Anti-PGC Rabbit Polyclonal Antibody

Gastricsin, EC 3.4.23.3, Pepsinogen C,

Gene: PGC **UniProt:** P20142 **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-PGC Rabbit Polyclonal Antibody
Gene Symbol	PGC
Alternative Names	Gastricsin, EC 3.4.23.3, Pepsinogen C,
UniProt ID	P20142
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-gastricsin-rabbit-polyclonal-antibody

Available Domain-Specific Variants

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

Aminoterminal end of active Gastricsin	**60–110** Region spanning the aminoterminal segment of mature gastricsin (lobe 1 N-terminus), immediately downstream of the propeptide cleavage site; this region is exposed only upon autocatalytic activation of pepsinogen C and forms part of the outer surface of the first lobe, distal from the bilobal active-site cleft	RP1Gastricsin	In catalog
Hinge region between Lobes 1 & 2.	**219–239** Region corresponding to the interdomain linker connecting the C-terminus of lobe 1 to the N-terminus of lobe 2 in the bilobal gastricsin fold; this segment bridges the two structurally homologous beta-sheet-rich domains and is situated at the entrance to the active-site cleft that spans the two lobes	RP2Gastricsin	In catalog
Lobe-2	**230–385** Region encompassing the C-terminal lobe (lobe 2) of mature gastricsin, which harbors one copy of the catalytic Asp-Thr-Gly motif; lobe 2 forms the C-terminal half of the bilobal aspartic protease fold and contributes to substrate binding and the structural integrity of the active-site cavity	RP3Gastricsin	In catalog
—	**60–388** Region spanning the full length of mature gastricsin, encompassing both lobe 1 and lobe 2, the interdomain hinge, and the complete bilobal aspartic protease fold; antibodies raised against this multi-domain immunogen are expected to recognize epitopes distributed across the entire mature protein	RP-Gastricsin	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

Family & General Biology

Gastricsin (EC 3.4.23.3, UniProt P20142) is a secreted aspartic protease of the pepsin A family, encoded by the PGC gene on chromosome 6p21.1. Like other members of this family, it carries the canonical Asp-Thr-Gly active-site motif duplicated across its two lobes and functions optimally at acidic pH (approximately pH 3.0–3.5). Gastricsin is distinct from pepsin A (PGA5) in its substrate specificity, pH-activity profile, and tissue distribution, though the two enzymes share substantial sequence and structural homology and cooperate in gastric protein degradation.

Expression & Localisation

Gastricsin expression is predominantly restricted to the stomach, where it is synthesized and secreted by mucous neck cells and pyloric (antral) gland cells, differing from pepsin A, which is produced mainly by chief cells of the gastric body. Low-level expression has been reported in the duodenum and pancreas. The protein is secreted into the gastric lumen as the inactive zymogen pepsinogen C. Circulating pepsinogen C can be measured in serum and has been used as a non-invasive biomarker for the functional state of the gastric mucosa, particularly in assessing antral gland mass.

Zymogen Structure & Activation Mechanism

Gastricsin is synthesized as pepsinogen C, a ~42 kDa single-chain zymogen in which an N-terminal prosegment (~44 residues) folds back into the active-site cleft, sterically blocking substrate access. At gastric pH (below ~2), the prosegment is protonated, destabilizes, and is autocatalytically cleaved, releasing the mature ~35 kDa two-lobe enzyme. The newly exposed N-terminus of the active enzyme corresponds to the first residue of lobe 1. Activation is rapid and essentially irreversible under physiological gastric conditions, and the released propeptide is itself rapidly degraded.

Substrate Specificity

Mature gastricsin preferentially cleaves peptide bonds with bulky hydrophobic or aromatic residues (phenylalanine, leucine, tyrosine) in the P1 and P1′ positions, consistent with the active-site topology common to pepsin-family proteases. Gastricsin exhibits a comparatively higher tolerance for basic substrates than pepsin A and shows distinct cleavage preferences toward hemoglobin, serum albumin, and collagen-derived peptides. In the gastric lumen it contributes to the initial denaturation and hydrolysis of dietary proteins, working in parallel with pepsin A across the full range of acidic luminal pH values.

Inhibition & Regulation

Like all aspartic proteases, gastricsin is potently inhibited by pepstatin A, a natural microbial hexapeptide analog that mimics the transition-state intermediate and occupies the active-site cleft with sub-nanomolar affinity. Synthetic inhibitors incorporating statine or hydroxyethylene transition-state isosteres also block activity. Gastricsin is irreversibly inactivated above pH ~7, distinguishing it from many serine or metalloproteinases. No endogenous protein inhibitor equivalent to the TIMPs (for MMPs) has been identified for gastricsin; regulation in vivo is achieved primarily through zymogen secretion, luminal acidification, and pH-dependent inactivation in the duodenum.

Disease Relevance & Biomarker Utility

Serum pepsinogen C (gastricsin) levels decline progressively as antral mucosa is replaced by atrophic or metaplastic epithelium, making circulating PGC a clinically investigated marker of antral atrophy and Helicobacter pylori-associated

gastritis. Reduced gastricsin immunoreactivity in gastric tissue has been correlated with loss of glandular differentiation in intestinal-type gastric adenocarcinoma. Conversely, ectopic expression of PGC has been reported in a subset of ovarian and endometrial carcinomas. These expression patterns make gastricsin a useful immunohistochemical marker for assessing gastric mucosal integrity and for characterizing tumors of potential gastric or gynecological origin.

Gene & Protein Reference

Gene Symbol	PGC
HGNC	HGNC:8890
NCBI Gene ID (Human)	5225
NCBI Gene ID (Mouse)	18946
Ensembl	ENSG00000096006
OMIM	169730
UniProt (Human)	P20142
UniProt (Mouse)	P09829
Protein Family	Pepsin A family of aspartic proteases (clan AA, family A1)
Predicted MW	~42 kDa (pepsinogen C zymogen); ~35 kDa (mature gastricsin after propeptide cleavage)
Observed MW	~42 kDa (zymogen) and ~35 kDa (active form) by SDS-PAGE
Chromosome	6p21.1
Paralogue	Pepsin A (PGA5); also related to CTSD (Cathepsin D) and CTSE (Cathepsin E)
Key Substrates	Hemoglobin, serum albumin, collagen-derived peptides, dietary proteins with hydrophobic/aromatic cleavage sites (Phe, Leu, Tyr in P1/P1′)
Activated by	Autocatalytic activation at acidic pH (<2–3); low gastric pH triggers prosegment protonation and displacement from the active-site cleft
Inhibited by	Pepstatin A (sub-nanomolar, transition-state analog); statine- and hydroxyethylene-based synthetic inhibitors; irreversible inactivation above pH ~7

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.