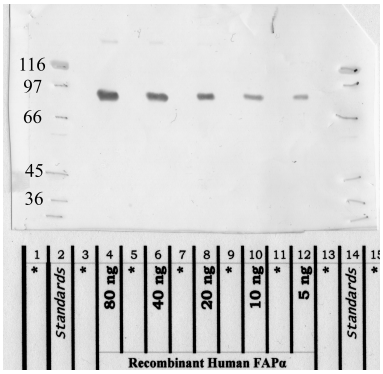
Anti-FAP Rabbit Polyclonal Antibody

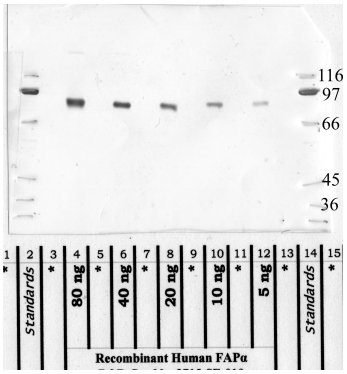
Prolyl endopeptidase FAP, EC 3.4.21.26, 170 kDa melanoma membrane-bound gelatinase, Dipeptidyl peptidase FAP, EC 3.4.14.5, Fibroblast activation protein alpha, FAPalpha, Gelatine degradation protease FAP, EC 3.4.21.-, Integral membrane serine protease, Post-proline cleaving enzyme, Serine integral membrane protease, SIMP, Surface-expressed protease, Seprase

Gene: FAP **UniProt:** Q12884 **Host:** Rabbit **Clonality:** Polyclonal (pAb)

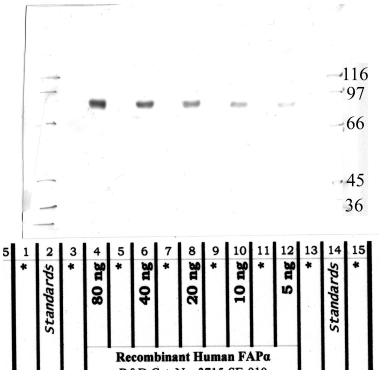
Product Image



Stalk region
RP1FAPalpha



spacer region
RP2FAPalpha



Catalytic domain
RP3FAPalpha

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

Actual Western blot validation for anti-FAP 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-FAP Rabbit Polyclonal Antibody
Gene Symbol	FAP
Alternative Names	Prolyl endopeptidase FAP, EC 3.4.21.26, 170 kDa melanoma membrane-bound gelatinase, Dipeptidyl peptidase FAP, EC 3.4.14.5, Fibroblast activation protein alpha, FAPalpha, Gelatine degradation protease FAP, EC 3.4.21.-, Integral membrane serine protease, Post-proline cleaving enzyme, Serine integral membrane protease, SIMP, Surface-expressed protease, Seprase
UniProt ID	Q12884
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
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-fap-alpha-rabbit-polyclonal-antibody

Available Domain-Specific Variants

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

Stalk Region	**1–4** Region within the extracellular stalk segment of FAP-alpha, immediately C-terminal to the single-pass transmembrane anchor and N-terminal to the cysteine-rich spacer domain, comprising the proximal extracellular region that tethers the catalytic ectodomain to the plasma membrane	RP1FAPalpha	In catalog
Spacer Region	**~143–390** Region within the cysteine-rich spacer (also described as the beta-propeller/Kelch-like domain) of FAP-alpha, situated between the N-terminal stalk and the C-terminal catalytic domain, which contributes to homodimer stabilisation and appropriate presentation of the catalytic domain at the cell surface	RP2FAPalpha	In catalog
Catalytic Domain	**1–760** Region within the C-terminal α/β-hydrolase catalytic domain of FAP-alpha, which houses the Ser-Asp-His catalytic triad responsible for both dipeptidyl peptidase and post-proline endopeptidase activities; this domain shares structural homology with DPPIV/CD26 but contains a unique loop insertion conferring endopeptidase specificity	RP3FAPalpha	In catalog
Catalytic Insert	**1–760** Region encompassing the unique loop insertion within the catalytic domain of FAP-alpha, absent in the paralogue DPPIV/CD26, which is structurally responsible for conferring post-proline endopeptidase activity and defines the substrate-binding pocket geometry that distinguishes FAP from other prolyl dipeptidyl peptidases	RP4FAPalpha	In catalog
—	**1–760** Broad extracellular region of FAP-alpha spanning from the proximal stalk through the cysteine-rich spacer and the full catalytic domain, providing antibody recognition across multiple structural regions of the mature ectodomain and suitable for applications where domain-specific restriction is not required	RP-FAPalpha	In catalog

Applications & Recommended Dilutions

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

General Biology & Family

Fibroblast activation protein alpha (FAP-alpha, UniProt Q12884) is a type II transmembrane serine protease of the prolyl oligopeptidase (POP) subfamily, encoded by the FAP gene on chromosome 2q23. The 760-amino acid glycoprotein carries two distinct enzymatic activities: an endopeptidase activity that cleaves internal prolyl bonds (EC 3.4.21.26) and a dipeptidyl peptidase IV-like (DPPIV) activity that removes N-terminal dipeptides with a penultimate proline (EC 3.4.14.5). FAP-alpha shares ~52% amino acid identity with DPPIV/CD26, its closest paralogue, but is distinguished by its additional endopeptidase activity and restricted expression pattern.

