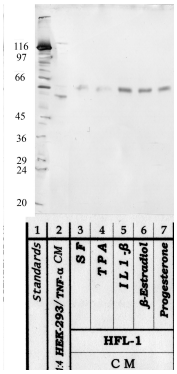
Anti-HTRA2 Rabbit Polyclonal Antibody

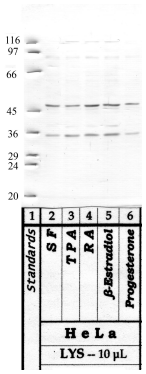
Serine protease, HTRA2, mitochondrial EC 3.4.21.108, High temperature requirement protein A2, HtrA2, Omi stress-regulated endoprotease, Serine protease 25, Serine proteinase OMI,

Gene: HTRA2 **UniProt:** O43464 **Host:** Rabbit **Clonality:** Polyclonal (pAb)

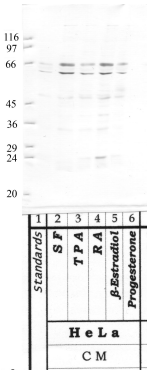
Product Image



Propeptide domain
RP1HTRA2



Catalytic domain
RP2HTRA2



PDZ domain
RP3HTRA2

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

Actual Western blot validation for anti-HTRA2 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-HTRA2 Rabbit Polyclonal Antibody
Gene Symbol	HTRA2
Alternative Names	Serine protease, HTRA2, mitochondrial EC 3.4.21.108, High temperature requirement protein A2, HtrA2, Omi stress-regulated endoprotease, Serine protease 25, Serine proteinase OMI,
UniProt ID	O43464
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-Rat, Monkey, Dog, Cat
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-htra-2-rabbit-polyclonal-antibody

Available Domain-Specific Variants

Triple Point Biologics produces antibodies to defined structural domains of HTRA2. 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

Propeptide domain	**32–133** Region spanning the N-terminal mitochondrial targeting sequence and transmembrane anchor of human HTRA2, upstream of the mature processed form; this segment includes the IBM (IAP-binding motif) exposed upon mitochondrial processing and is cleaved during import to generate the mature IMS-resident protease	RP1HTRA2	In catalog
Catalytic domain	**134–458** Region encompassing the trypsin-like serine protease catalytic domain of mature human HTRA2, containing the conserved catalytic triad residues (His198, Asp228, Ser306) that confer EC 3.4.21.108 endopeptidase activity and are essential for cleavage of BIRC family substrates	RP2HTRA2	In catalog
PDZ domain	**364–445** Region corresponding to the C-terminal PDZ domain of human HTRA2, a protein–protein interaction module that mediates substrate docking and allosteric stimulation of catalytic activity; the Parkinson disease-associated p.G399S missense mutation maps within this region and disrupts PDZ domain folding	RP3HTRA2	In catalog
Carboxyterminal end	**408–458** Region comprising the extreme C-terminal segment of human HTRA2, immediately distal to the PDZ domain; this short stretch lies at the boundary of the structured PDZ fold and the disordered C-terminus and is distinct from the catalytic and substrate-docking regions of the protein	RP4HTRA2	In catalog
—	**134–458** Broad region spanning the majority of the mature human HTRA2 protein, encompassing the catalytic serine protease domain and the C-terminal PDZ domain; suitable for detection applications where domain-specific epitope mapping is not required and maximal sequence coverage of the processed protease is desired	RP-HTRA2	In catalog

Applications & Recommended Dilutions

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

HTRA2 (High Temperature Requirement protein A2, also designated Omi or PRSS25) is a nuclear-encoded serine protease of the HtrA/DegP family, characterized by a conserved trypsin-like catalytic triad (His198, Asp228, Ser306 in the mature protein) and a C-terminal PDZ domain. Like its bacterial ortholog DegP, HTRA2 is thought to function both as a protease and, under certain conditions, as a chaperone. The protein is synthesized as a 458-amino acid precursor that is imported into mitochondria via an N-terminal targeting sequence and processed to its mature form within the intermembrane space (IMS).

