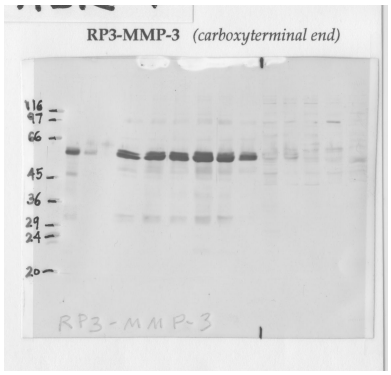
Anti-MMP3 Rabbit Polyclonal Antibody

Stromelysin-1, SL-1, EC 3.4.24.17, Matrix metalloproteinase-3, MMP-3, Transin-1,

Gene: MMP3 **UniProt:** P08254 **Host:** Rabbit **Clonality:** Polyclonal (pAb)

Product Image



Carboxyterminal end
RP3MMP3

— Western Blot (1-panel validation)

Actual Western blot validation for anti-MMP3 rabbit polyclonal antibody. 1-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-MMP3 Rabbit Polyclonal Antibody
Gene Symbol	MMP3
Alternative Names	Stromelysin-1, SL-1, EC 3.4.24.17, Matrix metalloproteinase-3, MMP-3, Transin-1,
UniProt ID	P08254
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, Pan, Monkey, Dog, Cat
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-3-rabbit-polyclonal-antibody

Available Domain-Specific Variants

Triple Point Biologics produces antibodies to defined structural domains of MMP3. 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	**262–287** Region within the proline-rich hinge (linker) segment of human MMP-3, situated between the C-terminal boundary of the catalytic domain and the N-terminal boundary of the hemopexin-like domain; this flexible interdomain linker is exposed on the protein surface and absent from the prodomain-containing zymogen crystal structure	RP2MMP3	In catalog
Carboxyterminal end	**427–477** Region corresponding to the distal C-terminal portion of the hemopexin-like domain of human MMP-3, within the fourth blade of the four-bladed β-propeller fold; this region is distal to the catalytic zinc centre and is involved in protein–protein interactions including substrate and inhibitor binding	RP3MMP3	In catalog
Â Aminoterminal end of active enzyme	**100–150** Region spanning the neo-N-terminus generated upon prodomain removal and activation of human MMP-3, located at the N-terminal edge of the catalytic domain just downstream of the conserved prodomain cleavage site; this region is exposed only in the active enzyme and is not present in the latent zymogen	RP4MMP3	In catalog
Propeptide region	**18–99** Region within the N-terminal propeptide (prodomain) of human MMP-3, which contains the conserved cysteine residue responsible for zinc coordination and maintenance of latency via the cysteine-switch mechanism; this domain is absent from the fully activated mature enzyme	RP5MMP3	In catalog
Native MMP-3	**~20–477** Antibody raised against native, non-denatured human MMP-3 protein encompassing multiple domains of the full-length molecule; the conformational epitope(s) recognised reflect the folded tertiary structure present under physiological conditions	MABMMP3	In catalog
—	**100–477** Immunogen spanning multiple domains of human MMP-3, encompassing regions of the prodomain, catalytic domain, hinge region, and hemopexin-like domain; intended to yield antibodies with broad domain coverage suitable for applications where precise epitope localisation is not required	RP-MMP3	In catalog
Native MMP-3	Full-length recombinant human protein	RHMMP3	In catalog

Applications & Recommended Dilutions

App.	Species	Dilution Range	Notes
WB	Validated-Human Potential-Mouse, Pan, Monkey, Dog, Cat	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-3 (Stromelysin-1, EC 3.4.24.17) is a secreted zinc-dependent endopeptidase belonging to the matrix metalloproteinase (MMP) family, a group of structurally related enzymes collectively responsible for extracellular matrix (ECM) remodeling during development, tissue homeostasis, wound repair, and inflammation. MMP-3 is classified within the stromelysin subgroup and shares the conserved MMP domain architecture: a signal peptide, N-terminal prodomain, catalytic domain bearing the zinc-binding motif HEXXHXXGXXH, a hinge (linker) region, and a C-terminal hemopexin-like domain. Its broad substrate range distinguishes it from the more substrate-restricted collagenases within the same family.

