Anti-PRTN3 Rabbit Polyclonal Antibody

Myeloblastin EC 3.4.21.76, AGP7, C-ANCA antigen, Leukocyte proteinase 3, PR-3, PR3, Neutrophil proteinase 4, NP-4, P29, Wegener autoantigen,

Gene: PRTN3 **UniProt:** P24158 **Host:** Rabbit **Clonality:** Polyclonal (pAb)

Product Image

Image placeholder — Western Blot

— Western Blot

Suggested image: Western blot of relevant cell or tissue lysates under reducing conditions, probed with the domain-specific antibody. Include a positive-control lane and empty-vector or knockout negative control. Loading: 10–20 µg/lane on 7.5–10% SDS-PAGE.

Key Product Facts

Supplier	Triple Point Biologics, Inc. (Sudbury, Ontario, Canada)
Product Name	Anti-PRTN3 Rabbit Polyclonal Antibody
Gene Symbol	PRTN3
Alternative Names	Myeloblastin EC 3.4.21.76, AGP7, C-ANCA antigen, Leukocyte proteinase 3, PR-3, PR3, Neutrophil proteinase 4, NP-4, P29, Wegener autoantigen,
UniProt ID	P24158
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-
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-proteinase-3-rabbit-polyclonal-antibody

Available Domain-Specific Variants

Triple Point Biologics produces antibodies to defined structural domains of PRTN3. 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

Aminoterminal end	**28–78** Region spanning the aminoterminal segment of the mature PRTN3 protein, immediately downstream of the processed dipeptide propeptide, preceding the first beta-barrel domain of the chymotrypsin fold; this region contributes to substrate access and surface membrane association	RP1Proteinase 3	In catalog
Â Catalytic Domain	**28–248** Region within the N-terminal beta-barrel lobe of the catalytic domain of mature PRTN3, encompassing structural elements that form part of the substrate-binding cleft and include the histidine residue of the Ser-His-Asp catalytic triad	RP2Proteinase 3	In catalog
Catalytic Domain	**28–248** Region within the C-terminal beta-barrel lobe of the PRTN3 catalytic domain, encompassing secondary structural elements that complete the active-site architecture, including the serine nucleophile and aspartate residues of the catalytic triad	RP3Proteinase 3	In catalog
Carboxyterminal end	**198–248** Region spanning the carboxyterminal tail of mature PRTN3, downstream of the C-terminal beta-barrel, forming the distal structural boundary of the protease fold and implicated in surface membrane association and CD177 interaction	RP5Proteinase 3	In catalog
—	**28–248** Broad-coverage region encompassing the full-length mature PRTN3 protein, including the aminoterminal segment, both lobes of the chymotrypsin-like catalytic domain, and the carboxyterminal tail; suitable for general detection of total PRTN3 across multiple sample types	RP-Proteinase 3	In catalog
Catalytic Domain	Catalytic Domain	RP4Proteinase 3	In catalog

Applications & Recommended Dilutions

App.	Species	Dilution Range	Notes
WB	Validated-Human Potential-	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

Protein Family & General Biology

Proteinase-3 (PRTN3; EC 3.4.21.76; UniProt P24158) is a 256-residue serine protease belonging to the neutrophil serine protease (NSP) family, which also includes neutrophil elastase (ELANE), cathepsin G (CTSG), and NSP4. Like its paralogues, PRTN3 adopts the chymotrypsin-fold and utilises a canonical Ser-His-Asp catalytic triad. It is synthesised as a precursor with a two-residue propeptide that is removed co-translationally, yielding a mature enzyme with a molecular mass of approximately 29 kDa. PRTN3 carries N-linked glycosylation and is among the most abundant proteases packaged into neutrophil azurophil granules.

Expression & Localisation

PRTN3 expression is essentially restricted to the myeloid lineage, with highest levels in neutrophil precursors (promyelocytes) in the bone marrow, where biosynthesis occurs and the enzyme is packaged into azurophil (primary) granules. Mature peripheral neutrophils contain pre-formed PRTN3 and do not appreciably synthesise additional protein after differentiation. A fraction of PRTN3 traffics to the cell surface, where it associates with the GPI-anchored glycoprotein CD177 (NB1) and, independently, with the FcγRIIIb receptor. This membrane-bound pool is distinct from the granule-sequestered pool and is directly accessible to plasma inhibitors and autoantibodies.