Expression & Localisation

HTRA2 is ubiquitously expressed across human tissues, with particularly high levels detected in heart, skeletal muscle, and brain. Under basal conditions the mature protease resides in the mitochondrial intermembrane space, where it participates in mitochondrial protein quality control by degrading misfolded or damaged polypeptides. A proportion of the protein is also reported at the outer mitochondrial membrane and, following apoptotic stimulation, is released into the cytosol, relocating its proteolytic activity to a new cellular compartment where it encounters IAP family targets.

Activation Mechanism & Processing

HTRA2 is translated as an inactive precursor containing an N-terminal mitochondrial targeting sequence (approximately residues 1–36) followed by a transmembrane anchor. Mitochondrial import triggers cleavage of the presequence, generating the mature 36-kDa IMS-resident form. HTRA2 functions as a homotrimer in which PDZ-domain-mediated substrate docking stimulates catalytic activity. During apoptosis, HTRA2 is released from the IMS in a manner dependent on mitochondrial outer-membrane permeabilization, exposing the N-terminal IBM (IAP-binding motif) of the processed form to cytosolic IAP proteins.

Key Substrates & Inhibitor Interactions

Once in the cytosol, HTRA2 binds and proteolytically cleaves members of the BIRC (baculoviral IAP repeat-containing) family — including BIRC2, BIRC3, BIRC4 (XIAP), and BIRC6 — thereby relieving caspase-3, -7, and -9 inhibition and amplifying the apoptotic cascade. Additional validated substrates include THAP5, which HTRA2 degrades during stress-induced apoptosis, and beta-casein, commonly used as an in vitro model substrate. HTRA2 proteolytic activity is inhibited by the serine protease inhibitor UCF-101 and by the endogenous IAP family member BIRC4/XIAP, which binds the IBM motif and suppresses catalytic output.

Disease Relevance — Neurodegeneration

Loss-of-function mutations in HTRA2, particularly the missense variant p.G399S located in the PDZ domain, have been associated with Parkinson disease (OMIM 610297) in some patient cohorts. The p.G399S substitution impairs PDZ-domain folding, reduces proteolytic activity, and sensitizes cells to stress-induced mitochondrial dysfunction. Motor-neuron degeneration observed in HTRA2-knockout mice is consistent with a mitochondrial quality-control role in post-mitotic neurons. The mnd2 (motor neuron degeneration 2) mouse harbors the p.S276C catalytic-domain mutation and develops progressive neurodegeneration, underscoring the requirement for intact serine protease activity in neuronal homeostasis.

Mitochondrial Quality Control & Broader Pathology

Beyond apoptosis, HTRA2 contributes to mitochondrial proteostasis by degrading oxidatively damaged or aggregation-prone proteins within the IMS, a function analogous to that of its bacterial DegP ortholog under heat-stress conditions. Elevated HTRA2 activity has been reported in cardiac ischemia–reperfusion injury, where cytosolic release amplifies cardiomyocyte death. Conversely, reduced HTRA2 expression has been observed in certain cancer contexts, suggesting context-dependent roles in tumor cell survival. These findings collectively position HTRA2 as a node linking mitochondrial integrity, proteostasis, and programmed cell death across multiple disease settings.

Gene & Protein Reference

Gene Symbol	HTRA2
HGNC	HGNC:9725
NCBI Gene ID (Human)	27429
NCBI Gene ID (Mouse)	64704
Ensembl	ENSG00000115317
OMIM	606441
UniProt (Human)	O43464
UniProt (Mouse)	Q9WU60
Protein Family	Peptidase S1/S6 (HtrA/DegP) family, serine protease
Predicted MW	49 kDa (precursor); ~36 kDa (mature, after mitochondrial processing)
Observed MW	~37 kDa (mature form on SDS-PAGE; precursor ~49 kDa)
Chromosome	2p13.1
Paralogue	HTRA1, HTRA3, HTRA4
Key Substrates	BIRC2, BIRC3, BIRC4/XIAP, BIRC6, THAP5, beta-casein
Activated by	Mitochondrial outer-membrane permeabilization (apoptotic stimulus); PDZ-domain-mediated substrate docking; elevated temperature/stress
Inhibited by	UCF-101 (small-molecule serine protease inhibitor); BIRC4/XIAP (IAP-motif-mediated suppression)

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.