abcam

ab59459

Anti-Hsp90 antibody [D7a]

Anti-Hsp90 antibody [D7a] (ab59459) is a mouse monoclonal antibody detecting Hsp90 in **Western Blot, Flow Cytometry, IP, IHC-P, IHC-Fr, ICC/IF**. Suitable for **Chicken, Cow, Human, Mouse, Pig, Rabbit, Rat**.

- KO validated for confirmed specificity
- Over 20 publications
- Trusted since 2007

KO Validated

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	pH: 7.2 Preservative: 0.09% Sodium azide Constituents: PBS, 50% Glycerol (glycerin, glycerine)
Form	Liquid
Clonality	Monoclonal
Immunogen	Native Full Length Protein corresponding to Human HSP90AA1. Database link P07900
Clone number	D7a
Purification technique	Affinity purification Protein G
Specificity	Can isolate complexes of HSP90, Src kinase and cec37
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Mouse
Dilution info	1/100000
Notes	Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

Species	Human
Dilution info	1/100000
Notes	Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

Expected

Species	Rat
Dilution info	1/100000
Notes	Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

Species	Chicken
Dilution info	1/100000
Notes	Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

Species	Cow
Dilution info	1/100000
Notes	Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

Species	Pig
Dilution info	1/100000
Notes	Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

Species	Rabbit
Dilution info	1/100000
Notes	Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

IP

Expected

Species	Mouse, Rat, Pig, Chicken, Human, Cow, Rabbit
Dilution info	Use at an assay dependent concentration.
Notes	-

Flow Cyt

Expected

Species	Mouse
Dilution info	-
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Species	Rat
Dilution info	-
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Species	Pig
Dilution info	-
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Species	Chicken
Dilution info	-
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Species	Human
Dilution info	-
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Species	Cow

Dilution info	-
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Species	Rabbit
Dilution info	-
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

WB

Tested

Species	Human
Dilution info	1/500
Notes	-

Expected

Species	Mouse
Dilution info	-
Notes	-

Species	Rat
Dilution info	1/500
Notes	-

Species	Chicken
Dilution info	1/500
Notes	-

Species	Cow
Dilution info	1/500
Notes	-

Species	Pig
Dilution info	1/500

Notes	-

Species	Rabbit
Dilution info	1/500
Notes	-

ICC/IF

Expected

Species	Mouse, Rat, Pig, Chicken, Human, Cow, Rabbit
Dilution info	Use at an assay dependent concentration.
Notes	-

IHC-Fr

Expected

Species	Mouse, Rat, Pig, Chicken, Human, Cow, Rabbit
Dilution info	Use at an assay dependent concentration.
Notes	-

Target data

See full target information HSP90AA1

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 that is linked to its ATPase activity which is essential for its chaperone 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:11274138, PubMed:12526792, PubMed:15577939, PubMed:15937123, PubMed:27353360, PubMed:29127155). 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 (PubMed:29127155). 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). Plays a critical role in mitochondrial import, delivers

preproteins to the mitochondrial import receptor TOMM70 (PubMed:12526792). 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 (PubMed:25973397). In the first place, they alter the steady-state levels of certain transcription factors in response to various physiological cues (PubMed:25973397). 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 (PubMed:25973397). Third, they participate in the eviction of histones from the promoter region of certain genes and thereby turn on gene expression (PubMed:25973397). Binds bacterial lipopolysaccharide (LPS) and mediates LPS-induced inflammatory response, including TNF secretion by monocytes (PubMed:11276205). Antagonizes STUB1-mediated inhibition of TGF-beta signaling via inhibition of STUB1-mediated SMAD3 ubiquitination and degradation (PubMed:24613385). Mediates the association of TOMM70 with IRF3 or TBK1 in mitochondrial outer membrane which promotes host antiviral response (PubMed:20628368, PubMed:25609812). (Microbial infection) Seems to interfere with N.meningitidis NadA-mediated invasion of human cells. Decreasing HSP90 levels increases adhesion and entry of E.coli expressing NadA into human Chang cells; increasing its levels leads to decreased adhesion and invasion.

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

What is this antibody validated in?
Anti-Hsp90 antibody [D7a] (ab59459) is a mouse monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Flow Cyt), Immunoprecipitation (IP), Immunohistochemistry (IHC-P), Immunohistochemistry (IHC-Fr), Immunocytochemistry/immunofluorescence (ICC/IF) in Chicken, Cow, Human, Mouse, Pig, Rabbit, Rat samples.

What is the molecular weight of Hsp90?
Anti-Hsp90 [D7a] (ab59459) specifically detects a band for Hsp90 (UniProt: P11501) at a molecular weight of 95kDa.

Trusted by the scientific community

Anti-Hsp90 [D7a] (ab59459) was first used in a scientific publication in 2007 and has been cited over 20 times in peer-reviewed journals.

Reviewed by scientists
Anti-Hsp90 [D7a] (ab59459) has over 5 independent reviews from customers.

Specificity confirmed
The specificity of Anti-Hsp90 antibody [D7a] (ab59459) has been confirmed by Western blot testing in HSP90AA1 Knockout HAP1 cells.

