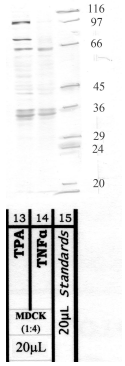
Anti-MMP23B Rabbit Polyclonal Antibody

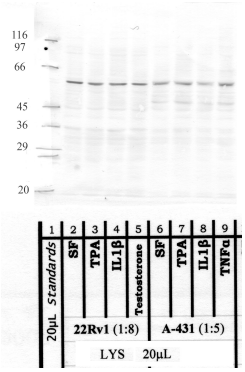
Matrix metalloproteinase-23, MMP-23, EC 3.4.24.-, Femalysin, MIFR-1, Matrix metalloproteinase-21, MMP-21, Matrix metalloproteinase-22, MMP-22, [Cleaved into: Matrix metalloproteinase-23 soluble form

Gene: MMP23B **UniProt:** O75900 **Host:** Rabbit **Clonality:** Polyclonal (pAb)

Product Image



Hinge region
RP1MMP23



Carboxy end
RP2MMP23

— Western Blot (2-panel validation across domain-specific antibody clones)

Actual Western blot validation for anti-MMP23B rabbit polyclonal antibody. 2-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-MMP23B Rabbit Polyclonal Antibody
Gene Symbol	MMP23B
Alternative Names	Matrix metalloproteinase-23, MMP-23, EC 3.4.24.-, Femalysin, MIFR-1, Matrix metalloproteinase-21, MMP-21, Matrix metalloproteinase-22, MMP-22, [Cleaved into: Matrix metalloproteinase-23 soluble form
UniProt ID	O75900
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-mmp-23-rabbit-polyclonal-antibody

Available Domain-Specific Variants

Triple Point Biologics produces antibodies to defined structural domains of MMP23B. 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	**~200–240** Region within the linker segment of human MMP-23B connecting the catalytic domain to the C-terminal cysteine-rich domain, positioned centrally in the mature ectodomain and downstream of the conserved HEXXHXXGXXH zinc-binding motif	RP1MMP23	In catalog
Carboxy end	**~340–390** Region within the C-terminal immunoglobulin-like domain of human MMP-23B, at the distal end of the protein beyond the cysteine-rich array, a structural module implicated in protein–protein interactions including potassium channel binding	RP2MMP23	In catalog
Aminoterminal end active MMP-23	**1–51** Region near the N-terminus of the processed, prodomain-cleaved form of human MMP-23B, within or immediately adjacent to the catalytic domain and downstream of the type II transmembrane anchor and prodomain cleavage site	RP3MMP23	In catalog
—	**1–390** Broad epitope coverage spanning multiple domains of human MMP-23B, including portions of the catalytic domain, cysteine-rich region, and immunoglobulin-like C-terminal domain, suitable for general detection across the mature ectodomain	RP-MMP23	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 Membership and Structural Distinctiveness

MMP-23 (MMP23B, UniProt O75900) is an atypical member of the matrix metalloproteinase superfamily, a zinc-dependent endopeptidase family broadly responsible for extracellular matrix remodelling and pericellular proteolysis. Unlike the vast majority of MMPs, MMP-23 lacks the canonical prodomain cysteine switch motif and the C-terminal hemopexin-like domain. Instead, it carries a unique N-terminal type II transmembrane anchor, a prodomain, a catalytic domain with the conserved zinc-binding motif, and a C-terminal cysteine-rich region followed by an immunoglobulin-like domain — a domain architecture found in no other human MMP.

Expression and Localisation

MMP-23B expression is highest in reproductive tissues, including ovary, testis, and uterus, consistent with its original designation as femalysin, reflecting enriched expression in female reproductive organs. Expression has also been detected in liver, adrenal gland, and various epithelial tissues. At the subcellular level, the type II transmembrane domain anchors MMP-23 to the endoplasmic reticulum membrane, where the protein is retained rather than trafficked to the cell surface or secreted — a striking departure from the secretory pathway followed by classical MMPs. A genomic duplication on chromosome 1p36 gives rise to the near-identical paralogue MMP23A.

Activation Mechanism

The activation mechanism of MMP-23 diverges from the canonical cysteine-switch model used by most MMPs, in which a prodomain cysteine coordinates the catalytic zinc ion to maintain latency. Because MMP-23 lacks the conserved prodomain cysteine, the precise mechanism of zymogen activation remains under investigation. Furin-type proprotein convertases have been proposed to cleave the prodomain during biosynthetic processing in the secretory compartment, a feature shared with membrane-type MMPs. The mature catalytic domain retains the canonical HEXXHXXGXXH zinc-binding motif, indicating functional metalloprotease activity.

Key Substrates and Functional Roles

The substrate repertoire of MMP-23 remains incompletely defined relative to classical ECM-degrading MMPs. A well-characterised functional role involves retention and regulation of voltage-gated potassium channels, particularly KV4.x family members: MMP-23 physically associates with these channels in the ER, restraining their forward trafficking to the plasma membrane and thereby modulating membrane excitability. The cysteine-rich and immunoglobulin-like C-terminal domains are implicated in this channel-binding interaction. Beyond ion channel regulation, MMP-23 has been reported to process certain extracellular substrates when overexpressed, though the physiological relevance of these activities requires further characterisation.

Disease Relevance

MMP-23 has been linked to several pathological contexts. Altered expression has been reported in endometrial and other gynaecological malignancies, consistent with its enriched reproductive-tissue expression and proposed roles in cell survival signalling. Studies in metabolic disease have associated MMP-23 expression with macrophage polarisation states in intestinal tissue under diabetic conditions. Additional evidence implicates MMP-23 in ocular surface pathologies including pterygium, where localised MMP dysregulation contributes to tissue remodelling. The protein's ER-resident localisation and ion channel regulatory function also make it a candidate contributor to excitability disorders, though clinical translation remains at an early stage.

Inhibitor Profile

Classical MMP inhibitors include the endogenous tissue inhibitors of metalloproteinases (TIMPs 1–4), which act by chelating the catalytic zinc. The sensitivity of MMP-23 to individual TIMPs has not been fully characterised, and its intracellular ER localisation may limit access of extracellular TIMPs under physiological conditions. Broad-spectrum hydroxamate-based MMP inhibitors such as GM6001 (Ilomastat) inhibit the catalytic zinc and are expected to inhibit MMP-23 in biochemical assays, though isoform selectivity data for MMP-23 specifically remain sparse in the published literature.

Gene & Protein Reference

Gene Symbol	MMP23B
HGNC	HGNC:14357
NCBI Gene ID (Human)	8510
NCBI Gene ID (Mouse)	56482
Ensembl	ENSG00000187Online
OMIM	603321
UniProt (Human)	O75900
UniProt (Mouse)	Q9WTN0
Protein Family	Matrix metalloproteinase (MMP) family; atypical type II transmembrane MMP
Predicted MW	~44 kDa (390 aa; UniProt O75900)
Observed MW	~44–50 kDa (variable due to glycosylation)
Chromosome	1p36.3 (human; tandem duplicate MMP23A at same locus)
Paralogue	MMP23A (near-identical tandem paralogue, chromosome 1p36)
Key Substrates	KV4 family voltage-gated potassium channels (trafficking regulation); extracellular matrix substrates not fully characterised
Activated by	Proposed furin-type proprotein convertase cleavage of prodomain; cysteine-switch independent
Inhibited by	Broad-spectrum hydroxamate MMP inhibitors (e.g. GM6001); TIMP sensitivity not fully characterised

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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