abcam

ab13495

Anti-Hsp90 antibody

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.4 Preservative: 0.09% Sodium azide Constituents: PBS, 50% Glycerol (glycerin, glycerine)
Form	Liquid
Clonality	Polyclonal
Immunogen	Full Length Protein corresponding to Human HSP90AB1. The exact immunogen used to generate this antibody is proprietary information. Database link P08238
Purification technique	Affinity purification Protein A
Specificity	Detects 90kD proteins corresponding to the molecular mass of hsp90aß.
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC

Expected

Species	Mouse, Rat, Xenopus laevis, Human
Dilution info	Use at an assay dependent concentration.
Notes	-

IP

Expected

Species	Mouse, Rat, Xenopus laevis, Human
Dilution info	Use at an assay dependent concentration.
Notes	-

Flow Cyt

Expected

Species	Mouse
Dilution info	-
Notes	See Abreview. ab171870 - Rabbit polyclonal IgG, is suitable for use as an isotype control with this antibody.

Species	Rat
Dilution info	-
Notes	See Abreview. ab171870 - Rabbit polyclonal IgG, is suitable for use as an isotype control with this antibody.

Species	Xenopus laevis
Dilution info	-
Notes	See Abreview. ab171870 - Rabbit polyclonal IgG, is suitable for use as an isotype control with this antibody.

Species	Human
Dilution info	-
Notes	See Abreview. ab171870 - Rabbit polyclonal IgG, is suitable for use as an isotype control with this antibody.

ELISA

Expected

Species	Mouse, Rat, Xenopus laevis, Human
Dilution info	Use at an assay dependent concentration.
Notes	-

WB

Tested

Species	Human
Dilution info	1/20000 - 1/40000
Notes	-

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Xenopus laevis, Rat
Dilution info	-
Notes	-

IHC-P

Tested

Species	Mouse
Dilution info	-
Notes	-

Expected

Species	Human
Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Xenopus laevis, Rat

Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Xenopus laevis, Rat
Dilution info	-
Notes	-

IHC-Fr

Expected

Species	Mouse, Rat, Xenopus laevis, Human
Dilution info	Use at an assay dependent concentration.
Notes	-

Target data

See full target information HSP90AB1

Function	Molecular chaperone that promotes the maturation, structural maintenance and proper regulation of specific target proteins involved for instance in cell cycle control and signal transduction. Undergoes a functional cycle linked to its ATPase

activity. This cycle probably induces conformational changes in the client proteins, thereby causing their activation. Interacts dynamically with various co-chaperones that modulate its substrate recognition, ATPase cycle and chaperone function (PubMed:16478993, PubMed:19696785). Engages with a range of client protein classes via its interaction with various co-chaperone proteins or complexes, that act as adapters, simultaneously able to interact with the specific client and the central chaperone itself. Recruitment of ATP and co-chaperone followed by client protein forms a functional chaperone. After the completion of the chaperoning process, properly folded client protein and co-chaperone leave HSP90 in an ADP-bound partially open conformation and finally, ADP is released from HSP90 which acquires an open conformation for the next cycle (PubMed:26991466, PubMed:27295069). Apart from its chaperone activity, it also plays a role in the regulation of the transcription machinery. HSP90 and its co-chaperones modulate transcription at least at three different levels. They first alter the steady-state levels of certain transcription factors in response to various physiological cues. Second, they modulate the activity of certain epigenetic modifiers, such as histone deacetylases or DNA methyl transferases, and thereby respond to the change in the environment. Third, they participate in the eviction of histones from the promoter region of certain genes and thereby turn on gene expression (PubMed:25973397). Antagonizes STUB1-mediated inhibition of TGF-beta signaling via inhibition of STUB1-mediated SMAD3 ubiquitination and degradation (PubMed:24613385). Promotes cell differentiation by chaperoning BIRC2 and thereby protecting from auto-ubiquitination and degradation by the proteasomal machinery (PubMed:18239673). Main chaperone involved in the phosphorylation/activation of the STAT1 by chaperoning both JAK2 and PRKCE under heat shock and in turn, activates its own transcription (PubMed:20353823). Involved in the translocation into ERGIC (endoplasmic reticulum-Golgi intermediate compartment) of leaderless cargos (lacking the secretion signal sequence) such as the interleukin 1/IL-1; the translocation process is mediated by the cargo receptor TMED10 (PubMed:32272059). (Microbial infection) Binding to N.meningitidis NadA stimulates monocytes (PubMed:21949862). Seems to interfere with N.meningitidis NadA-mediated invasion of human cells (Probable).

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

Supplementary info

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

Activity summary	Hsp90 also known as heat shock protein 90 is a molecular chaperone with a mass of about 90 kDa. It assists in the proper folding of client proteins stabilization of proteins against heat stress and degradation of misfolded proteins. Hsp90 is present in various cellular compartments including the cytoplasm nucleus and mitochondria. It is highly expressed in most eukaryotic cells reflecting its fundamental role in maintaining cellular protein homeostasis. Additionally Hsp90 serves as a loading control in western blot experiments due to its consistent expression levels across samples.
Biological function summary	Hsp90 interacts with many co-chaperones to form multi-protein complexes that aid its function. This protein is necessary for the maturation and stability of many signaling proteins including steroid hormone receptors and kinases like the tyrosine kinase D7A. Hsp90's chaperone activity is ATP-dependent with its N-terminal domain binding and hydrolyzing ATP leading to conformational changes that promote protein folding and assembly. Its influence extends to regulating cell cycle control and apoptosis highlighting its importance in cellular processes.
Pathways	Hsp90 participates in key biological pathways such as the protein folding response and the MAPK signaling pathway. In the protein folding process Hsp90 collaborates with co-chaperones like Aha1 and p23 to ensure accurate protein synthesis and repair. Its role in the MAPK signaling pathway influences cell growth proliferation and differentiation interacting with proteins like Raf-1 and MEK. These interactions highlight Hsp90's involvement in signal transduction and cellular stress responses.
Associated diseases and disorders	Hsp90 is implicated in cancer and neurodegenerative diseases. Its overexpression often correlates with tumor progression and poor prognosis in cancers where it stabilizes client proteins like HER2 and AKT that drive oncogenic processes. In neurodegenerative disorders such as Alzheimer's disease altered Hsp90 function affects the degradation of proteins like tau contributing to pathogenic protein aggregation. Understanding Hsp90's role in these conditions offers avenues for therapeutic interventions targeting its chaperone activity.

