abcam

ab52641

Anti-STK3/MST-2 antibody [EP1466Y]

Recombinant | RabMAb | KO Validated | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
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	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EP1466Y
Purification technique	Affinity purification Protein A
Concentration	0.706 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	1/50 - 1/100
Notes	-

Expected

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

WB

Tested

Species	Rat
Dilution info	1/10000 - 1/50000
Notes	-

Species	Human
Dilution info	1/10000 - 1/50000
Notes	-

Expected

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

ICC/IF

Tested

Species	Mouse
Dilution info	5 µg/mL
Notes	-

Species	Human
Dilution info	5 µg/mL
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Mouse
Dilution info	1/70
Notes	-

Expected

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

IHC-P

Tested

Species	Human
Dilution info	1/50 - 1/100
Notes	Antigen retrieval step strongly recommended for enhanced signal. Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Expected

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

Target data

See full target information STK3

Function	Stress-activated, pro-apoptotic kinase which, following caspase-cleavage, enters the nucleus and induces chromatin condensation followed by internucleosomal DNA fragmentation (PubMed:11278283, PubMed:8566796, PubMed:8816758). Key component of the Hippo signaling pathway which plays a pivotal role in organ size control and tumor suppression by restricting proliferation and promoting apoptosis. The core of this pathway is composed of a kinase cascade wherein STK3/MST2 and STK4/MST1, in complex with its regulatory protein SAV1, phosphorylates and activates LATS1/2 in complex with its regulatory protein MOB1, which in turn phosphorylates and inactivates YAP1 oncoprotein and WWTR1/TAZ (PubMed:15688006, PubMed:16930133, PubMed:23972470, PubMed:28087714, PubMed:29063833, PubMed:30622739). Phosphorylation of YAP1 by LATS2 inhibits its translocation into the nucleus to regulate cellular genes important for cell proliferation, cell death, and cell migration (PubMed:15688006, PubMed:16930133, PubMed:23972470, PubMed:28087714). STK3/MST2 and STK4/MST1 are required to repress proliferation of mature hepatocytes, to prevent activation of facultative adult liver stem cells (oval cells), and to inhibit tumor formation. Phosphorylates NKX2-1 (By similarity). Phosphorylates NEK2 and plays a role in centrosome disjunction by regulating the localization of NEK2 to centrosome, and its ability to phosphorylate CROCC and CEP250 (PubMed:21076410, PubMed:21723128). In conjunction with SAV1, activates the transcriptional activity of ESR1 through the modulation of its phosphorylation (PubMed:21104395). Positively regulates RAF1 activation via suppression of the inhibitory phosphorylation of RAF1 on 'Ser-259' (PubMed:20212043). Phosphorylates MOBKL1A and RASSF2 (PubMed:19525978). Phosphorylates MOBKL1B on 'Thr-74'. Acts cooperatively with MOBKL1B to activate STK38 (PubMed:18328708, PubMed:18362890).

Storage

Shipped at conditions	Conditional Ambient
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	Stable for 12 months at -20°C

Notes

Patented technology

Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

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	STK3 also known as MST-2 is a serine/threonine protein kinase with a molecular mass of around 60 kDa. It plays an integral role in cell signaling by phosphorylating and activating downstream targets. MST-2 localizes mainly in the cytoplasm and is expressed broadly across various tissues with notable activity in liver kidney and heart tissues. This kinase contributes to the regulation of cell shape and apoptosis reinforcing its importance in cellular homeostasis.
Biological function summary	STK3/MST-2 is a core component of the Hippo signaling pathway which controls organ size by regulating cell proliferation and apoptosis. MST-2 often interacts with other proteins and participates in functional complexes notably with MOB1 and LATS1/2. These interactions are essential for transmitting growth inhibitory signals. Through its kinase activity MST-2 phosphorylates and activates these molecules initiating a cascade that ultimately influences gene expression impacting cell cycle and cell death processes.
Pathways	MST-2 plays a pivotal role not only in the Hippo pathway but also in the MAPK signaling network. In the Hippo pathway MST-2 phosphorylates components like LATS1/2 subsequently affecting the translocation and activity of YAP/TAZ transcription factors which control cell proliferation and survival. In the MAPK pathway MST-2 can interact with other kinases such as ASK1 to influence stress response signaling. These interactions demonstrate how MST-2 integrates signals between pathways to mediate critical decisions in cell life and death.
Associated diseases and disorders	MST-2 has implications in cancer and cardiac diseases. Dysregulation of the Hippo pathway involving MST-2 is frequently observed in various cancers where impaired MST-2 function contributes to unchecked cell growth and tumor progression. Moreover MST-2 connects with other proteins like YAP often overactive in cancers emphasizing its role in controlling cell division. In cardiac context alterations in MST-2 activity relate to cardiac hypertrophy as proper functioning of the kinase is necessary to maintain cardiac tissue architecture and response to stress.

