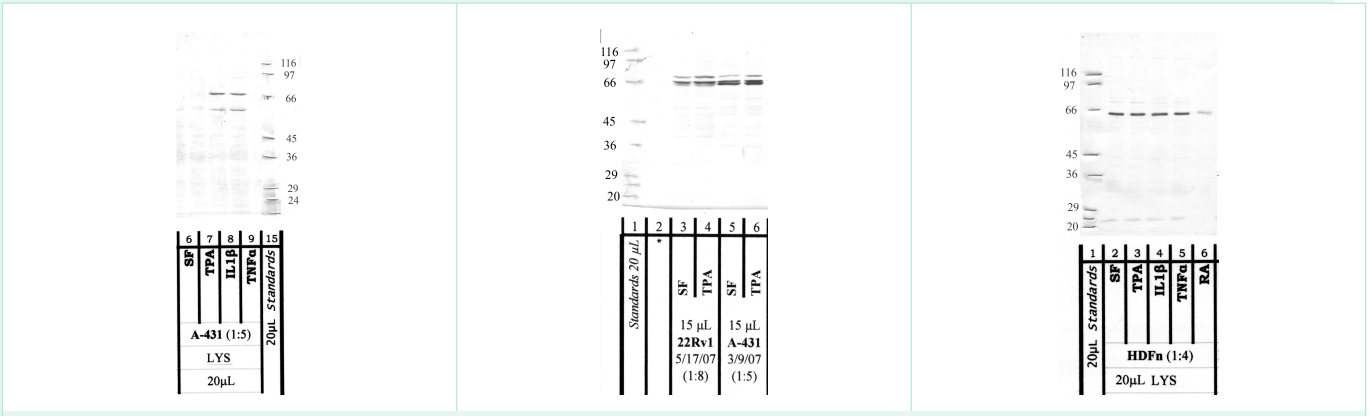
Anti-MMP16 Rabbit Polyclonal Antibody

Matrix metalloproteinase-16, MMP-16, EC 3.4.24.-, MMP-X2, Membrane-type matrix metalloproteinase 3, MT-MMP 3, MTMMP3, Membrane-type-3 matrix metalloproteinase, MT3-MMP, MT3MMP,

Gene: MMP16 **UniProt:** P51512 **Host:** Rabbit **Clonality:** Polyclonal (pAb)

Product Image



Hinge region
RP1MMP16

Carboxy end
RP2MMP16

Furin cleavage site
RP3MMP16

— Western Blot (5-panel validation across domain-specific antibody clones)

Actual Western blot validation for anti-MMP16 rabbit polyclonal antibody. 5-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-MMP16 Rabbit Polyclonal Antibody
Gene Symbol	MMP16
Alternative Names	Matrix metalloproteinase-16, MMP-16, EC 3.4.24.-, MMP-X2, Membrane-type matrix metalloproteinase 3, MT-MMP 3, MTMMP3, Membrane-type-3 matrix metalloproteinase, MT3-MMP, MT3MMP,
UniProt ID	P51512
Host Species	Rabbit
Clonality	Polyclonal (pAb)
Isotype	IgG
Concentration	1mg/ml
Purity	Affinity purified
Pack Size	100ug
Validated Application	WB, IP
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-mmp-16-rabbit-polyclonal-antibody

Available Domain-Specific Variants

Triple Point Biologics produces antibodies to defined structural domains of MMP16. 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

Hinge Region	**281–340** Region within the hinge (linker) segment of human MMP-16, situated between the C-terminal boundary of the catalytic domain and the N-terminal boundary of the hemopexin-like domain, consistent with published UniProt domain annotations for this MT-MMP	RP1MMP16	In catalog
Carboxy end	**557–607** Region spanning the C-terminal cytoplasmic tail of human MMP-16, distal to the transmembrane anchor, representing the intracellular portion of this type-I transmembrane MT-MMP	RP2MMP16	In catalog
Furin cleavage site	**111–122** Region encompassing the furin-recognition sequence (RRKR motif) at the prodomain–catalytic domain junction of human MMP-16, the site of intracellular proprotein convertase processing that generates the mature, active enzyme	RP3MMP16	In catalog
Propeptide region	**32–119** Region within the N-terminal propeptide of human MMP-16, upstream of the furin cleavage site, containing the conserved cysteine-switch motif (PRCGXPD) that coordinates latency-maintaining interaction with the catalytic zinc ion	RP4MMP16	In catalog
Â Aminoterminal end of active enzyme	**120–170** Region at the N-terminal boundary of the mature catalytic domain of human MMP-16, immediately downstream of the furin cleavage site, representing the newly exposed N-terminus generated upon intracellular activation of the zymogen	RP5MMP16	In catalog
—	**120–607** Broad multi-domain immunogen spanning the propeptide, catalytic domain, hinge region, hemopexin-like domain, transmembrane segment, and cytoplasmic tail of human MMP-16, suitable for detection of multiple isoforms and denatured epitopes across diverse experimental contexts	RP-MMP16	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

MMP-16 (MT3-MMP) is a member of the membrane-type matrix metalloproteinase (MT-MMP) subfamily within the broader metzincin superfamily of zinc-dependent endopeptidases. Unlike secreted MMPs, MT-MMPs carry a C-terminal transmembrane domain that anchors the enzyme to the plasma membrane, concentrating proteolytic activity at the cell surface. MMP-16 shares the canonical MMP domain architecture — signal peptide, prodomain, catalytic domain, hinge region, and hemopexin-like domain — with the addition of a furin-recognition sequence and a transmembrane/cytoplasmic tail that distinguishes MT-MMPs from their secreted counterparts.