Activation Mechanism & Regulation

Unlike neutrophil elastase and cathepsin G, which are activated solely by dipeptidyl peptidase I (DPPI/cathepsin C), PRTN3 undergoes additional processing by DPPI that removes the N-terminal dipeptide to generate the fully active enzyme. Catalytic activity is pH-optimal near neutral, consistent with activity in the pericellular space and within phagolysosomes following degranulation. PRTN3 is inhibited by the serine protease inhibitors α1-antitrypsin (SERPINA1) and α1-antichymotrypsin (SERPINA3), as well as by elafin (WAP domain; PI3) and secretory leukocyte protease inhibitor (SLPI). The balance between PRTN3 activity and these inhibitors is a key determinant of net proteolytic burden at sites of neutrophil activation.

Key Substrates & Signalling Functions

PRTN3 degrades a broad range of extracellular matrix proteins, including elastin, fibronectin, laminin, vitronectin, and collagens I, III, and IV, contributing to tissue remodelling during neutrophil-mediated inflammation. Beyond matrix proteolysis, PRTN3 cleaves and activates protease-activated receptor-2 (PAR-2; F2RL1) on endothelial cells, stabilising barrier function during neutrophil transendothelial migration. It also processes pro-IL-1β, pro-TNF, and pro-IL-18 into bioactive forms, positioning PRTN3 as a direct modulator of cytokine maturation and inflammatory amplification at sites of neutrophil infiltration.

Disease Relevance & Autoimmune Pathology

PRTN3 is the principal autoantigen targeted by cytoplasmic anti-neutrophil cytoplasmic antibodies (c-ANCA) in granulomatosis with polyangiitis (GPA, formerly Wegener granulomatosis). Anti-PRTN3 (anti-PR3) IgG binds surface-expressed enzyme on primed neutrophils, triggering respiratory burst and degranulation, which are proposed to drive the vasculitic lesions characteristic of GPA. Serological detection of anti-PR3 c-ANCA is used diagnostically, and titres correlate broadly with disease activity. Beyond GPA, elevated PRTN3 activity has been associated with emphysema, cystic fibrosis lung disease, and inflammatory bowel disease, reflecting its capacity to sustain tissue-destructive proteolysis when inhibitor capacity is overwhelmed.

Research Utility

Antibodies against PRTN3 are used to quantify total and surface-expressed antigen in neutrophils by Western blot, flow cytometry, immunohistochemistry, and immunofluorescence. Distinguishing the granule-sequestered pool from the membrane-associated pool requires careful sample preparation; reducing SDS-PAGE conditions reveal the ~29 kDa mature band, while non-reducing conditions may show disulfide-linked species. Researchers studying GPA, neutrophil biology, or ECM remodelling routinely use PRTN3 immunodetection in peripheral blood neutrophils, bone marrow biopsies, and paraffin-embedded tissue sections from inflamed vessels and lung.

Gene & Protein Reference

Gene Symbol	PRTN3
HGNC	9495
NCBI Gene ID (Human)	5657
NCBI Gene ID (Mouse)	19152
Ensembl	ENSG00000196415
OMIM	177020
UniProt (Human)	P24158
UniProt (Mouse)	P49183
Protein Family	Neutrophil serine protease (NSP) family; clan PA, family S1 (chymotrypsin-like serine proteases)
Predicted MW	~28.8 kDa (mature, unglycosylated)
Observed MW	~29–32 kDa (variable with glycosylation)
Chromosome	19p13.3
Paralogue	Neutrophil elastase (ELANE), Cathepsin G (CTSG), NSP4 (PRSS57)
Key Substrates	Elastin, fibronectin, laminin, vitronectin, collagen types I/III/IV, PAR-2 (F2RL1), pro-IL-1β, pro-TNF, pro-IL-18
Activated by	Dipeptidyl peptidase I (DPPI; cathepsin C) — removes N-terminal dipeptide propeptide
Inhibited by	α1-antitrypsin (SERPINA1), α1-antichymotrypsin (SERPINA3), elafin (PI3/WFDC14), SLPI

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.