

Anti-LONP1 Antibody [PSH28-77]

HA724808



Product Type:	Recombinant Rabbit monoclonal IgG, primary antibodies
Species reactivity:	Human, Mouse, Rat
Applications:	WB, IF-Cell, IHC-P, FC(Intra), IP
Molecular Wt:	Predicted band size: 106 kDa
Clone number:	PSH28-77

Description: Lon protease homolog, mitochondrial is a protease, an enzyme that in humans is encoded by the LONP1 gene. Lon protease (LONP1) is a conserved serine peptidase identified from bacteria to eukaryotic cells. In mitochondrial matrix, a majority of damaged proteins is removed via proteolysis led by Lon protease, which is an essential mechanism for mitochondrial protein quality control. LONP1 is the major protease responsible for the recognition and removal of unfolded proteins in the mitochondrial matrix and thereby protects the cell from the accumulation of aggregated proteins in the mitochondrion. However LONP1 is unable to recognise or degrade model aggregated proteins. LONP1 is also a DNA-binding protein that participates in mtDNA maintenance and gene expression regulation. LONP1 degrades mitochondrial transcription factor A (TFAM) when substrate is modified by post-translational modifications (PTMs) such as phosphorylation, regulating mtDNA copy number and metabolism to maintain the TFAM/mtDNA ratio necessary to control replication and transcription.

Immunogen: Recombinant protein within human LONP1 aa 560-959.

Positive control: HeLa (Human cervical adenocarcinoma cell) cell lysate, HEK-293 (Human embryonic kidney cell) cell lysate, U-87 MG (Human glioblastoma cell) cell lysate, PC-3 (Human prostate cancer cell) cell lysate, Hep G2 (Human hepatocellular carcinoma cell) cell lysate, COS-1 (African green monkey kidney fibroblast) cell lysate, NIH/3T3 (Mouse fibroblast) cell lysate.

Subcellular location: Mitochondrion matrix.

Database links: SwissProt: P36776 Human | Q8CGK3 Mouse | Q924S5 Rat

Recommended Dilutions:

WB	1:2,000
IF-Cell	1:200-1:1,000
IHC-P	1:500
FC(Intra)	1:500
IP	1-2µg/sample

Storage Buffer: 1*PBS (pH7.4), 0.1% BSA, 40% Glycerol, 0.2% Proclean 950.

Storage Instruction: Shipped at 4°C. Store at +4°C short term (1-2 weeks). Store at -20°C long term.

Purity: Protein A affinity purified.

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Orders:0086-571-88062880

Technical:0086-571-89986345

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Applications:WB=Western blot IHC-P=Immunohistochemistry (paraffin) IF-Cell=Immunofluorescence (Cell) IF-Tissue=Immunofluorescence (Tissue) FC=Flow cytometry IP=Immunoprecipitation

Images

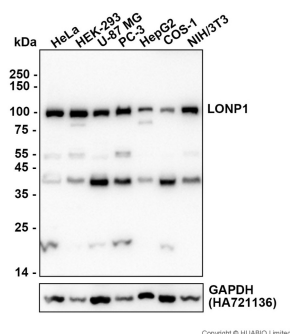


Fig1: Western blot analysis of LONP1 on different lysates with Rabbit anti-LONP1 antibody (HA724808) at 1/2,000 dilution.

Lane 1: HeLa (Human cervical adenocarcinoma cell) cell lysate
 Lane 2: HEK-293 (Human embryonic kidney cell) cell lysate
 Lane 3: U-87 MG (Human glioblastoma cell) cell lysate
 Lane 4: PC-3 (Human prostate cancer cell) cell lysate
 Lane 5: Hep G2 (Human hepatocellular carcinoma cell) cell lysate
 Lane 6: COS-1 (African green monkey kidney fibroblast) cell lysate
 Lane 7: NIH/3T3 (Mouse fibroblast) cell lysate

Lysates/proteins at 15 µg/Lane.

