abcam

ab222394

Anti-TAK1 antibody [EPR5984] - BSA and Azide free

Recombinant | RabMAb | KO Validated

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	EPR5984
Purification technique	Affinity purification Protein A
Concentration	0.991 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Not recommended

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

WB

Tested

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	ab199376 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

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

IHC-P

Tested

Species	Human
Dilution info	-
Notes	(Heat to 98°C, allow to cool for 10-20 minutes)

Expected

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

Target data

See full target information MAP3K7

Function

Serine/threonine kinase which acts as an essential component of the MAP kinase signal transduction pathway (PubMed:10094049, PubMed:11460167, PubMed:12589052, PubMed:16845370, PubMed:16893890, PubMed:21512573, PubMed:8663074, PubMed:9079627). Plays an important role in the cascades of cellular responses evoked by changes in the environment (PubMed:10094049, PubMed:11460167, PubMed:12589052, PubMed:16845370, PubMed:16893890, PubMed:21512573, PubMed:8663074, PubMed:9079627). Mediates signal transduction of TRAF6, various cytokines including interleukin-1 (IL-1), transforming growth factor-beta (TGFB), TGFB-related factors like BMP2 and BMP4, toll-like receptors (TLR), tumor necrosis factor receptor CD40 and B-cell receptor (BCR) (PubMed:16893890, PubMed:9079627). Once activated, acts as an upstream activator of the MKK/JNK signal transduction cascade and the p38 MAPK signal transduction cascade through the phosphorylation and activation of several MAP kinase kinases like MAP2K1/MEK1, MAP2K3/MKK3, MAP2K6/MKK6 and MAP2K7/MKK7 (PubMed:11460167, PubMed:8663074). These MAP2Ks in turn activate p38 MAPKs and c-jun N-terminal kinases (JNKs); both p38 MAPK and JNK pathways control the transcription factors activator protein-1 (AP-1) (PubMed:11460167, PubMed:12589052, PubMed:8663074). Independently of MAP2Ks and p38 MAPKs, acts as a key activator of NF-kappa-B by promoting activation of the I-kappa-B-kinase (IKK) core complex (PubMed:12589052, PubMed:8663074). Mechanistically, recruited to polyubiquitin chains of RIPK2 and IKBKG/NEMO via TAB2/MAP3K7IP2 and TAB3/MAP3K7IP3, and catalyzes phosphorylation and activation of IKBKB/IKKB component of the IKK complex, leading to NF-kappa-B activation (PubMed:10094049, PubMed:11460167). In osmotic stress signaling, plays a major role in the activation of MAPK8/JNK1, but not that of NF-kappa-B (PubMed:16893890). Promotes TRIM5 capsid-specific restriction activity (PubMed:21512573). Phosphorylates RIPK1 at 'Ser-321' which positively regulates RIPK1 interaction with RIPK3 to promote necroptosis but

negatively regulates RIPK1 kinase activity and its interaction with FADD to mediate apoptosis (By similarity). Phosphorylates STING1 in response to cGAMP-activation, promoting association between STEEP1 and STING1 and STING1 translocation to COPII vesicles (PubMed:37832545).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

ab222394 is the carrier-free version of ab109526.

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.

Conjugation ready

Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility

This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

Supplementary info

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

Activity summary	TAK1 also known as MAP3K7 (Mitogen-activated protein kinase kinase kinase 7) is an important protein kinase that weighs approximately 63 kDa. This protein is expressed in various tissues and cells including HEK 293T cells. TAK1 plays a mechanical role as a part of the MAPK signaling cascade. It phosphorylates and activates downstream kinases which is key to transmitting cellular signals that regulate responses to external stimuli like cytokines and stress.

Biological function summary	TAK1 is involved in several cellular processes necessary for maintaining balance and responding to stress. TAK1 forms a complex with proteins like TAB1 TAB2 and TAB3 which are important for its activation and signaling function. This complex facilitates TAK1's involvement in inflammation and immune response indicating its significance in mediating cellular survival and apoptosis.
Pathways	TAK1 operates within the NF-κB and MAPK pathways two critical routes for cellular response to inflammation and stress. In the NF-κB pathway TAK1 activates IKK which triggers the degradation of IκB freeing NF-κB to move into the nucleus and activate transcription. In the MAPK pathway TAK1 directly influences JNK and p38 cascades revealing regulatory connections to proteins like MEK and ERK.
Associated diseases and disorders	TAK1 has been linked to conditions such as cancer and inflammatory diseases. In cancers aberrant TAK1 activity can lead to enhanced cell proliferation and survival. Moreover inflammation-related disorders can arise from malfunctioning TAK1 signaling demonstrating its connection to proteins like TNF receptor-associated factors which are involved in inflammatory responses. Understanding TAK1's role in these disorders may pave the way for developing potential therapeutic interventions.

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

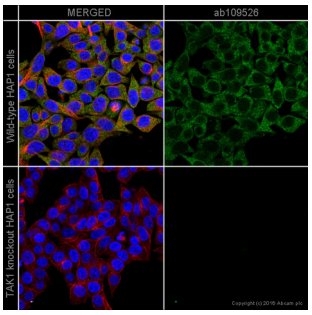
We do not recommend this combination. It is not covered by our product promise.

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.

6 product images

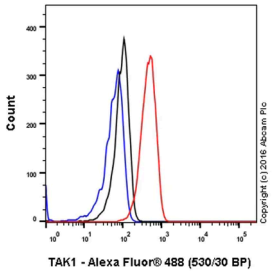


Immunocytochemistry/ Immunofluorescence - Anti-TAK1 antibody [EPR5984] - BSA and Azide free (ab222394)

TAK1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-TAK1 antibody

ab109526 staining TAK1 in wild-type HAP1 cells (top panel) and TAK1 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 ab109526 at 1/1000 dilution 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.