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

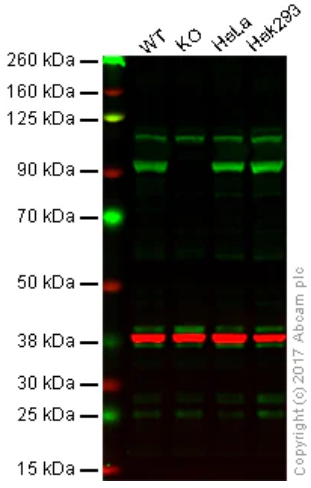
We do not recommend this combination. It is not covered by our product promise.

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.

4 product images



Western blot - Anti-Hsp90 antibody [D7a] (ab59459)

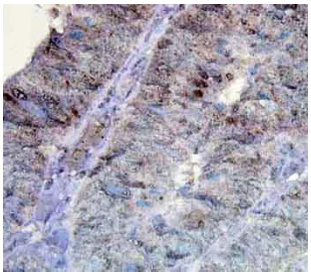
Hsp90 Western blot staining using mouse Anti-Hsp90 antibody

Lane 1: Wild-type HAP1 whole cell lysate (20 µg)
Lane 2: Hsp90 knockout HAP1 whole cell lysate (20 µg)
Lane 3: HeLa whole cell lysate (20 µg)
Lane 4: Hek 293 whole cell lysate (20 µg)
Lanes 1 - 4: Merged signal (red and green). Green - ab59459 observed at 90 kDa. Red - loading control, ab181602, observed at 37 kDa.

ab59459 was shown to specifically recognize Hsp90 in wild-type HAP1 cells along with additional cross reactive bands. No band was observed when Hsp90 knockout cells were examined. Wild-type and Hsp90 knockout samples were subjected to SDS-PAGE. ab59459 and ab181602 (Rabbit anti GAPDH loading control) were incubated overnight at 4°C at 1/500 dilution and 1/20,000 dilution respectively. Blots were developed with Goat anti-Mouse IgG H&L (IRDye® 800CW) preabsorbed (ab216772) and Goat anti-Rabbit IgG H&L (IRDye® 680RD) preabsorbed (ab216777) secondary antibodies at 1/20,000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-Hsp90 antibody [D7a] (ab59459)

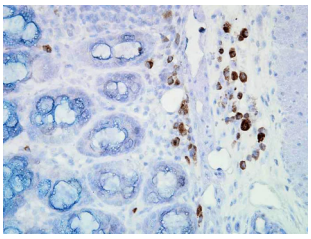
Predicted band size: 85 kDa



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Hsp90 antibody [D7a] (ab59459)

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

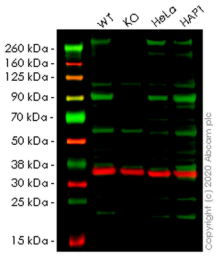
ab59459 staining Hsp90 alpha in human colon cancer tissue section by immunohistochemistry (Bouin's fixed paraffin embedded tissue sections). Tissue underwent heat mediated antigen retrieval in microwave in citrate buffer. The primary antibody was used at dilution of 1/100,000 dilution using antibody amplifier™ system.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Hsp90 antibody [D7a] (ab59459)

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

Immunohistochemistry analysis of ab59459 staining Hsp90 alpha in mouse inflamed colon tissue section at 1/100000 dilution for 12 hours at 4°C using antibody amplifier™ system. Biotin Goat Anti-Mouse antibody was used at 1:2000 for 1 hour at room tempertature. Mayer Hematoxylin (purple/blue) nuclear stain at 200 µl for 2 minutes at room temperature was used as a counter stain. Localization: Inflammatory cells. Magnification: 40x.



Western blot - Anti-Hsp90 antibody [D7a] (ab59459)

Hsp90 Western blot staining using mouse Anti-Hsp90 antibody

Lanes 1-4: Merged signal (red and green). Green - ab59459 observed at 90 kDa. Red - loading control ab181602 observed at 36 kDa.
ab59459 Anti-Hsp90 antibody [D7a] was shown to specifically react with Hsp90 in wild-type HEK-293T cells. Loss of signal was observed when knockout cell line ab266591 (knockout cell lysate ab258458) was used. Wild-type and Hsp90 knockout samples were subjected to SDS-PAGE. ab59459 and Anti-GAPDH antibody[EPR16891] - Loading Control (ab181602) were incubated overnight at 4°C at 1 in 1000 dilution and 1 in 20000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 680RD) preadsorbed (ab216777) and Goat anti-Mouse IgG H&L (IRDye® 800CW) preadsorbed (ab216772) secondary antibodies at 1 in 20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-Hsp90 antibody [D7a] (ab59459) at 1/1000 dilution

Lane 1:
Wild-type HEK-293T (Human epithelial cell line from embryonic kidney transformed with large T antigen) whole cell lysate at 20 µg

Lane 2:
HSP90AA1 knockout HEK-293T (Human epithelial cell line from embryonic kidney transformed with large T antigen) whole cell lysate at 20 µg

Lane 2:
Western blot - Human HSP90AA1 (Hsp90 alpha) knockout HEK-293T cell line (ab266591)

Lane 3:
HeLa (Human epithelial cell line from cervix adenocarcinoma) whole cell lysate at 20 µg

Lane 4:
HAP1 whole cell lyate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (IRDye® 680RD) preadsorbed (ab216777) at 1/10000 dilution

Predicted band size: 85 kDa

Observed band size: 90 kDa

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.