Exposure time: 1 minute 50 seconds; ECL: K1801

Blocking: 5% NFDN/TBST, 1 hour at room temperature

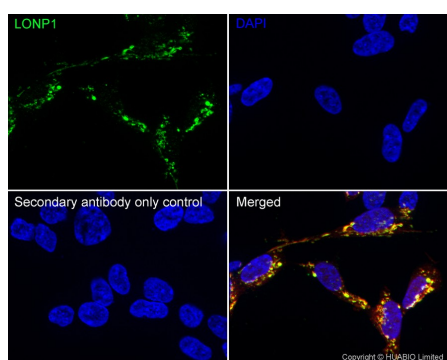
Primary antibody: HA724808, 1/2,000 in primary antibody dilution buffer (K1803), overnight at 4 °C

Secondary antibody: Goat anti-Rabbit IgG-HRP (HA1001), 1/50,000 in 5% NFDN/TBST, 1 hour at room temperature

Predicted band size: 106 kDa

Observed band size: 106 kDa

Fig2: Application: Immunocytochemistry (IF-cell)



Species: Human

Sample: SH-SY5Y (Human neuroblastoma cell)

Fixation: 4% Paraformaldehyde, 15 minutes at room temperature.

Permeabilization: 0.1% Triton X-100, 15 minutes at room temperature.

Blocking: 1% BSA + 10% normal goat serum, 1 hour at room temperature.

Antibody dilution buffer: 1% BSA in PBST.

Primary antibody: HA724808, 1/1,000, overnight at 4°C.

Secondary antibody: Goat Anti-Rabbit IgG (iFluor™ 488, HA1121), 45 minutes at room temperature.

Counterstain: The mitochondria dyes was Mito-Tracker (Beyotime, Red). The nuclear counterstain was DAPI (Blue).

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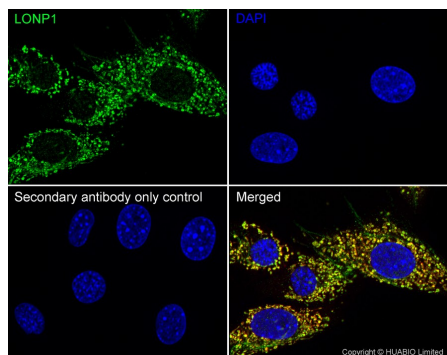
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**Fig3:** Application: Immunocytochemistry (IF-cell)

Species: Mouse

Sample: NIH/3T3 (Mouse fibroblast)

Fixation: 4% Paraformaldehyde, 15 minutes at room temperature.

Permeabilization: 0.1% Triton X-100, 15 minutes at room temperature.

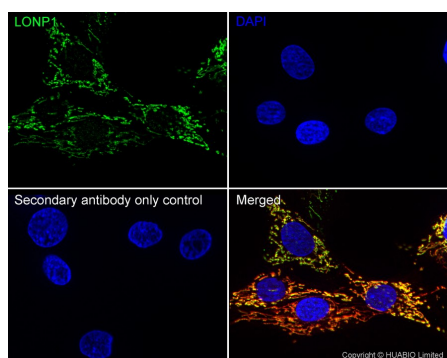
Blocking: 1% BSA + 10% normal goat serum, 1 hour at room temperature.

Antibody dilution buffer: 1% BSA in PBST.

Primary antibody: HA724808, 1/200, overnight at 4°C.

Secondary antibody: Goat Anti-Rabbit IgG (iFluor™ 488, HA1121), 45 minutes at room temperature.

Counterstain: The mitochondria dyes was Mito-Tracker (Beyotime, Red). The nuclear counterstain was DAPI (Blue).

**Fig4:** Application: Immunocytochemistry (IF-cell)

Species: Rat

Sample: C6 (Rat glioma cell)

Fixation: 4% Paraformaldehyde, 15 minutes at room temperature.

Permeabilization: 0.1% Triton X-100, 15 minutes at room temperature.

Blocking: 1% BSA + 10% normal goat serum, 1 hour at room temperature.

Antibody dilution buffer: 1% BSA in PBST.

Primary antibody: HA724808, 1/1,000, overnight at 4°C.

Secondary antibody: Goat Anti-Rabbit IgG (iFluor™ 488, HA1121), 45 minutes at room temperature.

Counterstain: The mitochondria dyes was Mito-Tracker (Beyotime, Red). The nuclear counterstain was DAPI (Blue).

