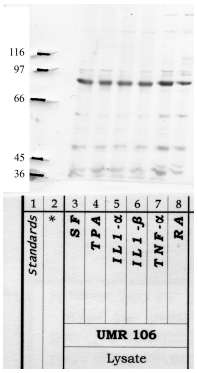
Anti-ADAMTS5 Rabbit Polyclonal Antibody

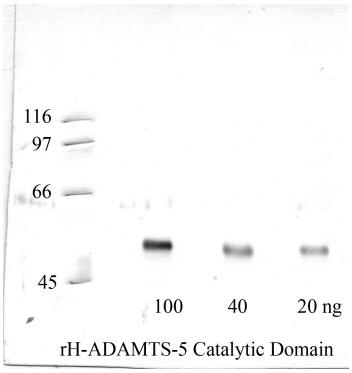
A disintegrin and metalloproteinase with thrombospondin motifs 5, ADAM-TS 5, ADAM-TS5, ADAMTS-5, EC 3.4.24.-, A disintegrin and metalloproteinase with thrombospondin motifs 11, ADAM-TS 11, ADAMTS-11, ADMP-2, Aggrecanase-2,

Gene: ADAMTS5 **UniProt:** Q9UNA0 **Host:** Rabbit **Clonality:** Polyclonal (pAb)

Product Image



Propeptide domain
RP3ADAMTS5



Metalloproteinase domain
RP4ADAMTS5

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

Actual Western blot validation for anti-ADAMTS5 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-ADAMTS5 Rabbit Polyclonal Antibody
Gene Symbol	ADAMTS5
Alternative Names	A disintegrin and metalloproteinase with thrombospondin motifs 5, ADAM-TS 5, ADAM-TS5, ADAMTS-5, EC 3.4.24.-, A disintegrin and metalloproteinase with thrombospondin motifs 11, ADAM-TS 11, ADAMTS-11, ADMP-2, Aggrecanase-2,
UniProt ID	Q9UNA0
Host Species	Rabbit
Clonality	Polyclonal (pAb)
Isotype	IgG
Concentration	1mg/ml
Purity	Affinity purified
Pack Size	100ug
Validated Application	WB, IHC
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-adamts-5-rabbit-polyclonal-antibody

Available Domain-Specific Variants

Triple Point Biologics produces antibodies to defined structural domains of ADAMTS5. 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

Carboxyterminal end	**880–930** Region within the distal C-terminal portion of human ADAMTS-5, encompassing the final thrombospondin type-1 repeat(s) and the spacer/tail region downstream of the cysteine-rich domain, which mediates matrix anchorage and substrate localisation	RP1ADAMTS5	In catalog
Aminoterminal end	**262–312** Region spanning the N-terminal segment of the mature human ADAMTS-5 protein, covering the latter portion of the propeptide and the N-terminal flank of the catalytic metalloproteinase domain, immediately downstream of the signal peptide cleavage site	RP2ADAMTS5	In catalog
Propeptide domain	**17–261** Region within the prodomain of human ADAMTS-5, which maintains zymogen latency via a cysteine-switch mechanism; this segment is removed by furin-like proprotein convertases at a conserved RXXR motif to yield the active enzyme	RP3ADAMTS5	In catalog
Metalloproteinase domain	**267–476** Region within the catalytic metalloproteinase domain of human ADAMTS-5, encompassing the zinc-binding active site (HExxHxxGxxH motif) and the methionine-turn, responsible for Glu-Xaa bond cleavage in aggrecan and related hyalectan substrates	RP4ADAMTS5	In catalog
—	**262–930** Broad-coverage immunogen spanning multiple structural domains of human ADAMTS-5, including elements of the propeptide, catalytic metalloproteinase domain, disintegrin-like domain, thrombospondin type-1 repeats, cysteine-rich domain, and spacer region, suitable for detection of various processed forms of the enzyme	RP-ADAMTS5	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

ADAMTS-5 (aggrecanase-2) is a secreted zinc-dependent metalloproteinase belonging to the ADAMTS (a disintegrin and metalloproteinase with thrombospondin motifs) family. The human enzyme is encoded by a 930-amino acid precursor and shares the characteristic multi-domain architecture common to ADAMTS family members: a signal peptide, propeptide, catalytic metalloproteinase domain, disintegrin-like domain, central thrombospondin type-1 repeat (TSR), cysteine-rich domain, spacer domain, and variable numbers of additional C-terminal TSRs. ADAMTS-5 is classified under EC 3.4.24.- and is the closest paralogue of ADAMTS-4 (aggrecanase-1), together comprising the primary aggrecan-degrading enzymes in vertebrate tissues.

