abcam

ab53497

Anti-Hsp90 beta antibody [H90-10]

KO Validated

Key facts

Isotype	IgG2a
Host species	Mouse
Storage buffer	pH: 7.2 Preservative: 0.09% Sodium azide Constituents: PBS, 50% Glycerol (glycerin, glycerine)
Form	Liquid
Clonality	Monoclonal
Immunogen	Recombinant Full Length Protein corresponding to Human HSP90AB1. Database link P08238
Clone number	H90-10
Purification technique	Affinity purification Protein G
Specificity	Detects 90kDa. Detects HSP90 beta in all reactive species except in Chicken, where it detects both alpha and beta isoforms.
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	0.5 µg for 10^6 Cells

Notes	ab170191 - Mouse monoclonal IgG2a, is suitable for use as an isotype control with this antibody.

Expected

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

WB

Tested

Species	Human
Dilution info	1/2500
Notes	-

Expected

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

IHC-P

Tested

Species	Mouse
Dilution info	1/100
Notes	-

Species	Human
Dilution info	1/100
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Expected

Species	Mouse
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 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 beta also known as Hsp90AB1 or Hsp90 protein is a heat shock protein of approximately 90 kDa. It is a molecular chaperone found in most eukaryotic cells. Hsp90 beta helps in the proper folding stabilization and degradation of many proteins. Unlike its isoform Hsp90 alpha Hsp90 beta has a more stable expression and is not typically induced by stress. This protein is primarily localized in the cytosol but can also be present in other cellular compartments depending on the cellular state.
Biological function summary	Hsp90 beta functions to maintain protein homeostasis and cellular integrity. It forms part of a multi-protein chaperone complex which includes cochaperones such as Hop Hsp70 and p23 necessary for its full functionality. Hsp90 beta supports the maturation of steroid hormone receptors kinases and other client proteins. It plays an important role in the cell cycle regulation through its interaction with various proteins ensuring proper cell division and growth.
Pathways	Hsp90 beta is deeply involved in signal transduction and cellular stress response pathways. Its interaction with the Akt pathway is significant for cell survival signals. Hsp90 beta also participates in the MAP kinase pathway affecting cell growth and differentiation. The protein associates with multiple kinases including RAF and Src which are important for downstream signaling.
Associated diseases and disorders	The dysregulation of Hsp90 beta is associated with cancer and neurodegenerative diseases. In cancer Hsp90 beta stabilizes many oncoproteins making it a potential therapeutic target for inhibiting tumor growth. It interacts with client proteins like the proto-oncogene c-Src promoting tumorigenesis. In neurodegenerative disorders such as Alzheimer's disease improper interaction between Hsp90 beta and tau proteins can contribute to disease progression impacting neuronal function.

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

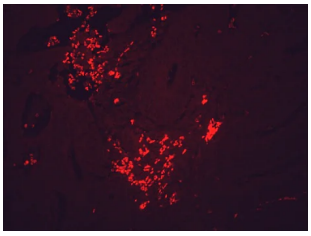
We do not recommend this combination. It is not covered by our product promise.

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.

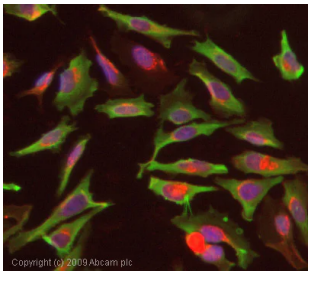
11 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Hsp90 beta antibody [H90-10] (ab53497)

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

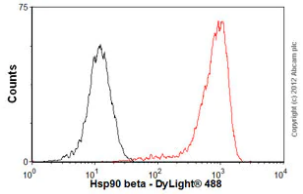
Formalin-fixed, paraffin-embedded human colon carcinoma tissue stained for Hsp90 beta using ab53497 at 1/10000 in immunohistochemical analysis. Primary antibody was incubated for 12 hours at 4°C. Secondary antibody was an Alexa Fluor® 555 goat anti-mouse (red) at 1/5000 dilution incubated for 1 hour at room temperature.
40x magnification.



