abcam

ab2790

Anti-Hsp27 antibody [G3.1]

Recombinant

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	Native Full Length Protein corresponding to Human HSPB1. Database link P04792
Clone number	G3.1
Purification technique	Affinity purification Protein A
Concentration	0.877 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Human
Dilution info	1/1000
Notes	-

IP

Tested

Species	Human
Dilution info	1/1000
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/1000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/100
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/1000
Notes	-

Target data

See full target information HSPB1

Function Small heat shock protein which functions as a molecular chaperone probably maintaining denatured proteins in a folding-competent state (PubMed:10383393, PubMed:20178975). Plays a role in stress resistance and actin organization

(PubMed:19166925). Through its molecular chaperone activity may regulate numerous biological processes including the phosphorylation and the axonal transport of neurofilament proteins (PubMed:23728742).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

This product has switched from a hybridoma to recombinant production method on 1st November 2024.

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	Hsp27 also known as HSPB1 is a small heat shock protein with a molecular weight of approximately 27 kilodaltons. This protein is expressed in various tissues including muscle heart and brain. It functions as a molecular chaperone that stabilizes unfolded proteins preventing their aggregation. Hsp27 undergoes phosphorylation at specific residues which modulates its chaperone activity and interaction with other proteins.
Biological function summary	Hsp27 plays a critical role in cellular stress response by regulating actin cytoskeleton dynamics and inhibiting apoptosis. It forms part of a complex that

	includes other proteins such as alphaB-crystallin. This complex facilitates the reorganization of proteins under stress conditions enhancing cell survival during oxidative stress or thermal shock. Hsp27 also modulates inflammatory responses and has been shown to affect cell migration.
Pathways	Hsp27 integrates into the apoptosis and inflammation pathways. It interacts with apoptotic machinery such as caspase proteins to protect cells by hindering apoptosome formation. Additionally Hsp27 can engage with pathways involving the nuclear factor-kappa B (NF-kB) impacting inflammatory signaling. CPTC (carboxyl-pyrene-trioctylamine) can modulate these pathways by altering Hsp27 function and interactions.
Associated diseases and disorders	Hsp27 has connections to neurodegenerative diseases and cancer. In neurodegenerative conditions such as Alzheimer's disease its chaperone activity is thought to protect neurons from misfolded protein aggregates. In cancer Hsp27 supports tumor cell survival and resistance to chemotherapy by interacting with proteins like Akt and p53. These interactions highlight the complex role of Hsp27 in modulating cellular responses in various pathological states.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

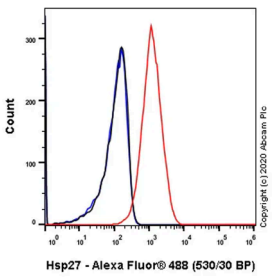
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

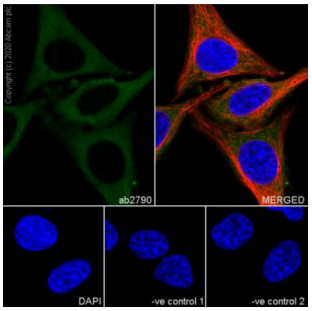
6 product images



Flow Cytometry (Intracellular) - Anti-Hsp27 antibody [G3.1] (ab2790)

Hsp27 Flow Cytometry (Intracellular) staining of HeLa (Human cervix adenocarcinoma epithelial cell) cells using mouse Anti-Hsp27 antibody

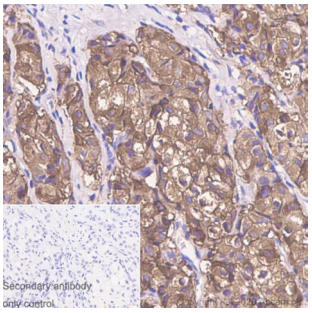
Flow cytometry overlay histogram of [4% Paraformaldehyde] HeLa (Human cervix adenocarcinoma epithelial cell) permeabilised with 90% methanol labelling Hsp27 with ab2790 at 1/1000 dilution (Red) compared with a mouse monoclonal IgG isotype control (Black) and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue). Secondary antibody details Goat anti mouse IgG (Alexa Fluor® 488) (ab150113), at 1/2000 dilution.



