abcam

ab51134

Anti-Serine/threonine-protein kinase 4/MST-1 antibody [EP1465Y]

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), 0.21% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EP1465Y
Purification technique	Affinity purification Protein A
Concentration	0.527 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	1/30 - 1/100
Notes	-

Expected

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

WB

Tested

Species	Rat
Dilution info	1/10000
Notes	-

Species	Human
Dilution info	1/10000
Notes	-

Expected

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

ICC/IF

Tested

Species	Mouse
Dilution info	1/100 - 1/250
Notes	-

Expected

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

Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/50
Notes	-

Expected

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

IHC-P

Tested

Species	Human
Dilution info	1/50 - 1/250
Notes	We strongly recommend that customers perform an antigen retrieval step. 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 STK4

Function	Stress-activated, pro-apoptotic kinase which, following caspase-cleavage, enters the nucleus and induces chromatin condensation followed by internucleosomal

DNA fragmentation. 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. Phosphorylation of YAP1 by LATS2 inhibits its translocation into the nucleus to regulate cellular genes important for cell proliferation, cell death, and cell migration. 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 (By similarity). Phosphorylates 'Ser-14' of histone H2B (H2BS14ph) during apoptosis. Phosphorylates FOXO3 upon oxidative stress, which results in its nuclear translocation and cell death initiation. Phosphorylates MOBKL1A, MOBKL1B and RASSF2. Phosphorylates TNNI3 (cardiac Tn-I) and alters its binding affinity to TNNC1 (cardiac Tn-C) and TNNT2 (cardiac Tn-T). Phosphorylates FOXO1 on 'Ser-212' and regulates its activation and stimulates transcription of PMAIP1 in a FOXO1-dependent manner. Phosphorylates SIRT1 and inhibits SIRT1-mediated p53/TP53 deacetylation, thereby promoting p53/TP53 dependent transcription and apoptosis upon DNA damage. Acts as an inhibitor of PKB/AKT1. Phosphorylates AR on 'Ser-650' and suppresses its activity by intersecting with PKB/AKT1 signaling and antagonizing formation of AR-chromatin complexes.

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	Avoid freeze / thaw cycle

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	Serine/threonine-protein kinase 4 (MST-1) also known as STK4 is a 52 kDa enzyme that plays an important role in cellular signaling processes. This kinase ubiquitously expresses in many tissues including liver kidney and heart. MST-1 functions as a part of a complex facilitating its catalytic activity by activating downstream substrates. The alternative name for this protein is mammalian STE20-like protein kinase 1 linking MST-1 to a family of serine/threonine kinases.
Biological function summary	This kinase orchestrates various cellular processes mainly through regulation of apoptosis and cell stress responses. MST-1 interacts with other signaling molecules in cells forming part of larger multi-protein complexes. These interactions allow MST-1 to act as a molecular switch effectively controlling the balance between cell survival and death. The cellular localization and interaction partners help diversify its biological roles.
Pathways	MST-1 predominantly influences the Hippo signaling pathway—a pathway significant in controlling organ size and suppressing cancer. In this pathway MST-1 phosphorylates and activates LATS1/2 kinases creating an endpoint effect on cell proliferation and apoptosis. MST-1 also participates in the oxidative stress response pathway where it shows interaction with FoxO transcription factors leading to modifications in gene expression profiles.
Associated diseases and disorders	The dysregulation of MST-1 is linked to cancer and cardiovascular diseases. In cancer the Hippo pathway's consistent activation by MST-1 helps modulate uncontrolled cell division while in cardiovascular diseases MST-1 plays a role by driving cardiomyocyte apoptosis. MST-1’s interplay with FoxO transcription factors also highlights its contribution to these diseases by reinforcing stress response and DNA repair mechanisms.

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.

