

Anti-PRSS21 Rabbit Polyclonal Antibody

Testisin EC 3.4.21.-, Eosinophil serine protease 1, ESP-1, Serine protease 21,

Gene: PRSS21 **UniProt:** Q9Y6M0 **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-PRSS21 Rabbit Polyclonal Antibody
Gene Symbol	PRSS21
Alternative Names	Testisin EC 3.4.21.-, Eosinophil serine protease 1, ESP-1, Serine protease 21,
UniProt ID	Q9Y6M0
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-testisin-rabbit-polyclonal-antibody

Available Domain-Specific Variants

Triple Point Biologics produces antibodies to defined structural domains of PRSS21. 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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Propeptide domain	20–41 Region within the short N-terminal propeptide (zymogen activation segment) of human Testisin, immediately downstream of the signal peptide cleavage site and upstream of the mature catalytic domain; this segment is removed during zymogen activation to generate the active protease	RP1Testisin	In catalog
Catalytic Domain, Amino end	42–82 Region spanning the amino-terminal portion of the mature serine protease catalytic domain of human Testisin, encompassing the first beta-barrel sub-domain of the chymotrypsin fold and including the histidine residue of the catalytic triad	RP2Testisin	In catalog
Catalytic domain	42–288 Region spanning the full extent of the trypsin-like serine protease catalytic domain of human Testisin, encompassing both beta-barrel sub-domains of the chymotrypsin fold and all three residues of the canonical His-Asp-Ser catalytic triad	RP3Testisin	In catalog
Carboxyterminal end	238–288 Region at the carboxy-terminal end of human Testisin, downstream of the catalytic domain core and proximal to the GPI-anchor signal sequence; this region is associated with membrane tethering of the mature enzyme to the outer plasma membrane leaflet	RP5Testisin	In catalog
—	42–288 Broad region spanning multiple domains of human Testisin from the propeptide through to the carboxy-terminal GPI-anchor signal, covering the propeptide segment, the full trypsin-like catalytic domain, and the C-terminal membrane-tethering region; suitable for general detection across diverse experimental contexts	RP-Testisin	In catalog
Catalytic domain	Catalytic domain	RP4Testisin	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

Family & General Biology

Testisin (PRSS21) is a member of the S1 trypsin-like serine protease family, characterised by the canonical catalytic triad of His, Asp, and Ser residues within a chymotrypsin-fold peptidase domain. The mature enzyme is encoded by a 314-amino acid precursor that includes a signal peptide, a short propeptide (zymogen) region, and a C-terminal serine protease catalytic domain. Testisin is predicted to be GPI-anchored at the cell surface, placing it in the subset of membrane-tethered serine proteases that act at the pericellular interface to regulate local proteolytic microenvironments.

Expression & Localisation

Expression of PRSS21 is highly enriched in the testis, where the protein is detected predominantly in post-meiotic spermatogenic cells — specifically round and elongating spermatids undergoing spermiogenesis. Lower-level expression has been reported in eosinophils, where the protein was independently designated eosinophil serine protease 1 (ESP-1). At the subcellular level, the GPI anchor tethers Testisin to the outer leaflet of the plasma membrane, concentrating protease activity at the cell surface and in detergent-resistant membrane microdomains. Expression is largely absent in somatic testicular cell populations.

Activation Mechanism

Like other trypsin-family zymogens, Testisin is synthesised as an inactive precursor. Removal of the N-terminal propeptide, most likely through autocatalytic cleavage or via an upstream activating protease, is required to generate the catalytically competent form. The precise *in vivo* activating protease has not been fully defined. Following activation, the mature single-chain enzyme retains its GPI membrane tether, restricting proteolytic activity to the immediate pericellular space during spermatid remodelling. The substrate specificity is predicted to be trypsin-like, favouring cleavage C-terminal to basic residues.

Key Substrates & Inhibitor Profile

The physiological substrate repertoire of Testisin remains incompletely characterised. Given its trypsin-like specificity and membrane localisation, candidate substrates include extracellular matrix components, cell-surface receptors, and other pericellular proteins involved in cell adhesion and remodelling during late spermiogenesis. Recombinant Testisin has been reported to cleave synthetic peptide substrates with a preference for Arg and Lys at the P1 position. Inhibition by serine protease inhibitors such as PMSF and certain serpin-class molecules has been demonstrated biochemically, though a dedicated physiological serpin partner for Testisin has not been established.

Disease Relevance — Testicular Germ Cell Tumours

Beyond normal spermatogenesis, PRSS21 expression has been detected in testicular germ cell tumours (TGCTs), including seminomas and non-seminomatous germ cell tumours, where residual or aberrant expression mirrors the germ cell origin of

these malignancies. Testisin immunoreactivity has been used as a marker in histopathological studies to distinguish germ-cell-derived tumours from other testicular neoplasms. Altered PRSS21 promoter methylation has been reported in some tumour contexts, suggesting epigenetic regulation may contribute to changes in expression during malignant transformation of germ cells.

Role in Male Fertility & Spermiogenesis

Targeted disruption of Prss21 in mouse models results in male subfertility, with spermatozoa displaying morphological and motility defects consistent with impaired spermiogenesis. These phenotypes implicate Testisin in the proteolytic remodelling events required for normal flagellar development and sperm head shaping. The restricted expression window in post-meiotic germ cells, combined with membrane tethering, positions Testisin as a stage-specific pericellular protease coordinating structural transitions in differentiating spermatids — analogous to the roles described for other GPI-anchored or membrane-associated proteases in male germline maturation.

Gene & Protein Reference

Gene Symbol	PRSS21
HGNC	HGNC:9486
NCBI Gene ID (Human)	10942
NCBI Gene ID (Mouse)	26365
Ensembl	ENSG00000197045
OMIM	606233
UniProt (Human)	Q9Y6M0
UniProt (Mouse)	Q9WU45
Protein Family	S1 trypsin-like serine protease family (MEROPS S01)
Predicted MW	~34 kDa (precursor); ~31 kDa (mature, post-propeptide cleavage)
Observed MW	~34–36 kDa by SDS-PAGE (glycosylated form may run higher)
Chromosome	16p13.3
Paralogue	PRSS22 (testis serine protease 2); PRSS54
Key Substrates	Synthetic trypsin-like substrates (Arg/Lys P1 preference); pericellular extracellular matrix components (putative); full physiological substrate repertoire not yet established
Activated by	Propeptide removal, likely autocatalytic or via upstream activating protease (precise in vivo activator not fully defined)
Inhibited by	PMSF and broad-spectrum serine protease inhibitors; specific physiological serpin partner not established

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.