Expression & Localisation

ADAMTS-5 is expressed broadly across connective and musculoskeletal tissues, with particularly high levels detected in skeletal muscle, heart, placenta, and articular cartilage chondrocytes. Expression is also documented in synovial fibroblasts, tendon, intervertebral disc cells, and adipose tissue. Upon secretion, the mature enzyme is tethered to the pericellular and extracellular matrix, primarily through interactions with heparan sulfate proteoglycans and the TSR-containing C-terminal domains, which mediate substrate localisation. Cell surface retention concentrates ADAMTS-5 activity at sites of active ECM remodeling rather than in the bulk extracellular space.

Activation Mechanism

ADAMTS-5 is synthesised as a zymogen with an N-terminal propeptide that maintains latency via a cysteine-switch mechanism, in which a conserved cysteine residue in the propeptide coordinates the active-site zinc ion. Activation requires removal of this propeptide, a step accomplished intracellularly by furin or related proprotein convertases acting on a conserved RXXR motif at the propeptide–catalytic domain junction. Consequently, ADAMTS-5 is largely secreted in an active form, distinguishing it from certain other matrix metalloproteinases that require extracellular activation. Heparan sulfate and cell-surface proteoglycans modulate catalytic efficiency by facilitating substrate presentation to the active site.

Key Substrates & Inhibitor Profile

The primary physiological substrates of ADAMTS-5 are the hyalectan (lectican) chondroitin sulfate proteoglycans: aggrecan (ACAN), versican (VCAN), brevican (BCAN), and neurocan (NCAN). Cleavage occurs preferentially at Glu-Xaa bonds within the aggrecan interglobular domain, generating characteristic neoepitope fragments (ARGSV…) detectable in joint fluid and tissues. ADAMTS-5 is inhibited by TIMP-3 (tissue inhibitor of metalloproteinases-3), which binds tightly to the enzyme's active site; TIMP-1 and TIMP-2 show comparatively weak inhibitory activity toward ADAMTS-5. α2-macroglobulin also acts as a broad-spectrum inhibitor in the extracellular compartment.

Disease Relevance — Osteoarthritis & Cartilage

ADAMTS-5 is recognised as the dominant aggrecanase driving cartilage aggrecan loss in murine osteoarthritis models; genetic deletion of ADAMTS-5 in mice confers significant protection against surgically induced and age-related cartilage erosion. In human osteoarthritis and rheumatoid arthritis, elevated ADAMTS-5 expression and activity correlate with progressive joint destruction and increased aggrecan neoepitope generation in synovial fluid. These observations have established ADAMTS-5 as a validated therapeutic target, with selective small-molecule inhibitors and neutralising antibodies under clinical and preclinical investigation for the treatment of osteoarthritis.

Roles Beyond Cartilage

Outside the joint, ADAMTS-5-mediated versican remodeling is required for skeletal myogenesis: cleavage of the pericellular versican coat facilitates myoblast contact and fusion into multinucleated myotubes during embryonic and regenerative muscle development. ADAMTS-5 also participates in adipose tissue biology, contributing to brown adipose tissue development and thermogenic adipocyte differentiation, and has been implicated in regulating T-lymphocyte egress from draining lymph nodes following viral challenge. These diverse roles underscore the enzyme's importance as a broad ECM remodeling proteinase beyond its canonical aggrecanase function.

Gene & Protein Reference

Gene Symbol	ADAMTS5
HGNC	HGNC:13202
NCBI Gene ID (Human)	11096
NCBI Gene ID (Mouse)	240055
Ensembl	ENSG00000035862
OMIM	605007
UniProt (Human)	Q9UNA0
UniProt (Mouse)	Q9Z1P1
Protein Family	ADAMTS family; aggrecanase subfamily (with ADAMTS-4)
Predicted MW	~102 kDa (primary translation product); ~75 kDa (mature, propeptide-cleaved form)
Observed MW	~100–120 kDa (full-length by SDS-PAGE, depending on glycosylation); lower-MW processed forms also observed
Chromosome	21q21.3
Paralogue	ADAMTS4 (aggrecanase-1; closest paralogue)
Key Substrates	Aggrecan (ACAN), versican (VCAN), brevican (BCAN), neurocan (NCAN); cleavage at Glu-Xaa bonds in the interglobular/inter-domain regions
Activated by	Furin and related proprotein convertases (intracellular propeptide removal via RXXR motif); heparan sulfate proteoglycans enhance substrate presentation

Inhibited by	TIMP-3 (primary physiological inhibitor); α2-macroglobulin; weak inhibition by TIMP-1 and TIMP-2

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.