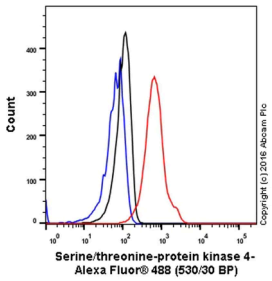
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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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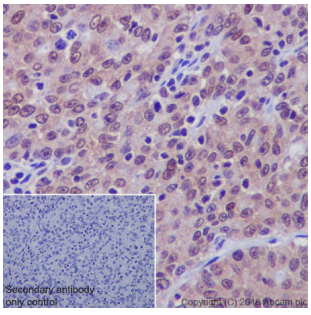
7 product images



Flow Cytometry (Intracellular) - Anti-Serine/threonine-protein kinase 4/MST-1 antibody [EP1465Y] (ab51134)

Serine/threonine-protein kinase 4/MST-1 Flow Cytometry (Intracellular) staining using rabbit Anti-Serine/threonine-protein kinase 4/MST-1 antibody

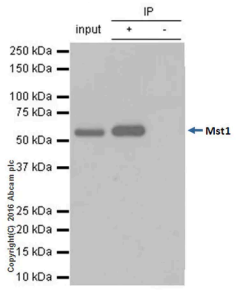
Intracellular Flow Cytometry analysis of HeLa cells labelling Serine/theronine-protein kinase 4/MST-1 with purified ab51134 at a dilution of 1/50 (red). Cells were fixed with 4% paraformaldehyde and permeabilized with 90% methanol. An Alexa Flour® 488-conjugated goat anti-rabbit IgG (1/2000) was used as the secondary antibody. Black - Isotype control, rabbit monoclonal IgG. Blue - Unlabelled control, cells without incubation with primary and secondary antibodies.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Serine/threonine-protein kinase 4/MST-1 antibody [EP1465Y] (ab51134)

Serine/threonine-protein kinase 4/MST-1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Serine/threonine-protein kinase 4/MST-1 antibody

ab51134 staining Serine/threonine-protein kinase 4/MST-1 in human gastric carcinoma tissue sections by Immunohistochemistry (IHC-P - paraformaldehyde-fixed, paraffin-embedded sections). Tissue was fixed with paraformaldehyde and antigen retrieval was by heat mediation in a EDTA buffer. Samples were incubated with primary antibody at a dilution of 1/50. A goat anti-rabbit IgG H&L (HRP) ab97051 was used as the secondary antibody at a dilution of 1/500.
Negative control 1: PBS in place of primary antibody.

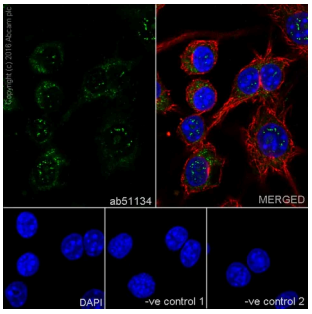


Immunoprecipitation - Anti-Serine/threonine-protein kinase 4/MST-1 antibody [EP1465Y] (ab51134)

ab51134 immunoprecipitating Serine/threonine-protein kinase 4/MST-1. 10µg of cell lysate was incubated with primary antibody at a dilution of 1/30 and VeriBlot for IP Detection Reagent (HRP) (ab131366) at a dilution of 1/1000.
Lane 1: Jurkat (human acute T cell leukemia) whole cell lysate (10ug)
Lane 2: Jurkat (human acute T cell leukemia) whole cell lysate
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab51134 in Jurkat (human acute T cell leukemia) whole cell lysate

All lanes:
Immunoprecipitation - Anti-Serine/threonine-protein kinase 4/MST-1 antibody [EP1465Y] (ab51134)

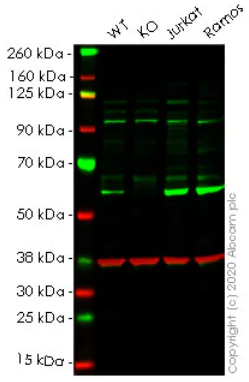
Predicted band size: 55 kDa



Immunocytochemistry/ Immunofluorescence - Anti-Serine/threonine-protein kinase 4/MST-1 antibody [EP1465Y] (ab51134)

Serine/threonine-protein kinase 4/MST-1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Serine/threonine-protein kinase 4/MST-1 antibody

ab51134 staining Serine/threonine-protein kinase 4/MST-1 in Raw264.7 (mouse abelson murine leukemia virus-induced tumor) cells by ICC/IF (Immunocytochemistry/immunofluorescence). Cells were fixed with 100% methanol and permeabilized with 0.1% Triton X-100. Samples were incubated with primary antibody at a dilution of 1/100. A goat anti rabbit IgG (Alexa Fluor® 488) (ab150077) was used as the secondary antibody at a concentration of 1/1000. ab7291 anti-Tubulin (mouse mAb) (1/1000) and ab150120 AlexaFluor®594 Goat anti-Mouse secondary (1/1000) were used as counterstains for primary antibody ab51134 and secondary antibody ab150077 respectively and DAPI was used as a nuclear counterstain.
Negative control 1: Rabbit primary antibody and anti-mouse secondary antibody (ab150120)
Negative control 2: Mouse primary antibody (ab7291) and anti-rabbit secondary antibody (ab150077)