Expression & Localisation

MMP-16 is expressed in a range of normal and neoplastic tissues, with notable expression in brain, heart, skeletal muscle, placenta, and lung. At the subcellular level, MMP-16 localises predominantly to the plasma membrane, where its transmembrane anchor restricts proteolytic activity to the pericellular space. Expression is upregulated in several tumour types, including glioma, melanoma, and gastric carcinoma, and is also detected in vascular smooth muscle cells and stromal fibroblasts during tissue remodelling events. Alternative splicing gives rise to isoforms with distinct domain compositions and potentially altered substrate selectivity.

Activation Mechanism

Like other MT-MMPs, MMP-16 is synthesised as a zymogen bearing a prodomain that maintains latency through a conserved cysteine-switch interaction with the catalytic zinc ion. Activation occurs intracellularly via furin-mediated cleavage at the canonical RRKR motif within the propeptide, allowing the mature enzyme to reach the cell surface in an active form. This intracellular processing by proprotein convertases distinguishes MT-MMPs from most secreted MMPs, which are typically activated extracellularly. The furin cleavage site is therefore a functionally critical region and a recognised epitope target for domain-specific antibody development.

Key Substrates & Co-factor Interactions

MMP-16 efficiently cleaves fibronectin and collagen type III among extracellular matrix components. A well-documented function is the cell-surface activation of progelatinase A (pro-MMP-2) in complex with TIMP-2, mirroring the mechanism established for MT1-MMP (MMP-14). A shorter alternatively spliced isoform retains fibronectin and collagen III cleavage activity but does not process collagen types I, II, IV, or V under standard conditions. In the context of melanoma invasion, interaction with the chondroitin sulfate proteoglycan CSPG4 enables MMP-16 to facilitate degradation of fibrillar type I collagen, extending

its substrate repertoire in a co-receptor-dependent manner.

Inhibitor Profile

MMP-16 activity is regulated by endogenous tissue inhibitors of metalloproteinases (TIMPs). TIMP-2 participates in the ternary complex required for MT-MMP-mediated pro-MMP-2 activation on the cell surface, functioning both as a scaffold and as a direct inhibitor of MMP-16 catalytic activity at higher molar ratios. TIMP-3, which is ECM-bound, also inhibits MT-MMPs including MMP-16. Broad-spectrum synthetic MMP inhibitors containing a hydroxamate zinc-binding group (e.g., GM6001/ilomastat) block MMP-16 activity in vitro, though selectivity among MMP family members remains a challenge for pharmacological approaches.

Disease Relevance

MMP-16 has been implicated in tumour invasion and metastasis, particularly in glioblastoma, melanoma, and gastric cancer, where elevated expression correlates with invasive phenotype and poor prognosis. In vascular biology, MMP-16 contributes to smooth muscle cell migration and vascular remodelling relevant to atherosclerosis and aneurysm formation. Its role in pericellular collagen and fibronectin turnover makes it relevant to wound healing and fibrotic disease. The membrane-tethered nature of MMP-16 renders it an attractive target for studies of spatially regulated matrix degradation during morphogenesis, cancer cell invasion, and angiogenesis.

Gene & Protein Reference

Gene Symbol	MMP16
HGNC	7160
NCBI Gene ID (Human)	4325
NCBI Gene ID (Mouse)	17388
Ensembl	ENSG00000156103
OMIM	602262
UniProt (Human)	P51512
UniProt (Mouse)	Q9WTN0
Protein Family	Peptidase M10A (matrix metalloproteinase) family, MT-MMP subfamily
Predicted MW	~65.9 kDa (pro-form); ~60 kDa (mature)
Observed MW	~65–68 kDa on reducing SDS-PAGE (pro-form); ~60 kDa (processed form)
Chromosome	8q21.3
Paralogue	MMP14 (MT1-MMP), MMP15 (MT2-MMP), MMP17 (MT4-MMP), MMP24 (MT5-MMP), MMP25 (MT6-MMP)
Key Substrates	Fibronectin, collagen type III, pro-MMP-2 (progelatinase A); collagen type I in CSPG4-dependent contexts
Activated by	Furin (proprotein convertase) — intracellular cleavage of the propeptide at the RRKR motif

Inhibited by	TIMP-2, TIMP-3; broad-spectrum hydroxamate inhibitors (e.g., GM6001/ilomastat)

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.