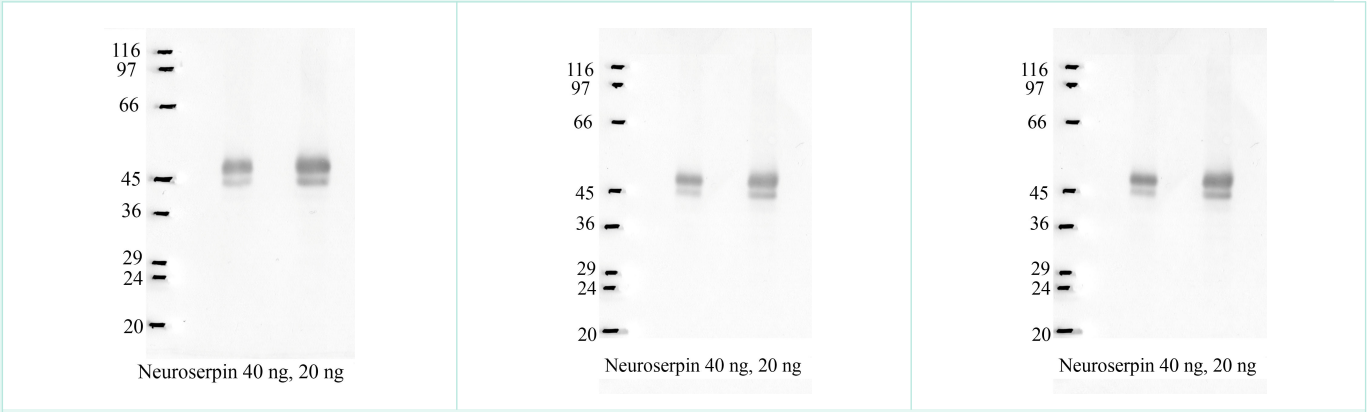
# Anti-SERPINI1 Rabbit Polyclonal Antibody

Neuroserpin Peptidase inhibitor 12, PI-12, Serpin I1,

**Gene:** SERPINI1 **UniProt:** Q99574 **Host:** Rabbit **Clonality:** Polyclonal (pAb)

## Product Image




| **Amino end** | **mid molecule** | **Mid molecule** |
|---|---|---|
| RP1Neuroserpin | RP2Neuroserpin | RP2Neuroserpin |

### — Western Blot (4-panel validation across domain-specific antibody clones)

*Actual Western blot validation for anti-SERPINI1 rabbit polyclonal antibody. 4-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

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| **Supplier** | Triple Point Biologics, Inc. (Sudbury, Ontario, Canada) |
| **Product Name** | Anti-SERPINI1 Rabbit Polyclonal Antibody |
| **Gene Symbol** | SERPINI1 |
| **Alternative Names** | Neuroserpin Peptidase inhibitor 12, PI-12, Serpin I1, |
| **UniProt ID** | Q99574 |
| **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-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-neuroserpin-rabbit-polyclonal-antibody |

## Available Domain-Specific Variants

Triple Point Biologics produces antibodies to defined structural domains of SERPINI1. 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 | **17–67**<br>Region within the N-terminal segment of mature human neuroserpin, spanning the beginning of β-sheet A and the first α-helices (helix A/B), upstream of the central serpin scaffold; this region is distal from the reactive-centre loop and is surface-exposed in the native conformation | RP1Neuroserpin | In catalog |
| mid molecule | **~150–250**<br>Region encompassing the central body of the neuroserpin serpin domain, including portions of β-sheet B and the intervening helices (approximately helices D–F), which form the structural core that undergoes large-scale rearrangement upon RCL insertion during protease trapping | RP2Neuroserpin | In catalog |
| RCL shoulder | **365–405**<br>Region corresponding to the 'shoulder' of the reactive-centre loop of human neuroserpin, encompassing the hinge and breach regions at the junction of the RCL and β-sheet A; this area is critical for the loop-insertion conformational transition and is the site of polymerogenic FENIB-associated mutations such as H338R and G392E | RP3Neuroserpin | In catalog |
| — | **17–410**<br>Broad-coverage immunogen spanning the majority of the mature neuroserpin sequence, incorporating epitopes across the N-terminal region, central serpin scaffold, and RCL shoulder, suitable for detection of both native and denatured forms of the protein across a range of experimental applications | RP-Neuroserpin | 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

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| **Short-term Storage** | +4°C (1–2 weeks) |

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| **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

Neuroserpin (SERPINI1) is a secreted member of the serpin superfamily, classified within clade I. Like other serpins, it adopts the characteristic three-β-sheet, nine-α-helix fold and employs a suicide substrate mechanism to inhibit target serine proteases. The mature protein is 410 amino acids in length and carries an N-terminal signal peptide directing it through the secretory pathway. Neuroserpin is structurally most closely related to plasminogen activator inhibitor-1 (PAI-1, SERPINE1) and protease nexin-1 (SERPINE2), though it displays a distinct tissue distribution and inhibitory profile.