Immunocytochemistry/ Immunofluorescence - Anti-Hsp90 beta antibody [H90-10] (ab53497)

Hsp90 beta Immunocytochemistry/ Immunofluorescence staining using mouse Anti-Hsp90 beta antibody

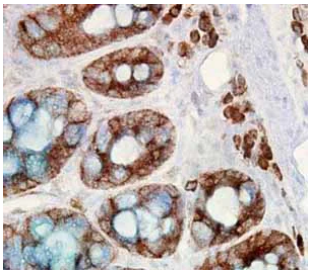
ICC/IF image of ab53497 stained HeLa cells. The cells were 4% PFA fixed (10 min) and then incubated in 1%BSA / 10% normal goat serum / 0.3M glycine in 0.1% PBS-Tween for 1h to permeabilise the cells and block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab53497, 1µg/ml) overnight at +4°C. The secondary antibody (green) was Alexa Fluor® 488 goat anti-mouse IgG (H+L) used at a 1/1000 dilution for 1h. Alexa Fluor® 594 WGA was used to label plasma membranes (red) at a 1/200 dilution for 1h. DAPI was used to stain the cell nuclei (blue) at a concentration of 1.43µM.



Flow Cytometry - Anti-Hsp90 beta antibody [H90-10] (ab53497)

Hsp90 beta Flow Cytometry staining using mouse Anti-Hsp90 beta antibody

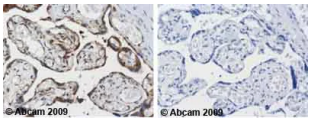
Overlay histogram showing HeLa cells stained with ab53497 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab53497, 0.5µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG2a [ICIGG2A] (ab91361, 1µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Hsp90 beta antibody [H90-10] (ab53497)

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

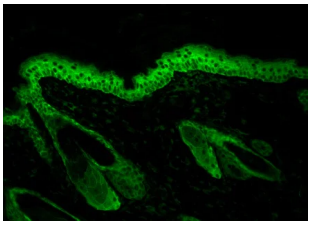
ab53497 at 100,000 dilution staining Hsp90 in human colon cancer tissue section by immunohistochemistry (Formalin/ PFA fixed paraffin-embedded tissue sections). A antibody amplifier™ system was used for staining. A HRP-conjugated secondary antibody was used at 1/10 dilution



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Hsp90 beta antibody [H90-10] (ab53497)

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

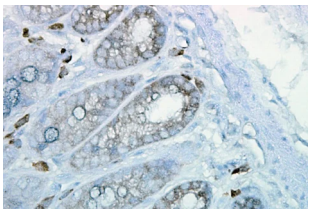
ab53497 staining Human normal placenta. Staining is localized to cytoplasmic compartment. Left panel: with primary antibody at 2 ug/ml. Right panel: isotype control.
Sections were stained using an automated system DAKO Autostainer Plus , at room temperature. Sections were rehydrated and antigen retrieved with the Dako 3-in-1 AR buffers EDTA pH 9.0 in a DAKO PT Link. Slides were peroxidase blocked in 3% H2O2 in methanol for 10 minutes. They were then blocked with Dako Protein block for 10 minutes (containing casein 0.25% in PBS) then incubated with primary antibody for 20 minutes and detected with Dako Envision Flex amplification kit for 30 minutes. Colorimetric detection was completed with Diaminobenzidine for 5 minutes. Slides were counterstained with Haematoxylin and coverslipped under DePeX. Please note that for manual staining we recommend to optimize the primary antibody concentration and incubation time (overnight incubation), and amplification may be required.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Hsp90 beta antibody [H90-10] (ab53497)

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

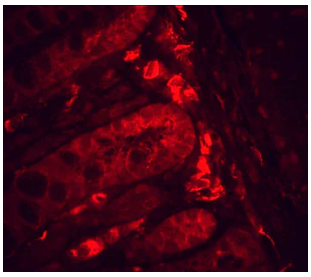
Paraffin-embedded mouse backskin (epidermis) tissue fixed with Bouin's fixative, stained for Hsp90 beta using ab53497 at 1/100 dilution in immunohistochemical analysis. Primary antibody was incubated for 1 hour at room temperature. Secondary antibody was a FITC-conjugated goat anti-mouse (green) at 1/50 dilution ncubated for 1 hour at room temperature.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Hsp90 beta antibody [H90-10] (ab53497)