Expression & Localisation

MMP-3 expression is low or absent in most quiescent adult tissues, and is principally induced by pro-inflammatory cytokines (IL-1β, TNF-α), growth factors (EGF, PDGF), and oncoproteins acting on AP-1 and NF-κB regulatory elements in the MMP3 promoter. Expression is documented in synovial fibroblasts, chondrocytes, dermal fibroblasts, keratinocytes, vascular smooth muscle cells, and various epithelial tumour cells. The protein is predominantly secreted into the pericellular space; however, nuclear localisation has been observed in neuronal and infected cells, suggesting context-dependent intracellular trafficking beyond its classical extracellular role.

Activation Mechanism

MMP-3 is synthesised as an inactive 54 kDa zymogen in which the prodomain cysteine coordinates the catalytic zinc ion, maintaining latency via the 'cysteine-switch' mechanism. Extracellular activation proceeds primarily through plasmin-mediated cleavage of the prodomain, generating an intermediate that undergoes autocatalytic processing to yield the fully active ~45 kDa enzyme. Membrane-type MMPs and other serine proteases can also contribute to activation in specific tissue contexts. The

active enzyme retains the catalytic and hemopexin domains and operates optimally at neutral pH in the presence of calcium and zinc cofactors.

Key Substrates & Protease Cascade

MMP-3 cleaves a broad repertoire of ECM proteins including fibronectin, laminin, vitronectin, tenascin, aggrecan, and collagens III, IV, IX, and X. Beyond structural ECM components, MMP-3 processes several non-matrix substrates: it activates pro-MMP-1, pro-MMP-7, pro-MMP-8, and pro-MMP-9, thereby functioning as an upstream regulator of a broader proteolytic cascade. Additional substrates include E-cadherin (promoting epithelial–mesenchymal transition), α-synuclein, and certain growth factor binding proteins. This substrate breadth positions MMP-3 as a pleiotropic effector rather than a dedicated structural matrix-remodelling enzyme.

Inhibitor Profile

Like other MMPs, MMP-3 is regulated endogenously by tissue inhibitors of metalloproteinases (TIMPs), with TIMP-1 and TIMP-2 being the primary physiological inhibitors. TIMP-1 preferentially inhibits the secreted MMPs including MMP-3 by binding non-covalently to the active-site zinc in a 1:1 stoichiometric complex. Alpha-2-macroglobulin provides an additional broad-spectrum inhibitory mechanism in plasma. Synthetic broad-spectrum MMP inhibitors including hydroxamate compounds and the tetracycline derivative doxycycline inhibit MMP-3 activity in experimental settings, though selectivity over other MMPs remains a recognised challenge for pharmacological applications.

Disease Relevance

Dysregulated MMP-3 activity is implicated in a range of pathological conditions. In osteoarthritis and rheumatoid arthritis, MMP-3 contributes to cartilage degradation and synovial inflammation, and serum MMP-3 levels are used clinically as a biomarker of disease activity in rheumatoid arthritis. In oncology, MMP-3-driven ECM remodelling and E-cadherin shedding facilitate tumour invasion and metastasis. MMP-3 is also studied in neurodegeneration, where it has been linked to dopaminergic neuron death through microglial activation and α-synuclein processing. Additionally, nuclear MMP-3 has been reported to modulate antiviral NF-κB-dependent gene expression responses, broadening its recognised biological roles.

Gene & Protein Reference

Gene Symbol	MMP3
HGNC	7175
NCBI Gene ID (Human)	4314
NCBI Gene ID (Mouse)	17392
Ensembl	ENSG00000149968
OMIM	185250
UniProt (Human)	P08254
UniProt (Mouse)	P28862
Protein Family	Matrix metalloproteinase (MMP) family, stromelysin subgroup
Predicted MW	54 kDa (zymogen); ~45 kDa (active form)
Observed MW	~57–60 kDa (zymogen by SDS-PAGE); ~45–48 kDa (active form by SDS-PAGE)

Chromosome	11q22.2
Paralogue	MMP10 (Stromelysin-2), MMP11 (Stromelysin-3)
Key Substrates	Fibronectin, laminin, collagens III/IV/IX/X, aggrecan, E-cadherin, α-synuclein, pro-MMP-1, pro-MMP-7, pro-MMP-8, pro-MMP-9
Activated by	Plasmin (primary extracellular activator); membrane-type MMPs; autocatalytic processing
Inhibited by	TIMP-1 (primary), TIMP-2, alpha-2-macroglobulin, hydroxamate-based synthetic MMP inhibitors, doxycycline

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