Immunocytochemistry/ Immunofluorescence - Anti-Hsp27 antibody [G3.1] (ab2790)

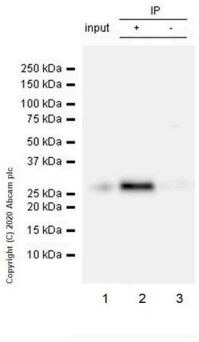
Hsp27 Immunocytochemistry/ Immunofluorescence staining of HeLa cells using mouse Anti-Hsp27 antibody

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized HeLa cells labelling Hsp27 with ab2790 at 1/100 dilution, followed by AlexaFluor® 488-conjugated Goat anti-Mouse secondary antibody (ab150113) at 1/1000 dilution at RT for 45 min. ab179513 Anti-beta Tubulin, used as a counterstain at 1/200 dilution, was co-incubated with ab9509 overnight at 4° C, followed by Alexa Fluor® 594 Goat Anti-Rabbit secondary (ab150080) at 1/1000 dilution at RT for 45 min. Nucleus were visualized using DAPI.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Hsp27 antibody [G3.1] (ab2790)

Immunohistochemical analysis of paraffin-embedded human tissues labeling Hsp27 with ab2790 at 1/1000 dilution followed by Goat Anti-Mouse IgG H&L (HRP polymer) (ab214879). The section was incubated with ab2790 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with hematoxylin.



Immunoprecipitation - Anti-Hsp27 antibody [G3.1] (ab2790)

Hsp27 was immunoprecipitated from HeLa (human cervix adenocarcinoma epithelial cell), whole cell lysate 10 µg with ab2790 1/1000 dilution (0.45 µg/ml). Western blot was performed on the immunoprecipitate using ab2790 at 1/1000 dilution. Capture antibody, 1/30 dilution (2µg in 0.35mg lysates).
Mouse monoclonal IgG1, kappa (ab18443) Isotype Control was used instead of ab2790 in HeLa whole cell lysate (Lane 3).

Blocking and dilution buffer and concentration: 5% NFDM/TBST.

Secondary antibody (ab131368), mouse IgG for IP (HRP) used at 1/1000 dilution.

All lanes:
Immunoprecipitation - Anti-Hsp27 antibody [G3.1] (ab2790) at 1/1000 dilution

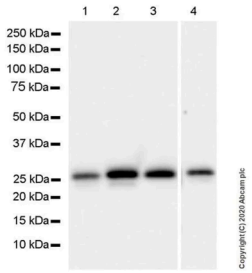
All lanes:
HeLa (human cervix adenocarcinoma epithelial cell) whole cell lysate at 10 µg

Secondary

All lanes:
Immunoprecipitation - Anti-mouse IgG for IP (HRP) (ab131368) at 1/1000 dilution

Observed band size: 27 kDa

Exposure time: 7s



Western blot - Anti-Hsp27 antibody [G3.1] (ab2790)

Blocking and diluting buffer and concentration: 5% NFDM/TBST.
All lanes:
Western blot - Anti-Hsp27 antibody [G3.1] (ab2790) at 1/1000 dilution

Lane 1:
Human liver tissue lysate at 20 µg

Lane 2:
Human heart tissue lysate at 20 µg

Lane 3:
HeLa (human cervix adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Lane 4:
549 (Human lung carcinoma epithelial cell) whole cell lysate at 20 µg

c

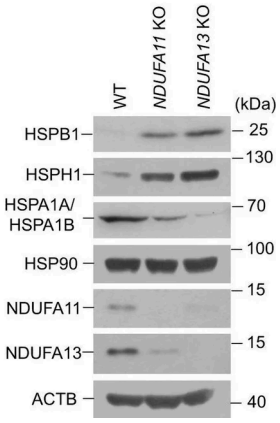


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Western blot - Anti-Hsp27 antibody [G3.1] (ab2790)

Hsp27 Western blot staining using mouse Anti-Hsp27 antibody

Western Blotting using Anti-Hsp27 antibody [G3.1], ab2790. Publication image from Kim, M. J. et al., 2023, Nat Commun, 37433777. Legend direct from paper.

Small HSP and HSP110 families have a tendency to be increased under mitochondrial stress.a RNA-seq analysis of HSPs gene expression log2 fold changes (log2FC) in NDUFA11 KO and NDUFA13 KO compared to WT HEK293T cells (n = 4). Up- and down-regulated genes (q-value < 0.05) are shown in green and pink, respectively. The intensity of the color shades depends on the level of expression change. Gray indicates genes with not statistically significant expression changes. b mRNA expression patterns of selected transcripts validated by RT-qPCR. The mRNA levels are presented as fold changes relative to WT. Data shown are mean ± SD (n = 3 biological replicates with two technical replicates). p-value from an ordinary one-way ANOVA with Dunnett's multiple comparisons test using GraphPad Prism. c Western blot analysis of HSPs expression performed in whole cell lysates of NDUFA11 KO, NDUFA13 KO and WT HEK293T cells. ACTB was used as a loading control. Data shown are representative of three independent experiments. d Quantification of HSPs in western blot analysis normalized to ACTB using ImageJ. The protein levels are presented as fold changes relative to WT. Data shown are mean ± SD (n = 3). p-value from two-sided, unpaired t-test using GraphPad Prism. Source data are provided as a Source Data file.

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