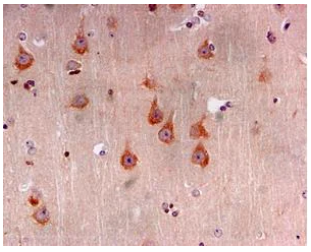
Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).



Flow Cytometry (Intracellular) - Anti-TAK1 antibody [EPR5984] - BSA and Azide free (ab222394)

TAK1 Flow Cytometry (Intracellular) staining using rabbit Anti-TAK1 antibody

Intracellular Flow Cytometry analysis of A431 (human epidermoid carcinoma) cells labeling TAK1 with unpurified ab109526 at 1/20 dilution (10ug/ml) (red). Cells were fixed with 4% paraformaldehyde and permeabilised with 90% methanol. A Goat anti rabbit IgG (Alexa Fluor® 488) (1/2000 dilution) was used as the secondary antibody. Rabbit monoclonal IgG (Black) was used as the isotype control, cells without incubation with primary antibody and secondary antibody (Blue) was used as the unlabeled control.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab109526).

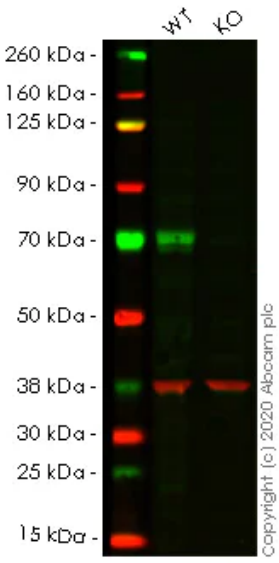


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-TAK1 antibody [EPR5984] - BSA and Azide free (ab222394)

TAK1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-TAK1 antibody

ab109526, at a 1/50 dilution, staining TAK1 in Formalin/PFA-fixed paraffin-embedded Human brain tissue, by Immunohistochemistry.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab109526).

Perform heat mediated antigen retrieval via the microwave method before commencing with IHC staining protocol.



Western blot - Anti-TAK1 antibody [EPR5984] - BSA and Azide free (ab222394)

TAK1 Western blot staining using rabbit Anti-TAK1 antibody

This data was developed using the same antibody clone in a different buffer formulation (ab109526).
Lanes 1- 2: Merged signal (red and green). Green - ab109526 observed at 72 kDa. Red - Anti-GAPDH antibody [6C5] - Loading Control (ab8245) observed at 37 kDa.

ab109526 was shown to react with TAK1 in wild-type HEK-293T cells in western blot. Loss of signal was observed when knockout cell line ab266555 (knockout cell lysate ab256984) was used. Wild-type HEK-293T and MAP3K7 knockout HEK-293T cell lysates were subjected to SDS-PAGE. Membrane was blocked for 1 hour at room temperature in 0.1% TBST with 3% non-fat dried milk. ab109526 and Anti-GAPDH antibody [6C5] - Loading Control (ab8245) overnight at 4°C at a 1 in 1000 dilution and a 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-TAK1 antibody [EPR5984] (ab109526) at 1/1000 dilution

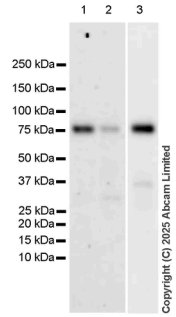
Lane 1:
Wild-type HEK-293T cell lysate at 20 µg

Lane 2:
Western blot - Human MAP3K7 (TAK1) knockout HEK-293T cell lysate (ab256984) at 20 µg

Performed under reducing conditions.

Predicted band size: 35 kDa, 36 kDa, 43 kDa, 47 kDa, 60 kDa, 67 kDa, 74 kDa

Observed band size: 36 kDa, 60 kDa, 72 kDa, 95 kDa



Western blot - Anti-TAK1 antibody [EPR5984] - BSA and Azide free (ab222394)

TAK1 Western blot staining using rabbit Anti-TAK1 antibody

This data was developed using ab109526, the same antibody clone in a different buffer formulation.
Blocking and diluting buffer and concentration: 5% NFDM/TBST.

All lanes:
Western blot - Anti-TAK1 antibody [EPR5984] (ab109526) at 1/1000 dilution

Lane 1:
Mouse brain tissue lysate at 20 µg

Lane 2:
Mouse heart tissue lysate at 20 µg

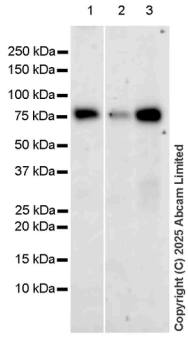
Lane 3:
Mouse spleen tissue lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Observed band size: 75 kDa

Exposure time: 48s



Western blot - Anti-TAK1 antibody [EPR5984] - BSA and Azide free (ab222394)

TAK1 Western blot staining using rabbit Anti-TAK1 antibody

This data was developed using ab109526, the same antibody clone in a different buffer formulation.
Blocking and diluting buffer and concentration: 5% NFDM/TBST.

All lanes:
Western blot - Anti-TAK1 antibody [EPR5984] (ab109526) at 1/1000 dilution

Lane 1:
Rat brain tissue lysate at 20 µg

Lane 2:
Rat kidney tissue lysate at 20 µg

Lane 3:
Rat spleen tissue lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Observed band size: 75 kDa

Exposure time: 180s

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