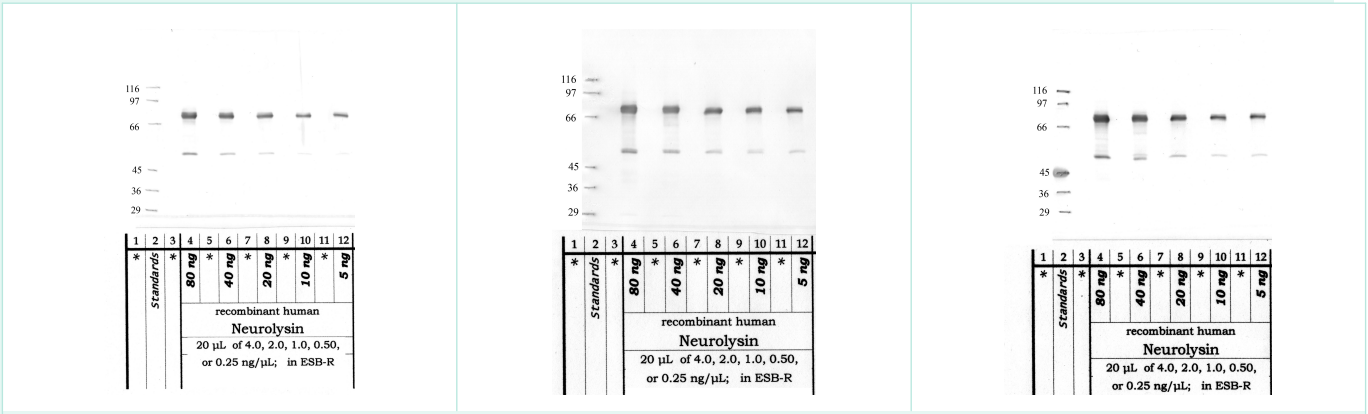
Anti-NLN Rabbit Polyclonal Antibody

Neurolysin, mitochondrial EC 3.4.24.16, Angiotensin-binding protein, Microsomal endopeptidase, MEP, Mitochondrial oligopeptidase M, Neurotensin endopeptidase,

Gene: NLN **UniProt:** Q9BYT8 **Host:** Rabbit **Clonality:** Polyclonal (pAb)

Product Image



Amino end
RP1Neurolysin

Propeptide domain
RP2Neurolysin

C-terminal region
RP3Neurilysin

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

Actual Western blot validation for anti-NLN 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

Supplier	Triple Point Biologics, Inc. (Sudbury, Ontario, Canada)
Product Name	Anti-NLN Rabbit Polyclonal Antibody
Gene Symbol	NLN
Alternative Names	Neurolysin, mitochondrial EC 3.4.24.16, Angiotensin-binding protein, Microsomal endopeptidase, MEP, Mitochondrial oligopeptidase M, Neurotensin endopeptidase,
UniProt ID	Q9BYT8
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, Pig
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-neurolysin-rabbit-polyclonal-antibody

Available Domain-Specific Variants

Triple Point Biologics produces antibodies to defined structural domains of NLN. 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	**38–88** Region spanning the N-terminal segment of the NLN precursor, encompassing the predicted mitochondrial targeting/transit peptide and the immediately downstream sequence prior to the first structured lobe of the enzyme	RP1Neurolysin	In catalog
Propeptide domain	**~100–230** Region within the N-terminal lobe of NLN, upstream of the core catalytic channel, corresponding to the portion of the protein that contributes to the bilobal architecture characteristic of M3-family metallopeptidases	RP2Neurolysin	In catalog
Catalytic domain	**38–704** Region encompassing the catalytic core of NLN, including the HEXXH zinc-coordinating motif (approximately His473 and His477) and the critical third zinc ligand (approximately Glu502), situated within the deep substrate-binding channel between the two structural lobes	RP3Neurolysin	In catalog
Carboxyterminal end	**654–704** Region spanning the C-terminal lobe of NLN, which forms the lower half of the bilobal clamp structure and contributes to the active-site channel walls that enforce substrate size selectivity	RP4Neurolysin	In catalog
—	**38–704** Broad multi-domain region covering the majority of the mature NLN polypeptide from the post-transit-peptide N-terminus through the full C-terminal lobe, suitable for general detection across multiple structural regions of the enzyme	RP-Neurolysin	In catalog
—	—	RP-Neurilysin	In catalog
—	C-terminal region	RP3Neurilysin	In catalog

Applications & Recommended Dilutions

App.	Species	Dilution Range	Notes
WB	Validated-Human Potential-Mouse, Rat, Pan, Monkey, Dog, Pig	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

Neurolysin (NLN, EC 3.4.24.16) is a zinc-dependent metalloendopeptidase belonging to the M3 family of oligopeptidases, which also includes thimet oligopeptidase (TOP, EC 3.4.24.15) and its bacterial homologue pitrilysin. M3 family members share a thermolysin-like catalytic fold and an HEXXH zinc-binding motif, yet their active sites are buried within a deep internal channel that physically restricts substrate access to oligopeptides shorter than approximately 17 residues. This architecture underpins the strict size selectivity of NLN and distinguishes it functionally from broad-spectrum extracellular matrix proteinases.