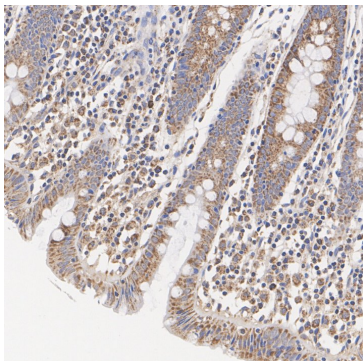


Fig5: Application: Immunohistochemistry (IHC-P)

Species: Human

Tissue: Colon

Sample: Paraffin-embedded section

Antigen retrieval: Heat-mediated, Tris-EDTA buffer (pH 9.0), 20 minutes at 95°C.

Wash buffer: 1× TBST

Endogenous peroxidase blocking: 3% H₂O₂, 10 minutes at room temperature.

Blocking: 1% BSA + 10% normal goat serum, 10 minutes at room temperature.

Primary antibody: HA724808, 1/500, 1 hour at room temperature.

Secondary antibody: HA1119, 20 minutes at room temperature.

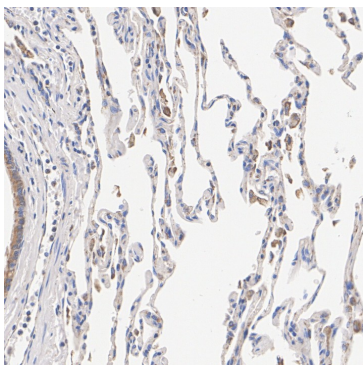


Fig6: Application: Immunohistochemistry (IHC-P)

Species: Human

Tissue: Lung

Sample: Paraffin-embedded section

Antigen retrieval: Heat-mediated, Tris-EDTA buffer (pH 9.0), 20 minutes at 95°C.

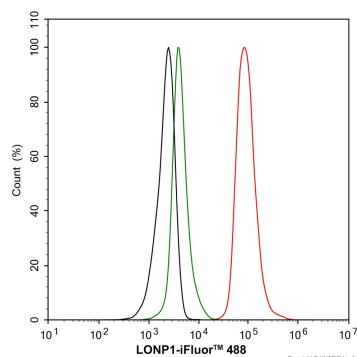
Wash buffer: 1× TBST

Endogenous peroxidase blocking: 3% H₂O₂, 10 minutes at room temperature.

Blocking: 1% BSA + 10% normal goat serum, 10 minutes at room temperature.

Primary antibody: HA724808, 1/500, 1 hour at room temperature.

Secondary antibody: HA1119, 20 minutes at room temperature.

**Fig7:** Application: Flow Cytometry (Intra)

Species: Human

Sample: SH-SY5Y (Human neuroblastoma cells)

Fixation: 4% Paraformaldehyde, 15 minutes at room temperature.

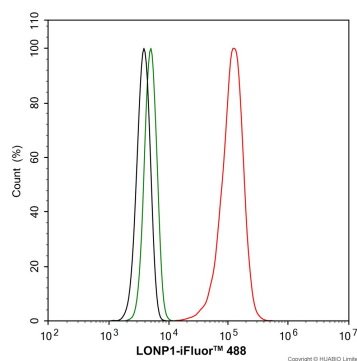
Permeabilization: 0.1% Tween-20, 15 minutes at room temperature.

Blocking: 1% BSA + 10% normal goat serum, 15 minutes at room temperature.

Antibody dilution buffer: 1x PBS.

Primary antibody: HA724808 (1/500, Red) compared with Rabbit IgG Isotype Control (HA722127, Green), 15 minutes at room temperature.

Secondary antibody: Goat Anti-Rabbit IgG (iFluor™ 488, HA1121), 15 minutes at room temperature.

**Fig8:** Application: Flow Cytometry (Intra)

Species: Mouse

Sample: NIH/3T3 (Mouse fibroblasts)

Fixation: 4% Paraformaldehyde, 15 minutes at room temperature.

Permeabilization: 0.1% Tween-20, 15 minutes at room temperature.

Blocking: 1% BSA + 10% normal goat serum, 15 minutes at room temperature.

Antibody dilution buffer: 1x PBS.

Primary antibody: HA724808 (1/500, Red) compared with Rabbit IgG Isotype Control (HA722127, Green), 15 minutes at room temperature.