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

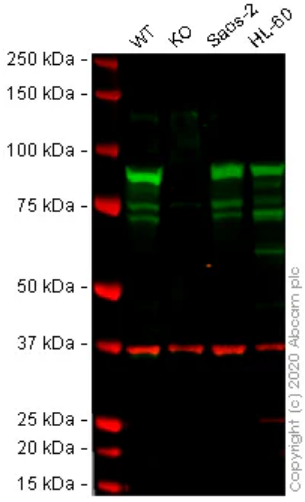
Immunohistochemistry analysis of formalin-fixed paraffin-embedded inflamed mouse colon using ab53497 at 1/10000. Primary antibody was incubated for 12 hours at 4°C. Secondary Antibody was a Biotin Goat Anti-Mouse at 1/2000 dilution incubated for 1 hour at room temperature. Counterstain was Mayer Hematoxylin (purple/blue) nuclear stain at 200 µl for 2 minutes at room temperature. Magnification: 40x.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Hsp90 beta antibody [H90-10] (ab53497)

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

ab53497 at 100,000 dilution staining Hsp90 beta in mouse colon tissue section by immunohistochemistry (Formalin/ PFA fixed paraffin-embedded tissue sections). A antibody amplifier™ system was used for staining. An Alexa Fluor® 568 conjugated secondary antibody was used at 1/10 dilution.



Western blot - Anti-Hsp90 beta antibody [H90-10] (ab53497)

Hsp90 beta Western blot staining using mouse Anti-Hsp90 beta antibody

Lanes 1 - 4: Merged signal (red and green). Green - ab53497 observed at 85 kDa. Red - loading control ab181602 (Rabbit Anti-GAPDH antibody [EPR16891]) observed at 37kDa.
ab53497 was shown to react with Hsp90 beta in wild-type HEK-293T cells in western blot with loss of signal observed in HSP90AB1 knockout cell line ab266117 (HSP90AB1 knockout cell lysate ab257190). Wild-type and HSP90AB1 knockout HEK-293T cell lysates were subjected to SDS-PAGE. Membranes were blocked in 3% milk in TBS-T (0.1% Tween®) before incubation with ab53497 and ab181602 (Rabbit Anti-GAPDH antibody [EPR16891]) overnight at 4°C at a 1 in 5000 dilution and a 1 in 20000 dilution respectively. Blots were incubated 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 in 20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-Hsp90 beta antibody [H90-10] (ab53497) at 1/5000 dilution

Lane 1:
Wild-type HEK-293T cell lysate at 20 µg

Lane 2:
Western blot - Human HSP90AB1 (Hsp90 beta) knockout HEK-293T cell lysate (ab257190) at 20 µg

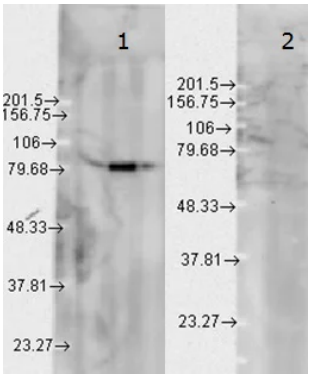
Lane 3:
Saos-2 cell lysate at 20 µg

Lane 4:
HL-60 cell lysate at 20 µg

Performed under reducing conditions.

Predicted band size: 83 kDa

Observed band size: 85 kDa



Western blot - Anti-Hsp90 beta antibody [H90-10] (ab53497)

All lanes:
Western blot - Anti-Hsp90 beta antibody [H90-10] (ab53497)

Lane 1:
Hsp90 beta protein at 2 µg

Lane 2:
Hsp90 alpha protein at 2 µg

Predicted band size: 83 kDa



Western blot - Anti-Hsp90 beta antibody [H90-10] (ab53497)

Hsp90 beta Western blot staining using mouse Anti-Hsp90 beta antibody

All lanes:
Western blot - Anti-Hsp90 beta antibody [H90-10] (ab53497) at 1 µg/mL

All lanes:
Western blot - Recombinant human Hsp90 beta protein (Active) (Tag Free) (ab80033) at 0.1 µg

Secondary

All lanes:
Western blot - Goat Anti-Mouse IgG H&L (HRP) preadsorbed (ab97040) at 1/5000 dilution

Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 83 kDa

Exposure time: 8min

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