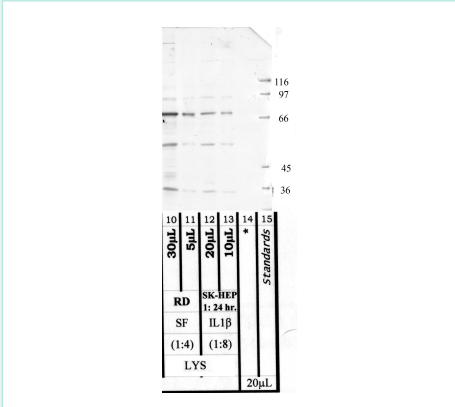


Anti-PREP Rabbit Polyclonal Antibody

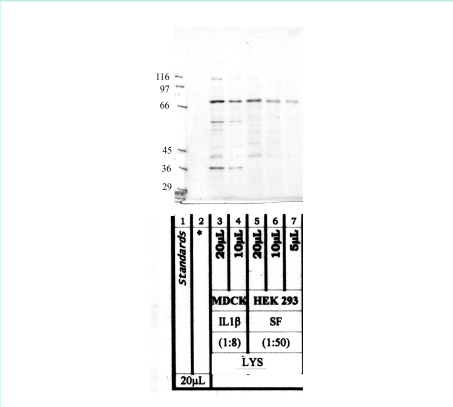
Prolyl endopeptidase PE, EC 3.4.21.26, Post-proline cleaving enzyme,

Gene: PREP UniProt: P48147 Host: Rabbit Clonality: Polyclonal (pAb)

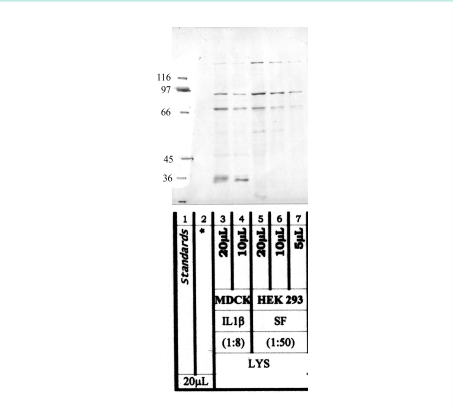
Product Image



Aminoterminal end
RP1Prolyl Oligopeptidase



B-Propeller Domain
RP2Prolyl Oligopeptidase



Hinge region
RP3Prolyl Oligopeptidase

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

Actual Western blot validation for anti-PREP 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-PREP Rabbit Polyclonal Antibody
Gene Symbol	PREP
Alternative Names	Prolyl endopeptidase PE, EC 3.4.21.26, Post-proline cleaving enzyme,
UniProt ID	P48147
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-prolyl-oligopeptidase-rabbit-polyclonal-antibody

Available Domain-Specific Variants

Triple Point Biologics produces antibodies to defined structural domains of PREP. 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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Aminoterminal end	1–51 Region within the extreme N-terminal segment of human PREP, preceding the first blade of the seven-bladed β -propeller domain; this region is distal from the catalytic triad and constitutes a structurally accessible portion of the propeller domain entry	RP1Prolyl Oligopeptidase	In catalog
Â B-Propeller Domain	~100–390 Region within the central portion of the N-terminal seven-bladed β -propeller domain of human PREP, the molecular sieve that controls substrate access to the buried active site and is structurally distinct from the C-terminal hydrolase fold	RP2Prolyl Oligopeptidase	In catalog
Â Hinge region	~390–430 Region spanning the interdomain hinge of human PREP, at the interface between the C-terminal edge of the β -propeller domain and the beginning of the α/β -hydrolase catalytic domain, a flexible segment implicated in domain opening and substrate entry	RP3Prolyl Oligopeptidase	In catalog
Â Catalytic domain	1–710 Region within the C-terminal α/β -hydrolase catalytic domain of human PREP, which houses the Ser554–Asp641–His680 catalytic triad responsible for prolyl-specific endopeptidase activity; this domain adopts the canonical serine hydrolase fold	RP4Prolyl Oligopeptidase	In catalog
—	1–710 Broad epitope coverage spanning multiple domains of human PREP, including both the N-terminal β -propeller and the C-terminal α/β -hydrolase catalytic domain; suitable for detection of total PREP protein across a range of tissue and cell lysate contexts	RP-Prolyl Oligopeptidase	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

Prolyl endopeptidase (PREP, EC 3.4.21.26; also termed prolyl oligopeptidase or post-proline cleaving enzyme) is a cytoplasmic serine protease belonging to the prolyl oligopeptidase (POP) family within clan SC of the serine hydrolase superfamily. The 710-amino acid human enzyme (UniProt P48147, ~80 kDa) cleaves peptide bonds on the C-terminal side of internal prolyl residues. Its defining structural feature—a seven-bladed β -propeller domain that gates the active site—restricts substrate entry to peptides shorter than approximately 30 amino acids, distinguishing PREP from the broad-spectrum proteinases of other serine protease families.