### Expression & Localisation

Expression of SERPINI1 is largely restricted to the nervous system, with highest levels detected in neurons of the cerebral cortex, hippocampus, amygdala, and cerebellum. During embryonic development, neuroserpin is enriched in regions undergoing active axonogenesis and synaptogenesis. In the mature brain it is secreted into the extracellular space and localises along axonal tracts and at synaptic terminals. Low-level expression has been reported in peripheral tissues including heart and testis. The restricted neural expression pattern is consistent with a specialised role in regulating extracellular proteolysis within the central and peripheral nervous systems.

### Inhibitory Mechanism & Substrate Specificity

Neuroserpin acts as a classic serine protease inhibitor via the exposed reactive-centre loop (RCL), which presents a bait sequence recognised by target proteases. Cleavage of the RCL P1–P1′ bond triggers a large conformational change that traps the protease in a covalent acyl-enzyme intermediate, irreversibly inactivating it. The primary physiological targets are tissue-type plasminogen activator (tPA) and, to a lesser extent, urokinase-type plasminogen activator (uPA) and plasmin. Notably, neuroserpin does not inhibit thrombin, distinguishing it functionally from many other clade-I serpins. Inhibitory activity is pH- and redox-sensitive and can be modulated by glycosaminoglycans.

### Physiological Roles in the CNS

By suppressing tPA-mediated plasminogen activation, neuroserpin limits extracellular matrix remodelling and cell-surface receptor cleavage in neural tissue. This places it at the intersection of synaptic plasticity, learning, and memory, processes in which the tPA–plasmin axis is well established as a modulator of long-term potentiation. Neuroserpin also appears to protect neurons from excitotoxic injury: excessive tPA activity potentiates NMDA receptor signalling and promotes neuronal death, and neuroserpin counteracts this effect. Additionally, neuroserpin influences axonal outgrowth and migration, consistent with its developmental expression pattern.

### Disease Relevance — FENIB & Neurodegeneration

Point mutations in SERPINI1 (e.g., S49P, S52R, H338R, G392E) cause familial encephalopathy with neuroserpin inclusion bodies (FENIB), a rare autosomal dominant dementia. These polymerogenic mutations destabilise the metastable native fold and promote loop-sheet polymerisation, leading to accumulation of periodic acid-Schiff-positive inclusion bodies (Collins bodies) within endoplasmic reticulum of cortical neurons. Disease severity correlates with the polymerisation propensity of the mutant. Wild-type neuroserpin levels are also altered in ischaemic stroke and epilepsy models, suggesting broader relevance to acquired neurological disease.

### Regulation & Post-Translational Modification

Neuroserpin carries three consensus N-glycosylation sites; glycosylation influences secretion efficiency and may modulate protease inhibitory kinetics. The protein is sensitive to oxidative inactivation at methionine residues within the RCL, analogous to α1-antitrypsin, providing a potential mechanism by which reactive oxygen species could locally relieve neuroserpin inhibition during neuroinflammation. Proteolytic cleavage of the RCL by non-target proteases converts neuroserpin to the latent or cleaved conformation, abolishing inhibitory activity. SERPINI1 expression is regulated transcriptionally during development and in response to neuronal activity, with putative regulatory elements in the proximal promoter consistent with neural-specific transcription factor binding.

## Gene & Protein Reference

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| **Gene Symbol** | SERPINI1 |
| **HGNC** | HGNC:8955 |
| **NCBI Gene ID (Human)** | 5274 |
| **NCBI Gene ID (Mouse)** | 20701 |
| **Ensembl** | ENSG00000163536 |
| **OMIM** | 602445 |
| **UniProt (Human)** | Q99574 |
| **UniProt (Mouse)** | Q9WU49 |
| **Protein Family** | Serpin superfamily, clade I |
| **Predicted MW** | 46.3 kDa (unglycosylated; signal peptide cleaved) |
| **Observed MW** | 55–60 kDa (apparent, SDS-PAGE; glycosylated form) |
| **Chromosome** | 3q26.1 |
| **Paralogue** | SERPINE1 (PAI-1), SERPINE2 (protease nexin-1) |
| **Key Substrates** | Tissue-type plasminogen activator (tPA/PLAT), urokinase-type plasminogen activator (uPA/PLAU), plasmin (PLG) |
| **Activated by** | No obligate cofactor identified; activity modulated by glycosaminoglycans |
| **Inhibited by** | Oxidation of RCL methionine residues; RCL cleavage by non-target proteases (converts to inactive cleaved/latent form) |

## 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.