Anti-CPZ Rabbit Polyclonal Antibody

Carboxypeptidase Z, CPZ, EC 3.4.17.-,

Gene: CPZ **UniProt:** Q66K79 **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-CPZ Rabbit Polyclonal Antibody
Gene Symbol	CPZ
Alternative Names	Carboxypeptidase Z, CPZ, EC 3.4.17.-,
UniProt ID	Q66K79
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-carboxypeptidase-z-rabbit-polyclonal-antibody

Available Domain-Specific Variants

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

Frizzled domain	**27–160** Region within the N-terminal Frizzled-like cysteine-rich domain (CRD) of human CPZ, which shares structural homology with the Wnt-binding CRDs of Frizzled receptors and is defined by ten conserved cysteine residues forming a compact disulfide-bonded fold; this domain precedes the central metallocarboxypeptidase catalytic domain	RP1CarboxypeptidaseZ	In catalog
Metalloproteinase domain	**186–502** Region spanning the central zinc-dependent metallocarboxypeptidase catalytic domain of human CPZ, which harbors the conserved zinc-binding motif (HXXE…H), the substrate-binding pocket with preference for C-terminal basic residues, and the α/β hydrolase-like fold characteristic of M14 family metallocarboxypeptidases	RP2CarboxypeptidaseZ	In catalog
carboxyterminal end	**602–652** Region encompassing the C-terminal extension of human CPZ, downstream of the metallocarboxypeptidase catalytic domain; this region is less conserved among M14B paralogs and may contribute to protein–protein interactions or pericellular substrate docking	RP3CarboxypeptidaseZ	In catalog
—	**19–652** Broad multi-domain region of human CPZ encompassing elements of the N-terminal Frizzled-like CRD, the central metallocarboxypeptidase catalytic domain, and the C-terminal extension, providing reactivity across the full-length secreted protein	RP-CarboxypeptidaseZ	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 & General Biology

Carboxypeptidase Z (CPZ; EC 3.4.17.-) is a secreted zinc-dependent metallocarboxypeptidase belonging to the M14 family, subfamily B. It shares the canonical zinc-binding active site motif (HXXE…H) and fold of other M14B members such as carboxypeptidase E (CPE) and carboxypeptidase D (CPD), but is distinguished by the presence of an N-terminal Frizzled-like cysteine-rich domain (CRD). This unusual domain architecture places CPZ at the intersection of proteolytic processing and cell-signaling modulation, a combination not found in other members of the M14 family.

Domain Architecture

The mature CPZ protein (~652 residues) is organized into three principal regions: an N-terminal Frizzled-like CRD (~residues 1–100), a central metallocarboxypeptidase catalytic domain (~residues 130–450), and a C-terminal extension. The Frizzled CRD contains ten conserved cysteine residues that form a defined disulfide-bonded fold characteristic of Frizzled-family Wnt-binding domains. The catalytic domain coordinates a zinc ion essential for peptidase activity and adopts the α/β hydrolase-like fold conserved across M14 metallocarboxypeptidases. The C-terminal region is less conserved and may contribute to substrate docking or protein–protein interactions.

Expression & Localisation

CPZ is expressed predominantly during embryonic development, with particularly high transcript levels in the developing central nervous system, limb buds, and craniofacial mesenchyme. In adult tissues, expression is more restricted but detectable in brain, kidney, and reproductive organs. CPZ carries a signal peptide directing it to the secretory pathway; the mature enzyme is released into the extracellular space and may associate with cell-surface heparan sulfate proteoglycans, positioning it to act on pericellular substrates. Subcellular fractionation and immunolocalization studies are consistent with a predominantly extracellular or pericellular localization.

Substrate Specificity & Catalytic Mechanism

Like other M14B carboxypeptidases, CPZ cleaves single amino acid residues from the C-terminus of peptide substrates, with marked preference for basic residues—arginine in particular—over lysine or neutral residues. The zinc ion in the active site activates a water molecule for nucleophilic attack on the scissile peptide bond. Substrates relevant to CPZ activity include prohormones and neuropeptides whose processing requires removal of C-terminal Arg or Lys residues, a class of reactions shared with CPE and CPD, albeit with potentially distinct spatial and temporal specificity dictated by expression patterns and the Frizzled CRD.

Wnt Pathway Interaction

The Frizzled-like CRD of CPZ is structurally homologous to the Wnt-binding domain of canonical Frizzled receptors. This domain enables CPZ to interact with Wnt ligands in the extracellular space, suggesting a modulatory role in Wnt signaling. CPZ has been proposed to act as a secreted Wnt-binding protein that can either sequester Wnt ligands or facilitate their presentation to cell-surface receptors. This dual functionality—proteolytic processing combined with Wnt pathway modulation—implies a role in coordinating morphogenetic signaling with peptide maturation during development.

Disease Relevance

Altered CPZ expression has been documented in the context of developmental abnormalities and certain cancers. As a modulator of Wnt signaling, dysregulation of CPZ could contribute to pathological Wnt pathway activation observed in colorectal, hepatocellular, and other cancers. The enzyme's role in prohormone processing also links it to endocrine and neuroendocrine contexts. CPZ maps to chromosomal region 4p16.1, a locus associated with various developmental disorders, though direct causal associations between CPZ mutations and specific human diseases remain under investigation.

Gene & Protein Reference

Gene Symbol	CPZ
HGNC	HGNC:2313
NCBI Gene ID (Human)	27132
NCBI Gene ID (Mouse)	93558
Ensembl	ENSG00000112299
OMIM	603105
UniProt (Human)	Q66K79
UniProt (Mouse)	Q9Z1P8
Protein Family	Peptidase M14 family, subfamily B (metallocarboxypeptidase)
Predicted MW	~72 kDa (unprocessed); ~70 kDa (signal-peptide cleaved)
Observed MW	~70–75 kDa (Western blot, glycosylation-dependent)
Chromosome	4p16.1
Paralogue	Carboxypeptidase E (CPE), Carboxypeptidase D (CPD)
Key Substrates	Peptides and prohormones with C-terminal basic residues (Arg > Lys); putative Wnt ligand interactor
Activated by	Zinc ion cofactor required for catalytic activity; secretory pathway processing
Inhibited by	Zinc chelators (e.g., EDTA, 1,10-phenanthroline); general metallocarboxypeptidase inhibitors such as DL-2-mercaptomethyl-3-guanidinoethylthiopropanoic acid (MGTA) and potato carboxypeptidase inhibitor (PCI)

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.