Anti-SERPINA12 Rabbit Polyclonal Antibody

Serpin A12 OL-64, Visceral adipose tissue-derived serine protease inhibitor, Vaspin, Visceral adipose-specific serpin,

Gene: SERPINA12 **UniProt:** Q8IW75 **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-SERPINA12 Rabbit Polyclonal Antibody
Gene Symbol	SERPINA12
Alternative Names	Serpin A12 OL-64, Visceral adipose tissue-derived serine protease inhibitor, Vaspin, Visceral adipose-specific serpin,
UniProt ID	Q8IW75
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-serpin-a12-rabbit-polyclonal-antibody

Available Domain-Specific Variants

Triple Point Biologics produces antibodies to defined structural domains of SERPINA12. 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

Amino end mature Serpin-A12	**21–71** Region spanning the proximal amino-terminal segment of the mature secreted Serpin-A12 protein, immediately downstream of the predicted signal peptide cleavage site and encompassing the first beta-strand and early alpha-helix elements of the serpin scaffold (strand A of beta-sheet A region)	RP1SerpinA12	In catalog
Helix 4 to Helix 5	**~165–220** Region spanning the junction of helix D and helix E (the fourth and fifth major alpha-helices) of the Serpin-A12 core domain, located on the exposed surface of the serpin body distal from the reactive centre loop and within a segment frequently accessible to antibody binding on the native and denatured protein	RP2SerpinA12	In catalog
Helix 7 to Helix 8	**~265–320** Region encompassing helices F and G (the seventh and eighth major alpha-helices) of the Serpin-A12 globular core, positioned in the central helical domain proximal to the breach region that coordinates beta-sheet A opening during the stressed-to-relaxed inhibitory conformational transition	RP3SerpinA12	In catalog
—	**21–414** Broad-coverage immunogen spanning the full-length mature Serpin-A12 protein, encompassing the N-terminal helical segments, the central beta-sheet A/B/C scaffold, the reactive centre loop, and the C-terminal tail; suitable for detection of multiple epitopes across native and denatured forms of the protein	RP-SerpinA12	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 and General Biology

Serpin-A12 (vaspin; OL-64) is a secreted member of the clade A serine protease inhibitor (serpin) superfamily, encoded by the SERPINA12 gene on human chromosome 14q32.13. Like other serpins, Serpin-A12 adopts the characteristic stressed-to-relaxed conformational mechanism of inhibition, using a reactive centre loop (RCL) to act as a pseudosubstrate for target proteases. The mature protein comprises 414 amino acids (UniProt Q8IW75) with a predicted molecular weight of approximately 47 kDa. Unlike classical plasma serpins such as alpha-1-antitrypsin, Serpin-A12 functions primarily as a tissue-derived adipokine rather than a circulating acute-phase protein.

Expression and Localisation

Serpin-A12 was originally identified as a transcript specifically enriched in visceral white adipose tissue of Otsuka Long-Evans Tokushima fatty (OLETF) rats, a model of obesity and type 2 diabetes. In humans, SERPINA12 expression is highest in visceral adipose depots and is substantially lower in subcutaneous fat. Expression has also been detected in skin (keratinocytes), liver, and pancreas at lower levels. Within adipose tissue, Serpin-A12 is secreted into the extracellular milieu and can be measured in serum, where circulating concentrations correlate with adiposity and metabolic status. At the subcellular level, the protein traffics through the classical secretory pathway consistent with its N-terminal signal peptide.

Inhibitory Mechanism and Key Substrates

Serpin-A12 functions as a canonical suicide-substrate inhibitor. Upon cleavage of its reactive centre loop by a target protease, the serpin undergoes a large conformational rearrangement that irreversibly traps the protease in a covalent acyl-enzyme intermediate. The primary established target is kallikrein-related peptidase 7 (KLK7), a chymotryptic serine protease involved in epidermal desquamation and cornified-envelope processing. Inhibition of KLK7 by Serpin-A12 has been demonstrated biochemically, and structural studies have confirmed productive docking of the Serpin-A12 RCL within the KLK7 active site. Additional kallikrein family members, including KLK14, have been proposed as secondary substrates, though inhibitory kinetics for these targets are less well characterised.

Role in Metabolic Regulation

Serpin-A12 expression in visceral adipose tissue is markedly upregulated in obese, insulin-resistant states and is suppressed upon weight loss or improvement of glycaemic control. Exogenous administration of recombinant Serpin-A12 improves glucose tolerance and insulin sensitivity in rodent models, indicating a functional role beyond simple protease inhibition. The molecular mechanism linking KLK7 inhibition to improved insulin action is not fully resolved, but likely involves modulation of insulin receptor signalling cascades or regulation of extracellular matrix components that influence adipocyte insulin responsiveness. Circulating Serpin-A12 levels have been proposed as a biomarker of visceral adiposity and metabolic syndrome severity.

Dermatological and Inflammatory Roles

Independent of its metabolic functions, Serpin-A12 is expressed in skin keratinocytes, where KLK7 activity governs normal desquamation and skin barrier integrity. Dysregulation of the KLK7/Serpin-A12 axis in skin is implicated in inflammatory dermatoses including psoriasis and palmoplantar keratoderma. In psoriatic lesions, altered expression of Serpin-A12 relative to KLK7 activity contributes to aberrant keratinocyte differentiation and barrier disruption. The presence of Serpin-A12 at the interface of metabolic and cutaneous biology illustrates how adipokines can exert pleiotropic effects across tissue

compartments through a shared protease-inhibition mechanism.

Disease Relevance and Research Applications

SERPINA12 has attracted interest as a candidate gene and circulating biomarker in obesity, type 2 diabetes, metabolic syndrome, non-alcoholic fatty liver disease, and polycystic ovary syndrome. Genome-wide association and candidate-gene studies have identified associations between SERPINA12 variants and indices of insulin resistance. In dermatology, Serpin-A12 is studied in the context of Netherton syndrome-like conditions and other serine protease-driven skin disorders. Reliable detection of Serpin-A12 by Western blot, immunohistochemistry, and immunofluorescence in human adipose, liver, and skin tissue sections is therefore central to both mechanistic and translational research programmes focused on metabolic and inflammatory disease.

Gene & Protein Reference

Gene Symbol	SERPINA12
HGNC	HGNC:15595
NCBI Gene ID (Human)	301
NCBI Gene ID (Mouse)	76751
Ensembl	ENSG00000140015
OMIM	614541
UniProt (Human)	Q8IW75
UniProt (Mouse)	Q8K4Z9
Protein Family	Serpin superfamily, clade A (alpha-1-antiproteinase, antitrypsin)
Predicted MW	~47 kDa (414 aa mature form)
Observed MW	~47–50 kDa (SDS-PAGE; slight variation attributed to glycosylation)
Chromosome	14q32.13
Paralogue	SERPINA1 (alpha-1-antitrypsin); SERPINA3 (alpha-1-antichymotrypsin)
Key Substrates	KLK7 (kallikrein-related peptidase 7); KLK14 (proposed)
Activated by	Not applicable (constitutively active serpin; RCL-mediated pseudosubstrate inhibition does not require co-factor activation)
Inhibited by	Not applicable (Serpin-A12 is itself the inhibitor; activity may be neutralised by target-protease excess or serpin-cleaving enzymes)

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.