.18, Endopeptidase-2, N-benzoyl-L-tyrosyl-P-amino-benzoic acid hydrolase subunit alpha, PABA peptide hydrolase, PPH alpha,
UniProt ID	Q16819
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-Mouse, Rat, 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-meprin-a-rabbit-polyclonal-antibody

Available Domain-Specific Variants

Triple Point Biologics produces antibodies to defined structural domains of MEP1A. 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
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Metalloproteinase domain	66–260 Region spanning the astacin-family metalloproteinase catalytic domain of human MEP1A, which harbours the zinc-coordinating HEXXHXXGXXH motif and constitutes the primary enzymatic module, situated downstream of the prodomain and upstream of the MAM domain	RP1MeprinA	In catalog
MAM domain	264–433 Region within the MAM (meprin/A5-protein/receptor tyrosine phosphatase mu) domain of human MEP1A, a cysteine-rich module involved in homotypic and heterotypic protein–protein interactions and oligomerisation, located between the catalytic domain and the MATH domain	RP2MeprinA	In catalog
MATH domain	434–593 Region encompassing the MATH (meprin and TRAF homology) domain of human MEP1A, a beta-sandwich fold implicated in substrate recognition and recruitment, positioned between the MAM domain and the EGF-like (AM) domain in the extracellular portion of the protein	RP3MeprinA	In catalog
AM domain	~666–706 Region corresponding to the EGF-like (AM, after-MATH) domain of human MEP1A, a compact disulfide-stabilised module located immediately upstream of the transmembrane segment, involved in structural stabilisation of the ectodomain at the cell surface	RP4MeprinA	In catalog
—	66–746 Broad region spanning the entire extracellular ectodomain of human MEP1A from the metalloproteinase catalytic domain through the MAM, MATH, and EGF-like (AM) domains, suitable for detection of multiple epitopes across the mature processed protein	RP-MeprinA	In catalog

Applications & Recommended Dilutions

App.	Species	Dilution Range	Notes
WB	Validated-Human Potential-Mouse, Rat, Pan, 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

Meprin-A subunit alpha (MEP1A, UniProt Q16819) is a zinc-dependent endopeptidase of the astacin family (clan MA, family M12A) and a founding member of the meprin/A5-protein/receptor tyrosine phosphatase mu (MAM) superfamily. The mature protein is 746 amino acids in length and contains a modular architecture comprising a signal peptide, prodomain, metalloproteinase catalytic domain, MAM domain, MATH domain, epidermal growth factor-like (AM) domain, transmembrane segment, and short cytoplasmic tail. MEP1A forms disulfide-linked homo- and heterodimers with the closely related MEP1B subunit, assembling into large oligomeric complexes at the plasma membrane.

Expression & Localisation

MEP1A is most abundantly expressed on the brush-border membrane of renal proximal tubule epithelial cells and intestinal epithelial cells, consistent with a role in luminal protein processing and nutrient absorption. Lower-level expression has been reported in leukocytes and certain tumor tissues. At the subcellular level, MEP1A is anchored as a type I transmembrane protein, with the catalytic ectodomain oriented extracellularly. A soluble secreted form is generated by proteolytic shedding of the ectodomain, principally by ADAM10 and ADAM17, and is detectable in urine and intestinal lumen.

Activation Mechanism

MEP1A is synthesised as a zymogen; the N-terminal prodomain maintains latency by coordinating the catalytic zinc ion through a conserved cysteine residue ('cysteine-switch' mechanism). Activation proceeds by removal of the prodomain, which can occur intracellularly by furin-type proprotein convertases or extracellularly by trypsin-like serine proteases. The activated enzyme requires a zinc ion coordinated by the canonical HEXXHXXGXXH motif for catalysis and cleaves peptide bonds preferentially on the amino-terminal side of hydrophobic and acidic residues, a specificity distinct from most other metzincins.

Key Substrates

MEP1A displays broad substrate specificity and processes both extracellular matrix components and soluble mediators. Established substrates include fibronectin, laminin, nidogen-1, and collagen IV within the basement membrane; pro-interleukin-1 β and pro-interleukin-18 among inflammatory cytokines; and E-cadherin and CD44 among cell-adhesion molecules. MEP1A also cleaves the ectodomain of collagen XVII and processes various chemokines including CXCL5. Its capacity to activate or inactivate bioactive peptides positions it as a modulator of both structural matrix integrity and paracrine signalling in epithelial tissues.

Disease Relevance

Dysregulation of MEP1A activity has been linked to several pathological contexts. In the kidney, elevated meprin activity contributes to acute kidney injury by degrading basement membrane components and promoting tubular cell detachment. In

the gastrointestinal tract, altered MEP1A expression is associated with inflammatory bowel disease, where it modulates mucosal cytokine processing and barrier integrity. MEP1A overexpression has been observed in colorectal and renal carcinomas, with proposed roles in tumour invasion via ECM remodelling. Additionally, MEP1A-mediated processing of amyloid precursor protein has implicated it in neuroinflammatory and neurodegenerative pathways.

Inhibitor Profile

MEP1A is inhibited by the broad-spectrum metalloproteinase chelating agents 1,10-phenanthroline and EDTA, confirming zinc dependency. Among endogenous protein inhibitors, fetuin-A (alpha-2-Heremans-Schmid glycoprotein, AHSG) is a well-characterised physiological inhibitor that acts as a substrate-like competitive inhibitor. Tissue inhibitors of metalloproteinases (TIMPs) show variable efficacy: TIMP-3 inhibits meprin activity, whereas TIMP-1 and TIMP-2 are poor inhibitors under standard assay conditions. The small-molecule compound actinonin and the tripeptide Pro-Leu-Gly-NHOH have also been reported to inhibit astacin-family members including meprin-A in biochemical assays.

Gene & Protein Reference

Gene Symbol	MEP1A
HGNC	HGNC:7041
NCBI Gene ID (Human)	4224
NCBI Gene ID (Mouse)	17390
Ensembl	ENSG00000166033
OMIM	178145
UniProt (Human)	Q16819
UniProt (Mouse)	Q61847
Protein Family	Astacin family (clan MA, family M12A); meprin/A5/mu (MAM) superfamily
Predicted MW	~86 kDa (monomer, prior to glycosylation)
Observed MW	~110–120 kDa (glycosylated monomer by SDS-PAGE); higher bands representing dimers may be observed under non-reducing conditions
Chromosome	6p12.3
Paralogue	MEP1B (Meprin-A subunit beta; HGNC:7042)
Key Substrates	Pro-IL-1β, Pro-IL-18, fibronectin, laminin, nidogen-1, collagen IV, collagen XVII, E-cadherin, CD44, CXCL5, amyloid precursor protein
Activated by	Furin-type proprotein convertases (intracellular); trypsin-like serine proteases (extracellular); ectodomain shedding by ADAM10/ADAM17 (generates soluble form)
Inhibited by	Fetuin-A (AHSG, endogenous physiological inhibitor); TIMP-3; EDTA; 1,10-phenanthroline; actinonin

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.