Structure & Catalytic Mechanism

PREP adopts a two-domain architecture: an N-terminal seven-bladed β -propeller domain (approximately residues 1–400) that acts as a molecular sieve, and a C-terminal α/β -hydrolase catalytic domain (approximately residues 401–710) housing the Ser554–His680–Asp641 catalytic triad. Substrate access to the active site requires relative movement of the two domains, and the propeller effectively excludes intact proteins and longer polypeptides. This gating mechanism confers selectivity for short proline-rich peptides and positions PREP as a regulator of bioactive peptide pools rather than a general protease.

Expression & Subcellular Localisation

PREP is widely expressed across mammalian tissues, with particularly high levels in brain, kidney, liver, and lymphoid tissue. Within the central nervous system, expression is prominent in neuronal populations of the cortex, hippocampus, and cerebellum. The enzyme is predominantly cytoplasmic, though evidence also supports nuclear and perinuclear localisation in certain cell types. PREP expression is developmentally regulated and has been detected in serum and cerebrospinal fluid, suggesting possible extracellular functions. Tissue-level expression data from large-scale transcriptomic and proteomic atlases consistently identify PREP as a ubiquitously expressed but differentially abundant enzyme.

Key Substrates & Inhibitor Profile

PREP processes a range of proline-containing bioactive peptides, including substance P, thyrotropin-releasing hormone (TRH), vasopressin, oxytocin, bradykinin, and neurotensin. Hydrolysis of these neuropeptides links PREP activity to peptide-mediated signalling in the neuroendocrine and nervous systems. The enzyme is competitively inhibited by Z-Pro-prolinal and the phosphonic acid derivative S-17092, both widely used experimental tool compounds. Valproic acid and related fatty acids have been reported to modulate PREP indirectly. No endogenous protein inhibitor analogous to the TIMPs of the MMP family has been characterised for PREP.

Disease Relevance & Neurological Associations

Altered PREP activity has been documented in the brains of patients with neurodegenerative disorders including Alzheimer's disease, Parkinson's disease, and schizophrenia, where changes in neuropeptide metabolism are thought to contribute to pathology. PREP has been shown to interact with and accelerate the aggregation of alpha-synuclein, a key protein in Parkinson's disease pathology, providing a mechanistic rationale for therapeutic interest in PREP inhibition. Reduced PREP

activity is also observed in depression and following electroconvulsive treatment, suggesting a role in mood regulation. These associations have driven sustained interest in PREP as a drug target in neuropsychiatric research.

Additional Cellular Functions

Beyond neuropeptide catabolism, PREP has been implicated in inositol 1,4,5-trisphosphate (IP3) signalling through cleavage of inositol polyphosphate 1-phosphatase and modulation of the PI cycle—an effect proposed to underlie the action of mood-stabilising drugs. PREP also interacts with glyceraldehyde-3-phosphate dehydrogenase (GAPDH) and has been identified as a component of a non-proteolytic protein complex involved in microtubule dynamics and cell proliferation. These non-canonical roles indicate that PREP participates in cellular processes extending well beyond its primary peptidase activity.

Gene & Protein Reference

Gene Symbol	PREP
HGNC	HGNC:9350
NCBI Gene ID (Human)	5550
NCBI Gene ID (Mouse)	56193
Ensembl	ENSG00000197217
OMIM	600400
UniProt (Human)	P48147
UniProt (Mouse)	Q9Z2A0
Protein Family	Prolyl oligopeptidase (POP) family, clan SC serine hydrolases
Predicted MW	~80.7 kDa (710 aa, human)
Observed MW	~80–85 kDa (Western blot, consistent with predicted)
Chromosome	6q22.1 (human)
Paralogue	Fibroblast activation protein (FAP/seprase; PREP family member with dipeptidyl peptidase IV activity)
Key Substrates	Substance P, thyrotropin-releasing hormone (TRH), vasopressin, oxytocin, bradykinin, neurotensin, alpha-synuclein-associated peptides
Activated by	No obligate co-factor identified; activity enhanced by reducing conditions (free thiol groups); domain opening required for substrate access
Inhibited by	Z-Pro-prolinal (competitive, covalent); S-17092 (phosphonic acid inhibitor); KYP-2047; valproic acid (indirect modulation)

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.