

Anti-SERPINA5 Rabbit Polyclonal Antibody

Plasma serine protease inhibitor Acrosomal serine protease inhibitor, Plasminogen activator inhibitor 3, PAI-3, PAI3, Protein C inhibitor, PCI, Serpin A5,

Gene: SERPINA5 **UniProt:** P05154 **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-SERPINA5 Rabbit Polyclonal Antibody
Gene Symbol	SERPINA5
Alternative Names	Plasma serine protease inhibitor Acrosomal serine protease inhibitor, Plasminogen activator inhibitor 3, PAI-3, PAI3, Protein C inhibitor, PCI, Serpin A5,
UniProt ID	P05154
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-Monkey
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-serpin-a5-rabbit-polyclonal-antibody

Available Domain-Specific Variants

Triple Point Biologics produces antibodies to defined structural domains of SERPINA5. 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
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Amino end mature Serpin-A5	26–76 Region spanning the amino-terminal segment of the mature secreted Serpin-A5 protein, encompassing the N-terminal portion upstream of helix A and the first elements of the three-stranded β -sheet C, a structurally solvent-exposed area that precedes the core serpin scaffold	RP1SerpinA5	In catalog
Helix 4 to Helix 5	~185–250 Region spanning the segment between the fourth and fifth major α -helices (helices D and E in canonical serpin nomenclature) of Serpin-A5, located on the surface of the central serpin body between the s3A strand region and the gate region that flanks the reactive-centre loop	RP2SerpinA5	In catalog
Second heparin binding site	~260–310 Region encompassing the second of the two characterised heparin-binding clusters of Serpin-A5, composed of a surface-exposed basic residue patch located in the vicinity of helix F and strand 3 of β -sheet A, distal to the primary heparin-binding site near the reactive-centre loop	RP3SerpinA5	In catalog
—	26–406 Broad-coverage region spanning the full-length mature Serpin-A5 protein, including all three β -sheets, nine α -helices, both heparin-binding sites, and the reactive-centre loop; suitable for detection of multiple epitopes across the native and denatured protein	RP-SerpinA5	In catalog

Applications & Recommended Dilutions

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

Serpin Superfamily & General Biology

SERPINA5 encodes Serpin-A5, also designated protein C inhibitor (PCI) or plasminogen activator inhibitor-3 (PAI-3), a 406-amino acid secreted glycoprotein of the serpin superfamily. Like all canonical serpins, it adopts a metastable tertiary fold comprising three β -sheets, nine α -helices, and an exposed reactive-centre loop (RCL) that serves as a pseudosubstrate for target serine proteases. The RCL is cleaved by the cognate protease, triggering an irreversible conformational rearrangement that traps the enzyme in a covalent acyl-intermediate and permanently inactivates it. Serpin-A5 is notable within the clade A serpins for its unusually broad protease substrate range.

Expression & Localisation

Serpin-A5 is synthesised and secreted by hepatocytes, renal tubular epithelial cells, and epithelial cells of the male reproductive tract, including the epididymis and seminal vesicles. It circulates in blood plasma at approximately 5 $\mu\text{g/mL}$ and is present at high concentrations in seminal plasma, where it is among the most abundant serine protease inhibitors. Serpin-A5 is also detected in urine and cerebrospinal fluid. Within cells, a proportion of newly synthesised Serpin-A5 is retained in the endoplasmic reticulum and Golgi before secretion, and intracellular pools have been described in acrosomal compartments of spermatozoa.

Heparin Dependence & Activation Mechanism

Serpin-A5 inhibitory activity is strongly potentiated by heparin and related glycosaminoglycans through an allosteric mechanism. Heparin binding induces conformational changes in the serpin that accelerate RCL presentation and productive protease engagement, increasing inhibition rate constants by one to two orders of magnitude for several substrates. The protein contains at least two distinct heparin-binding sites composed of basic residue clusters; these sites also interact with other polyanionic ligands including heparan sulphate and retinoic acid, which can modulate inhibitory specificity. Retinoic acid binding to Serpin-A5 has been proposed to alter its selectivity toward certain reproductive-tract proteases.

Key Substrates & Dual Haemostatic Roles

Serpin-A5 inhibits an exceptionally broad spectrum of serine proteases. In the coagulation system, principal substrates include activated protein C (APC), thrombin, factor Xa, factor XIa, and plasma kallikrein. Inhibition of APC is procoagulant, whereas inhibition of thrombin and factor Xa opposes clot formation, giving Serpin-A5 a dual and context-dependent haemostatic function. In the fibrinolytic system, Serpin-A5 inhibits both tissue-type and urokinase-type plasminogen activators (tPA and uPA). Additional substrates include the sperm acrosomal protease acrosin, and membrane-anchored serine proteases TMPRSS7 and TMPRSS11E, extending its functional reach to cell-surface proteolytic events.

Reproductive Physiology

In the male reproductive tract, Serpin-A5 is a primary regulator of extracellular proteolysis during fertilisation. It is secreted at high levels into seminal plasma, where it inhibits acrosin and controls semenogelin degradation by kallikrein-related peptidases, thereby modulating sperm motility and capacitation. In the female reproductive tract, Serpin-A5 is expressed in the endometrium and has been implicated in embryo implantation and trophoblast invasion. Collectively, these observations indicate that Serpin-A5 functions as a gatekeeper of protease activity at multiple stages of human reproduction, beyond its canonical haemostatic role.

Disease Relevance

Altered Serpin-A5 expression or function has been associated with thrombotic disorders, cancer, and male infertility. Elevated plasma Serpin-A5 levels have been reported in thrombotic states, potentially reflecting dysregulated APC inhibition. In oncology, Serpin-A5 expression is reduced in several carcinomas, including renal cell and prostate cancer, consistent with a tumour-suppressive role through inhibition of invasion-promoting serine proteases. In male infertility, deficient seminal Serpin-A5 correlates with impaired sperm function. Its capacity to inhibit membrane serine proteases also positions Serpin-A5 as a modulator of viral entry processes that rely on type II transmembrane serine proteases.

Gene & Protein Reference

Gene Symbol	SERPINA5
HGNC	HGNC:8943
NCBI Gene ID (Human)	5104
NCBI Gene ID (Mouse)	18402
Ensembl	ENSG00000117601
OMIM	601841
UniProt (Human)	P05154
UniProt (Mouse)	Q9D154
Protein Family	Serpin superfamily, Clade A (antitrypsin-like)
Predicted MW	~46 kDa (unglycosylated); ~57 kDa (glycosylated)
Observed MW	~57–60 kDa on SDS-PAGE (glycoprotein)
Chromosome	14q32.13
Paralogue	SERPINA1 (alpha-1-antitrypsin), SERPINA3 (alpha-1-antichymotrypsin)
Key Substrates	Activated protein C (APC), thrombin, factor Xa, factor XIa, plasma kallikrein, tPA, uPA, acrosin, TMPRSS7, TMPRSS11E
Activated by	Heparin and heparan sulphate (allosteric potentiation); retinoic acid (modulates substrate selectivity)
Inhibited by	No endogenous protein inhibitor of Serpin-A5 is well-characterised; activity is modulated by glycosaminoglycan availability and polyanionic ligand occupancy

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.