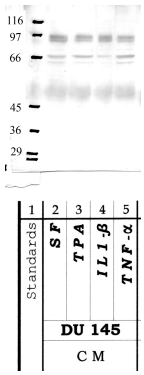
Anti-PCKS4 Rabbit Polyclonal Antibody

Proprotein convertase subtilisin/kexin type 4 EC 3.4.21.-, Proprotein convertase 4, PC4,

Gene: PCKS4 **UniProt:** Q6UW60 **Host:** Rabbit **Clonality:** Polyclonal (pAb)

Product Image



P-Domain
RP2PC4

— Western Blot (1-panel validation)

Actual Western blot validation for anti-PCKS4 rabbit polyclonal antibody. 1-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-PCKS4 Rabbit Polyclonal Antibody
Gene Symbol	PCKS4
Alternative Names	Proprotein convertase subtilisin/kexin type 4 EC 3.4.21.-, Proprotein convertase 4, PC4,
UniProt ID	Q6UW60
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, Pan, Monkey
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-pc-4-rabbit-polyclonal-antibody

Available Domain-Specific Variants

Triple Point Biologics produces antibodies to defined structural domains of PCKS4. 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 protein	**114–164** Region spanning the N-terminal portion of the mature PCSK4 catalytic domain, immediately downstream of the prodomain cleavage site (~residue 107) and upstream of the central subtilisin-fold core; this segment is exposed upon prodomain removal and is specific to the processed, catalytically competent form of PC-4	RP1PC4	In catalog
P-Domain	**~620–710** Region within the C-terminal P-domain (protease-associated domain) of PCSK4, which follows the subtilisin-like catalytic domain and contributes to enzyme stability, calcium coordination, and substrate guidance; this domain is conserved among PCSK family members but carries family-member-specific surface features	RP2PC4	In catalog
—	**114–755** Broad immunogen spanning from the N-terminus of the mature catalytic domain through the P-domain of PCSK4, encompassing the subtilisin-fold core and the stabilising P-domain; antibodies raised against this multi-domain region are expected to recognise multiple conformational and linear epitopes across the processed protein	RP-PC4	In catalog

Applications & Recommended Dilutions

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

Proprotein convertase subtilisin/kexin type 4 (PCSK4, also designated PC-4 or SPC4) is a calcium-dependent serine endoprotease belonging to the subtilisin/kexin-like proprotein convertase (PCSK) family. Like other family members, PC-4 cleaves precursor proteins at paired basic residue motifs (typically Arg-X-X-Arg↓), converting inactive zymogens into biologically active peptides, hormones, and surface proteins. The nine-member PCSK family shares a conserved catalytic triad (Asp, His, Ser) and a subtilisin-like fold, but members diverge substantially in tissue distribution, substrate specificity, and subcellular trafficking.

Expression & Localisation

PCSK4 expression is strikingly tissue-restricted relative to the broadly expressed paralogs furin (PCSK3) and PCSK1/2. Transcripts and protein are most abundant in testicular germ cells — particularly spermatocytes and round spermatids — and in placental trophoblast. Lower-level expression has been reported in ovarian tissue. Within the cell, PC-4 is directed through the secretory pathway and associates with the trans-Golgi network and post-Golgi vesicular compartments. In spermatogenic cells, PC-4 is concentrated in acrosomal membranes, positioning it to process substrates required for fertilisation.

Zymogen Activation

PC-4 is synthesised as an inactive zymogen with an N-terminal signal peptide followed by a prodomain that occupies and inhibits the active site. Autocatalytic removal of the prodomain occurs intramolecularly within the endoplasmic reticulum, generating the mature, catalytically competent form. A C-terminal P-domain (protease-associated domain) stabilises the catalytic domain and contributes to substrate recognition. Further processing or shedding can yield soluble forms detected in extracellular contexts. The mature protein retains the prodomain non-covalently at reduced pH, providing a pH-sensitive regulatory mechanism during vesicular transport.

Key Substrates & Functions in Fertility

In male germ cells, PCSK4 processes ADAM2 (fertilin β), a disintegrin and metalloprotease essential for sperm-egg membrane adhesion and zona pellucida binding. Additional acrosomal substrates include ADAM3 and related ADAM family members required for sperm capacitation and the acrosome reaction. Male mice with targeted Pcsk4 disruption are infertile, confirming an indispensable role in spermatogenesis. In the placenta, PC-4 contributes to the proteolytic maturation of IGF2 and likely other growth factor precursors that regulate trophoblast invasion and placental development, implicating the enzyme in early pregnancy establishment.

Inhibitor Profile

Like other proprotein convertases, PCSK4 is susceptible to inhibition by protein-based serpins and small-molecule active-site inhibitors that target the serine protease catalytic machinery. α1-Antitrypsin Portland (α1-PDX), an engineered serpin variant, blocks PC-4 in experimental settings. Endogenous regulation involves the prodomain itself and pH-dependent refolding during vesicular transit. Decanoyl-Arg-Val-Lys-Arg-chloromethylketone (dec-RVKR-CMK) and related peptidomimetics inhibit multiple PCSKs including PC-4 in biochemical assays. No dedicated physiological inhibitor analogous to the PCSK9–LDLR axis has been characterised for PCSK4.

Disease Relevance

Given its restricted expression in reproductive tissues, PCSK4 is primarily investigated in the contexts of male and female infertility, early pregnancy loss, and placental dysfunction. Variants or reduced expression of PCSK4 have been associated with impaired sperm function and male-factor infertility in human cohort studies. Aberrant processing of IGF2 and related growth factors by PC-4 may contribute to placental insufficiency. Emerging data also suggest roles in cancer biology, where

ectopic re-expression of PCSKs can drive growth factor activation and tumour progression, though the specific contribution of PCSK4 in oncology remains an active area of investigation.

Gene & Protein Reference

Gene Symbol	PCKS4
HGNC	PCSK4
NCBI Gene ID (Human)	54760
NCBI Gene ID (Mouse)	18551
Ensembl	ENSG00000115257
OMIM	600487
UniProt (Human)	Q6UW60
UniProt (Mouse)	P29121
Protein Family	Subtilisin/kexin-like proprotein convertase (PCSK) family; S8A subfamily (subtilases)
Predicted MW	~87 kDa (755 aa precursor); ~81 kDa mature form after prodomain removal
Observed MW	~87–95 kDa (glycosylated, by SDS-PAGE)
Chromosome	19p13.3
Paralogue	PCSK1 (PC1/3), PCSK2 (PC2), PCSK3 (furin), PCSK5 (PC5/6), PCSK6 (PACE4), PCSK7 (PC7), PCSK9
Key Substrates	ADAM2 (fertilin β), ADAM3, IGF2, prohormone and progrowth-factor precursors carrying paired basic residue motifs
Activated by	Autocatalytic prodomain cleavage within the ER; calcium-dependent folding
Inhibited by	α1-Antitrypsin Portland (α1-PDX); dec-RVKR-CMK (peptidomimetic); active-site-directed serine protease inhibitors

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.