Western blot - Anti-Serine/threonine-protein kinase 4/MST-1 antibody [EP1465Y] (ab51134)

Serine/threonine-protein kinase 4/MST-1 Western blot staining using rabbit Anti-Serine/threonine-protein kinase 4/MST-1 antibody

Lanes 1-4: Merged signal (red and green). Green - ab51134 observed at 52 kDa. Red - loading control ab8245 observed at 37 kDa.
ab51134 Anti-Serine/threonine-protein kinase 4/MST-1 antibody [EP1465Y] was shown to specifically react with MST-1 in wild-type HeLa cells. Loss of signal was observed when knockout cell line ab265442 (knockout cell lysate ab258215) was used. Wild-type and MST-1 knockout samples were subjected to SDS-PAGE. ab51134 and Anti-GAPDH antibody [6C5] - Loading Control (ab8245) 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® 800CW) preadsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preadsorbed (ab216776) secondary antibodies at 1 in 20000 dilution for 1 hour at room temperature before imaging.

All lanes:

Western blot - Anti-Serine/threonine-protein kinase 4/MST-1 antibody [EP1465Y] (ab51134) at 1/1000 dilution

Lane 1:
Wild-type HeLa cell lysate at 20 µg

Lane 2:
STK4 knockout HeLa cell lysate at 20 µg

Lane 2:
Western blot - Human STK4 (Serine/threonine-protein kinase 4/MST-1) knockout HeLa cell line (ab265442)

Lane 3:
Jurkat cell lysate at 20 µg

Lane 4:
Ramos cell lysate at 20 µg

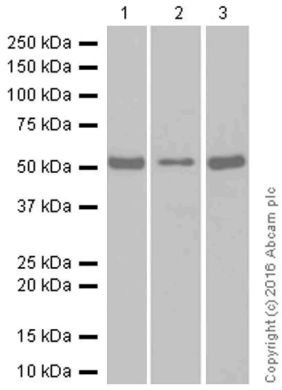
Secondary

All lanes:
Western blot - Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) at 1/20000 dilution

Performed under reducing conditions.

Predicted band size: 55 kDa

Observed band size: 52 kDa



Western blot - Anti-Serine/threonine-protein kinase 4/MST-1 antibody [EP1465Y] (ab51134)

Serine/threonine-protein kinase 4/MST-1 Western blot staining using rabbit Anti-Serine/threonine-protein kinase 4/MST-1 antibody

Diluting and blocking buffer: 5% NFDM/TBST
All lanes:
Western blot - Anti-Serine/threonine-protein kinase 4/MST-1 antibody [EP1465Y] (ab51134) at 1/50000 dilution

Lane 1:
Jurkat (human acute T cell leukemia) whole cell lysate at 1/20 dilution

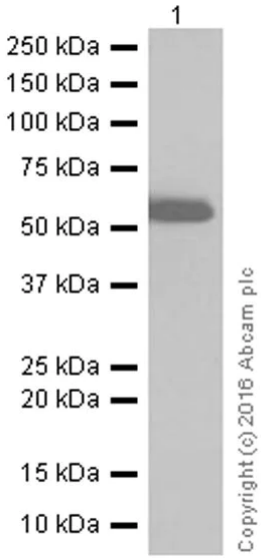
Lane 2:
Mouse spleen at 1/20 dilution

Lane 3:
Rat spleen at 1/20 dilution

Secondary

All lanes:
Anti-Rabbit IgG (HRP), specific to the non-reduced form of IgG at 1/2000 dilution

Predicted band size: 55 kDa



Western blot - Anti-Serine/threonine-protein kinase 4/MST-1 antibody [EP1465Y] (ab51134)

Diluting and blocking buffer: 5% NFDM/TBST
All lanes:
Western blot - Anti-Serine/threonine-protein kinase 4/MST-1 antibody [EP1465Y] (ab51134) at 1/10000 dilution

All lanes:
HeLa (human cervix adenocarcinoma) whole cell lysate at 20 µg

Secondary

All lanes:
Anti-Rabbit IgG (HRP), specific to the non-reduced form of IgG at 1/2000 dilution

Predicted band size: 55 kDa

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