Expression & Localisation

NLN is broadly expressed across human tissues, with particularly high levels detected in the brain, heart, kidney, liver, and testis. Subcellular fractionation and immunofluorescence studies consistently localise the mature enzyme to the mitochondrial intermembrane space, consistent with its predicted mitochondrial targeting sequence. Cytosolic and microsomal pools have also been reported, accounting for earlier designations such as microsomal endopeptidase (MEP) and angiotensin-binding protein. The 704-amino acid precursor includes an N-terminal mitochondrial transit peptide that is cleaved upon import, yielding the mature active form.

Activation & Catalytic Mechanism

NLN is a monomeric, constitutively active endopeptidase in its mature form; no zymogen-type propeptide activation has been described. The catalytic mechanism involves a single zinc ion coordinated by the HEXXH motif (His473, His477) and a distal glutamate (Glu502), following the canonical M3-family arrangement. Substrate binding induces a conformational closure of two lobes flanking the active-site channel, as resolved in the crystal structure of rat neurolysin. Chloride ions at physiological concentrations modestly stimulate activity, and the enzyme retains full catalytic competence without cofactors beyond zinc.

Key Substrates & Signalling Roles

NLN hydrolyses a range of bioactive oligopeptides. Its best-characterised substrates include neurotensin (cleaved at the Pro10–Tyr11 bond), bradykinin, dynorphin A, and angiotensin I/II peptides, placing NLN at the intersection of neuropeptide, pain, and vasoactive peptide metabolism. NLN also degrades hemopressin, an endocannabinoid-like nonapeptide derived from the α-chain of haemoglobin that acts as an inverse agonist of the cannabinoid receptor CB1 (CNR1). Through hemopressin catabolism, mitochondrial NLN activity can indirectly modulate cannabinoid receptor tone and associated downstream signalling cascades.

Inhibitor Profile

NLN is selectively inhibited by the phosphinic peptide inhibitor Pro-Ile-phosphonate (compound JMV-390) and by the thiol inhibitor thiorphan, both of which coordinate the active-site zinc. The synthetic inhibitor RXPA380 and related phosphinic

pseudopeptides have been used to dissect the relative contributions of NLN versus TOP in tissue preparations. Tissue inhibitors of metalloproteinases (TIMPs) do not inhibit M3-family enzymes; NLN inhibition is therefore not captured in standard TIMP-based profiling experiments. No endogenous protein inhibitor analogous to the TIMP/RECK class has been described for NLN.

Disease Relevance

Dysregulated NLN expression has been documented in multiple disease contexts. In the central nervous system, altered neurolysin activity has been associated with impaired neuropeptide clearance relevant to pain and neuroendocrine disorders. Elevated NLN expression has been reported in certain carcinomas, with functional studies in lung cancer models linking NLN to regulation of N6-methyladenosine (m6A) RNA methylation and ferroptosis susceptibility. In cardiovascular research, NLN's capacity to process angiotensin peptides positions it as a modifier of the renin–angiotensin system. Collectively, these observations make NLN a target of interest across oncology, neuroscience, and cardiovascular research programmes.

Gene & Protein Reference

Gene Symbol	NLN
HGNC	HGNC:17043
NCBI Gene ID (Human)	57486
NCBI Gene ID (Mouse)	67490
Ensembl	ENSG00000123415
OMIM	609362
UniProt (Human)	Q9BYT8
UniProt (Mouse)	Q9WUL7
Protein Family	Peptidase M3 family (zinc metalloendopeptidase; HEXXH motif)
Predicted MW	~78 kDa (mature form, after mitochondrial transit peptide cleavage)
Observed MW	~78–82 kDa by SDS-PAGE
Chromosome	5q15
Paralogue	Thimet oligopeptidase (THOP1, EC 3.4.24.15)
Key Substrates	Neurotensin, bradykinin, dynorphin A, angiotensin I/II, hemopressin
Activated by	No zymogen activation described; constitutively active in mature form; modestly stimulated by physiological chloride concentrations
Inhibited by	Pro-Ile phosphinic peptides (e.g. JMV-390), thiorphan, RXPA380; not inhibited by TIMPs

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.