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

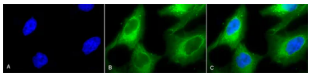
We do not recommend this combination. It is not covered by our product promise.

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.

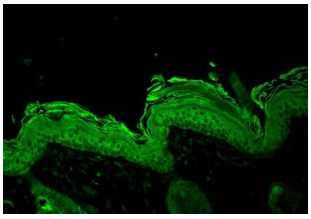
5 product images



Immunocytochemistry/ Immunofluorescence - Anti-Hsp90 antibody (ab13495)

Hsp90 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Hsp90 antibody

Immunofluorescent analysis of 2% paraformaldehyde fixed Heat Shocked Cervical cancer cell line (HeLa) for 20min at RT, labelling Hsp90 with ab13495 at 1/100 dilution for 12 hours at 4°C, followed by secondary antibody Goat Anti-Rabbit (FITC) (green) at 1/200 dilution for 2 hours at RT. Image showing cytoplasmic staining on HeLa cells. (A) DAPI (blue) nuclear stain. (B) Anti-Hsp90 Antibody (green) (C) Composite image.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Hsp90 antibody (ab13495)

Hsp90 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Hsp90 antibody

ab13495 staining Hsp90 in Mouse backskin tissue sections by Immunohistochemistry (IHC-P - paraformaldehyde-fixed, paraffin-embedded sections). Tissue was fixed with Bouin's fixative solution. Samples were incubated with primary antibody (1/100) for 1 hour at room temperature. A FITC-conjugated Goat anti-rabbit IgG polyclonal (1/50) was used as the secondary antibody.

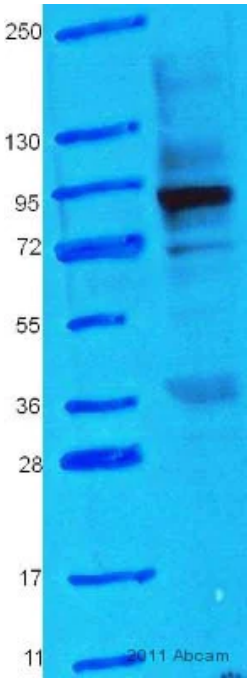


Image courtesy of Dr Mahesh Shivananjappa by customer review.

Western blot - Anti-Hsp90 antibody (ab13495)

All lanes:
Western blot - Anti-Hsp90 antibody (ab13495) at 1/1000 dilution

All lanes:
whole cell lysate prepared from human platelets treated with A23187 for 1 hour at 20 µg

Secondary

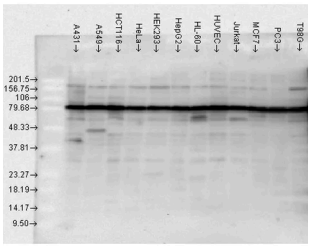
All lanes:
HRP conjugated goat anti-rabbit polyclonal at 1/10000 dilution

Developed using the ECL technique.

Predicted band size: 85 kDa

Observed band size: 36 kDa, 90 kDa

Exposure time: 5min



Western blot - Anti-Hsp90 antibody (ab13495)

Hsp90 Western blot staining using rabbit Anti-Hsp90 antibody

All lanes:
Western blot - Anti-Hsp90 antibody (ab13495) at 1/10000 dilution

Lane 1:
A431 at 2 µg

Lane 2:
A549 at 2 µg

Lane 3:
HCT116 at 2 µg

Lane 4:
Hela at 2 µg

Lane 5:
HEK293 at 2 µg

Lane 6:
HepG2 at 2 µg

Lane 7:
HL-60 at 2 µg

Lane 8:
HUVEC at 2 µg

Lane 9:
Jurkat at 2 µg

Lane 10:
MCF7 at 2 µg

Lane 11:
PC3 at 2 µg

Lane 12:
T98G at 2 µg

Secondary

All lanes:
HRP Donkey anti-rabbit IgG, 1 hour at room temperature

Predicted band size: 85 kDa

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c

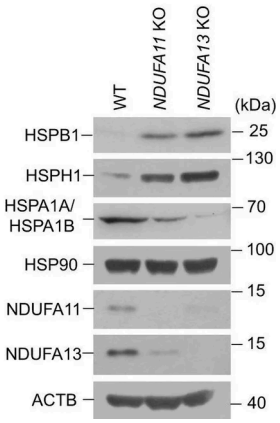


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Western blot - Anti-Hsp90 antibody (ab13495)

Hsp90 Western blot staining using rabbit Anti-Hsp90 antibody

Western Blotting using Anti-Hsp90 antibody, ab13495. 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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