Secondary antibody: Goat Anti-Rabbit IgG (iFluor™ 488, HA1121), 15 minutes at room temperature.

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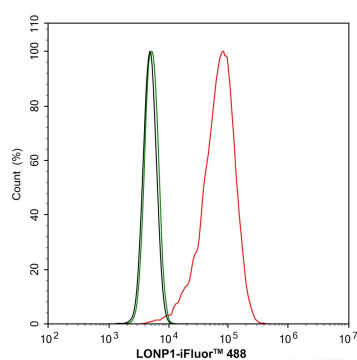
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Fig9: Application: Flow Cytometry (Intra)

Species: Rat

Sample: C6 (Rat glioma cells)



Fixation: 4% Paraformaldehyde, 15 minutes at room temperature.

Permeabilization: 0.1% Tween-20, 15 minutes at room temperature.

Blocking: 1% BSA + 10% normal goat serum, 15 minutes at room temperature.

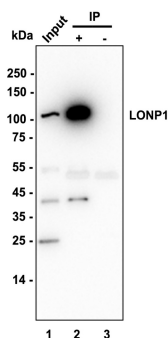
Antibody dilution buffer: 1x PBS.

Primary antibody: HA724808 (1/500, Red) compared with Rabbit IgG Isotype Control (HA722127, Green), 15 minutes at room temperature.

Secondary antibody: Goat Anti-Rabbit IgG (iFluor™ 488, HA1121), 15 minutes at room temperature.

Fig10: Immunoprecipitation (IP)

LONP1 was immunoprecipitated in 0.2 mg HeLa (Human cervix adenocarcinoma epithelial cell) cell lysate with HA724808 at 2 µg/10 µl beads. Western blot was performed from the immunoprecipitate using HA724808 at 1/2,000 dilution. Anti-Rabbit IgG for IP, AlpSdAbs® VHH(HRP) (025-100-005) at 1/5,000 dilution was used for 1 hour at room temperature.



Lane 1: HeLa cell lysate (input)

Lane 2: HA724808 IP in HeLa cell lysate

Lane 3: Rabbit IgG instead of HA724808 in HeLa cell lysate

Exposure time: 10 seconds

Blocking: 5% NFDM/TBST, 1 hour at room temperature

Primary dilution: HA724808, 1/2,000 in primary antibody dilution buffer (K1803), 2 hours at room temperature

Predicted band size: 106 kDa

Observed band size: 106 kDa

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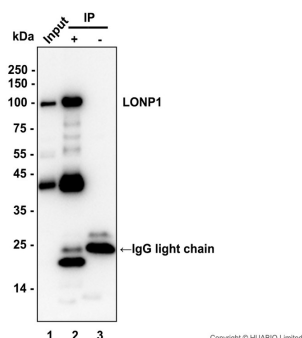
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Fig11: Immunoprecipitation (IP)

LONP1 was immunoprecipitated in 0.2 mg NIH/3T3 (Mouse fibroblast) cell lysate with HA724808 at 2 µg/10 µl beads. Western blot was performed from the immunoprecipitate using HA724808 at 1/2,000 dilution. HRP Conjugated Rabbit IgG kappa light chain Mouse Monoclonal Antibody(M1208-2) at 1/5000 dilution was used for 1 hour at room temperature.



Lane 1: NIH/3T3 cell lysate (input)

Lane 2: HA724808 IP in NIH/3T3 cell lysate

Lane 3: Rabbit IgG instead of HA724808 in NIH/3T3 cell lysate

Exposure time: 46 seconds

Blocking: 5% NFDm/TBST, 1 hour at room temperature

Primary dilution: HA724808, 1/2,000 in primary antibody dilution buffer (K1803), 2 hours at room temperature

Predicted band size: 106 kDa

Observed band size: 106 kDa

Note: All products are "FOR RESEARCH USE ONLY AND ARE NOT INTENDED FOR DIAGNOSTIC OR THERAPEUTIC USE".

Background References

1. Liu Y et al. Artemisinins ameliorate polycystic ovarian syndrome by mediating LONP1-CYP11A1 interaction. Science. 2024 Jun
2. Bai M et al. LONP1 targets HMGCS2 to protect mitochondrial function and attenuate chronic kidney disease. EMBO Mol Med. 2023 Feb

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