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.

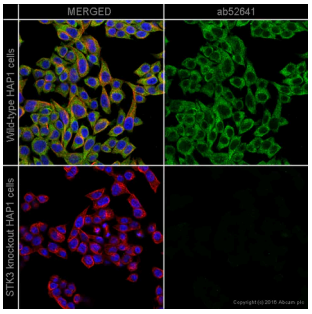
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

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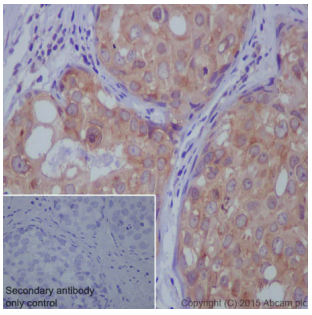
8 product images



Immunocytochemistry/ Immunofluorescence - Anti-STK3/MST-2 antibody [EP1466Y] (ab52641)

STK3/MST-2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-STK3/MST-2 antibody

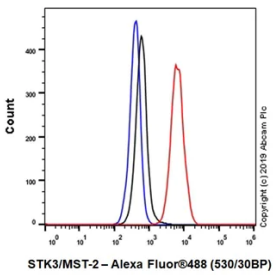
ab52641 staining STK3/MST-2 in wild-type HAP1 cells (top panel) and STK3/MST-2 knockout HAP1 cells (bottom panel). The cells were fixed with 4% formaldehyde (10min), permeabilized with 0.1% Triton X-100 for 5 minutes and then blocked with 1% BSA/10% normal goat serum/0.3M glycine in 0.1% PBS-Tween for 1h. The cells were then incubated with ab52641 at 5µg/ml concentration and ab195889 at 1/250 dilution (shown in pseudo colour red) overnight at +4°C, followed by a further incubation at room temperature for 1h with a goat secondary antibody to Rabbit IgG (Alexa Fluor® 488) (ab150081) at 2 µg/ml (shown in green). Nuclear DNA was labelled in blue with DAPI.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-STK3/MST-2 antibody [EP1466Y] (ab52641)

STK3/MST-2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-STK3/MST-2 antibody

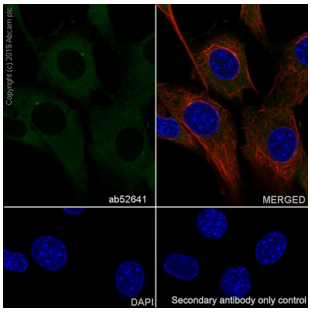
Immunohistochemical staining of paraffin embedded human breast carcinoma with purified ab52641 at a working dilution of 1/50. The secondary antibody used is ab97051, a goat anti-rabbit IgG (H&L) at a dilution of 1/500. The sample is counter-stained with hematoxylin. Antigen retrieval was perfomed using Tris-EDTA buffer, pH 9.0. PBS was used instead of the primary antibody as the negative control, and is shown in the inset.



Flow Cytometry (Intracellular) - Anti-STK3/MST-2 antibody [EP1466Y] (ab52641)

STK3/MST-2 Flow Cytometry (Intracellular) staining using rabbit Anti-STK3/MST-2 antibody

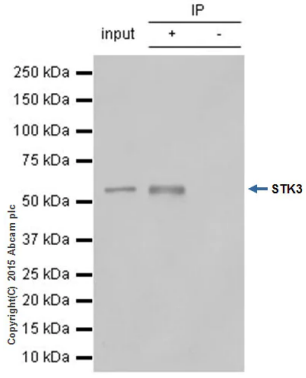
NIH/3T3 (Mouse embryonic fibroblast) cells were fixed with4% paraformaldehyde and permeabilised with 90% methanol. The primary antibody (ab52641) was used at a 1/70 dilution (1 µg) (red). A Goat anti rabbit IgG (Alexa Fluorr® 488, ab150077) was used as the secondary antibody at a 1/2000 dilution. A Rabbit monoclonal IgG (ab172730) (black) was used as an isotype control.Cells without incubation with primary antibody and secondary antibody were used as an unlabelled control (blue).