Expression & Localisation

FAP-alpha expression is largely absent from normal adult tissues, with low-level detection confined to a subset of multipotent bone marrow stromal cells and uterine stromal cells. Robust upregulation occurs in activated stromal fibroblasts during pathological tissue remodeling, including wound healing, chronic inflammation, and fibrosis. In oncology contexts, FAP-alpha is consistently expressed on cancer-associated fibroblasts (CAFs) across a wide range of carcinomas—including colorectal, breast, pancreatic, and lung—while remaining undetectable on the adjacent epithelial tumor cells. The protein localises predominantly to the cell surface, where it functions as an integral membrane protease, though shed soluble forms are detectable in plasma.

Protein Architecture

The FAP-alpha monomer comprises a short N-terminal cytoplasmic tail, a single-pass transmembrane anchor, an extracellular stalk region, a cysteine-rich spacer, and a large C-terminal extracellular region housing the catalytic domain with its embedded post-proline cleaving loop (the catalytic insert). The biologically active form is a non-covalent homodimer; dimerisation is required for full dipeptidyl peptidase activity. The catalytic triad (Ser624, Asp702, His734 in the mature sequence) resides within the α/β-hydrolase fold of the catalytic domain, and the unique loop insertion within this domain—absent in DPPIV—confers the endopeptidase activity.

Key Substrates & Enzymatic Mechanism

FAP-alpha hydrolyses substrates bearing a proline at position P1. As an endopeptidase it preferentially cleaves sequences with an Ala/Ser-Gly-Pro consensus, processing gelatin, heat-denatured type I collagen, and the serpin α2-antiplasmin (SERPINF2). It does not cleave native fibrillar collagens, fibronectin, or laminin. Physiological peptide substrates include neuropeptide Y, peptide YY, substance P, and brain natriuretic peptide (BNP). The dipeptidyl peptidase activity is inhibited competitively by the

DPPIV inhibitor class (e.g., valyl-boroproline), whereas selective FAP inhibitors such as UAMC-1110 target the endopeptidase active site and exploit structural differences in the catalytic insert loop.

Disease Relevance: Cancer & Fibrosis

FAP-alpha's near-exclusive expression on CAFs makes it a compelling biomarker and therapeutic target in solid tumors. In the tumor microenvironment, FAP-alpha-expressing fibroblasts promote extracellular matrix remodeling, desmoplasia, and immunosuppression, facilitating tumor invasion and limiting cytotoxic T-cell infiltration. FAP-alpha overexpression correlates with poor prognosis in several carcinoma types. Beyond oncology, FAP-alpha is upregulated in fibrotic conditions including liver cirrhosis, pulmonary fibrosis, and rheumatoid arthritis synovium. These expression characteristics underpin its use as a target for FAP-targeted radioligand therapies, antibody–drug conjugates, chimeric antigen receptor T-cell constructs, and stromal depletion strategies.

Inhibitor Profile & Regulation

FAP-alpha activity is inhibited by broad-spectrum serine protease inhibitors (e.g., DFP, PMSF) and by DPPIV-class inhibitors, though the latter show lower affinity for FAP owing to structural divergence in the substrate-binding pocket. Selective small-molecule FAP inhibitors—including boronic acid derivatives and cyclic peptide-based compounds—have been developed as research tools and clinical leads. No endogenous protein inhibitor specific to FAP-alpha has been characterised; the TIMP family, which regulates matrix metalloproteinases, does not inhibit FAP. Transcriptional upregulation of FAP is driven by inflammatory cytokines including TGF-β1 and TNF-α, and downregulated following resolution of the activating stimulus.

Gene & Protein Reference

Gene Symbol	FAP
HGNC	HGNC:3590
NCBI Gene ID (Human)	2191
NCBI Gene ID (Mouse)	14089
Ensembl	ENSG00000078098
OMIM	600403
UniProt (Human)	Q12884
UniProt (Mouse)	P97321
Protein Family	Prolyl oligopeptidase (POP) subfamily; S9B family of serine proteases; dipeptidyl peptidase IV group
Predicted MW	~88 kDa (monomer, unglycosylated); ~97 kDa (predicted with signal/TM region)
Observed MW	~170 kDa (apparent; heavily glycosylated homodimer on SDS-PAGE under non-reducing conditions); ~95 kDa monomer under reducing conditions
Chromosome	2q23.3
Paralogue	DPP4 (CD26) — ~52% amino acid identity; DPP6, DPP10

Key Substrates	α2-antiplasmin (SERPINF2), gelatin, heat-denatured type I collagen, neuropeptide Y, peptide YY, substance P, brain natriuretic peptide (BNP), SPRY2
Activated by	TGF-β1, TNF-α (transcriptional upregulation in stromal fibroblasts); homodimerisation required for full catalytic activity
Inhibited by	DPPIV-class inhibitors (e.g., valyl-boroproline; lower potency vs. DPPIV), selective FAP inhibitors (e.g., UAMC-1110, PT-630), broad-spectrum serine protease inhibitors (PMSF, DFP)

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