Immunocytochemistry/ Immunofluorescence - Anti-STK3/MST-2 antibody [EP1466Y] (ab52641)

STK3/MST-2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-STK3/MST-2 antibody

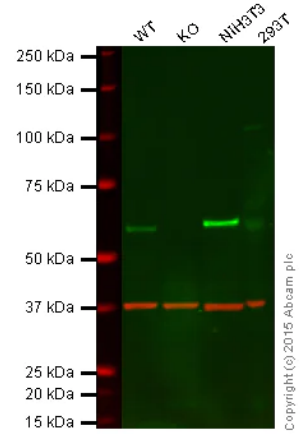
Confocal image showing cytoplasmic staining of STK3/MST-2 in NIH/3T3 (mouse embryonic fibroblast) cells using ab52641 . The cells were fixed with 4% paraformaldehyde and permeabilized with 0.1% Triton X-100. The cells were then incubated with ab52641 at 1/70 dilution and counterstained with Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) (ab195889) at 1/100 dilution (red). Goat anti Rabbit IgG (Alexa Fluor® 488) (ab150077) was used as the secondary antibody at 1/1000 dilution (green). Nuclei counterstained with DAPI (blue).



Immunoprecipitation - Anti-STK3/MST-2 antibody [EP1466Y] (ab52641)

ab52641 (purified) at 1/50 immunoprecipitating STK3/MST-2 in 10 µg C6 cell lysate (Lanes 1 and 2, observed at 56 kDa). Lane 3 - Rabbit monoclonal IgG (ab172730). For western blotting, HRP Veriblot for IP (ab131366) was used for detection (1/10 000). Blocking buffer and concentration: 5% NFDM/TBST Dilution buffer and concentration: 5% NFDM/TBST
All lanes:
Immunoprecipitation - Anti-STK3/MST-2 antibody [EP1466Y] (ab52641)

Predicted band size: 56 kDa



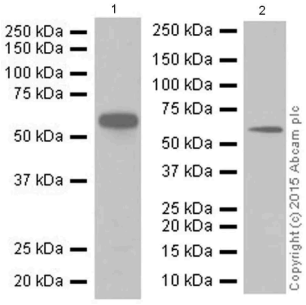
Western blot - Anti-STK3/MST-2 antibody [EP1466Y] (ab52641)

STK3/MST-2 Western blot staining using rabbit Anti-STK3/MST-2 antibody

Lane 1: Wild-type HAP1 cell lysate (20 µg)
Lane 2: STK3/MST-2 knockout HAP1 cell lysate (20 µg)
Lane 3: NIH/3T3 cell lysate (20 µg)
Lane 4: 293T cell lysate (20 µg)
Lanes 1 - 4: Merged signal (red and green). Green - ab52641 observed at 56 kDa. Red - loading control, ab8245, observed at 37 kDa.
ab52641 was shown to specifically react with STK3/MST-2 when STK3/MST-2 knockout samples were used. Wild-type and STK3/MST-2 knockout samples were subjected to SDS-PAGE. ab52641 and ab8245 (loading control to GAPDH) were diluted 1/10 000 and 1/2000 and incubated overnight at 4°C. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed

(ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preadsorbed (ab216776) secondary antibodies at 1/10 000 dilution for 1 h at room temperature before imaging.
All lanes:
Western blot - Anti-STK3/MST-2 antibody [EP1466Y] (ab52641)

Predicted band size: 56 kDa



Western blot - Anti-STK3/MST-2 antibody [EP1466Y] (ab52641)

STK3/MST-2 Western blot staining using rabbit Anti-STK3/MST-2 antibody

Blocking buffer: 5% NFDM/TBST
Dilution buffer: 5% NFDM/TBST
All lanes:
Western blot - Anti-STK3/MST-2 antibody [EP1466Y] (ab52641) at 1/50000 dilution

Lane 1:
HEK293 whole cell lysate at 10 µg

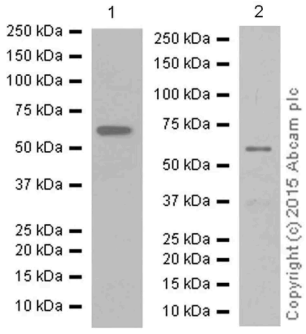
Lane 2:
HeLa whole cell lysate at 10 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 56 kDa

Observed band size: 56 kDa



Western blot - Anti-STK3/MST-2 antibody [EP1466Y] (ab52641)

Blocking buffer: 5% NFDM/TBST
Dilution buffer: 5% NFDM/TBST
All lanes:
Western blot - Anti-STK3/MST-2 antibody [EP1466Y] (ab52641) at 1/50000 dilution

Lane 1:
C6 whole cell lysate at 10 µg

Lane 2:
NIH/3T3 whole cell lysate at 10 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/50000 dilution

Predicted band size: 56 kDa

Observed band size: 56 kDa

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