abcam

ab109526

Anti-TAK1 antibody [EPR5984]

Recombinant | RabMAb | KO Validated | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.05% Sodium azide Constituents: 50% Tissue culture supernatant, 40% Glycerol (glycerin, glycerine), 9.85% Tris glycine, 0.1% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR5984
Purification technique	Affinity purification Protein A
Concentration	0.512 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
Dilution info	1/1000 - 1/10000
Notes	-

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Rat
Dilution info	1/1000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/1000
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	ab172730 - 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	1/50 - 1/100
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	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	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

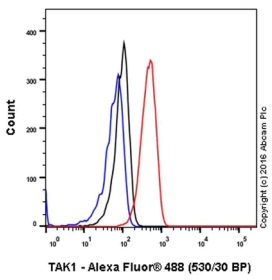
We do not recommend this combination. It is not covered by our product promise.

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.

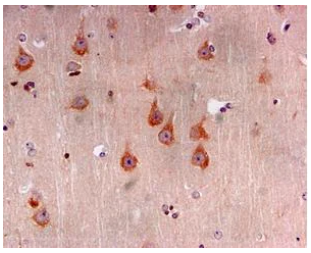
8 product images



Flow Cytometry (Intracellular) - Anti-TAK1 antibody [EPR5984] (ab109526)

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

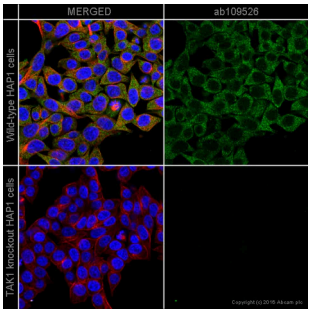
Intracellular Flow Cytometry analysis of A431 (human epidermoid carcinoma) cells labeling TAK1 with unpurified ab109526 at 1/20 dilution (10ug/ml) (red). Cells were fixed with 4% paraformaldehyde and permeabilised with 90% methanol. A Goat anti rabbit IgG (Alexa Fluor® 488) (1/2000 dilution) was used 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.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-TAK1 antibody [EPR5984] (ab109526)

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

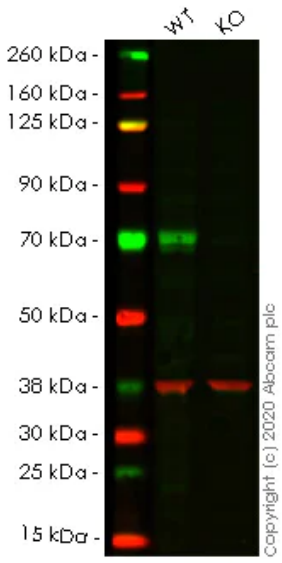


Immunocytochemistry/ Immunofluorescence - Anti-TAK1 antibody [EPR5984] (ab109526)

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).



Western blot - Anti-TAK1 antibody [EPR5984] (ab109526)

TAK1 Western blot staining using rabbit Anti-TAK1 antibody

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

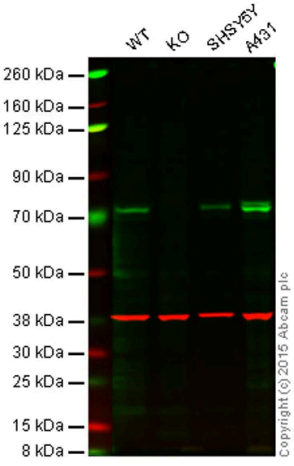
Lane 1:
Wild-type HEK-293T cell lysate at 20 µg

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

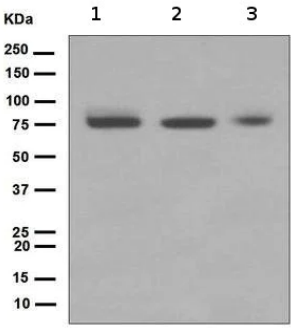


Western blot - Anti-TAK1 antibody [EPR5984] (ab109526)

TAK1 Western blot staining using rabbit Anti-TAK1 antibody

Lane 1: Wild-type HAP1 cell lysate (20 µg)
Lane 2: TAK1 knockout HAP1 cell lysate (20 µg)
Lane 3: SHSY5Y cell lysate (20 µg)
Lane 4: A431 cell lysate (20 µg)
Lanes 1 - 4: Merged signal (red and green). Green - ab109526 observed at 72 kDa. Red - loading control, ab8245, observed at 37 kDa.
ab109526 was shown to specifically react with TAK1 when TAK1 knockout samples were used. Wild-type and TAK1 knockout samples were subjected to SDS-PAGE. ab109526 and ab8245 (loading control to GAPDH) were diluted 1/1000 and 1/2000 respectively 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-TAK1 antibody [EPR5984] (ab109526)

Predicted band size: 67 kDa



Western blot - Anti-TAK1 antibody [EPR5984] (ab109526)

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

Lane 1:
K562 cell lysate at 10 µg

Lane 2:
HeLa cell lysate at 10 µg

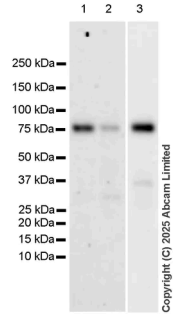
Lane 3:
A431 cell lysate at 10 µg

Secondary

All lanes:
HRP labelled Goat anti-Rabbit IgG at 1/2000 dilution

Predicted band size: 67 kDa

Observed band size: 75 kDa



Western blot - Anti-TAK1 antibody [EPR5984] (ab109526)

TAK1 Western blot staining using rabbit Anti-TAK1 antibody

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

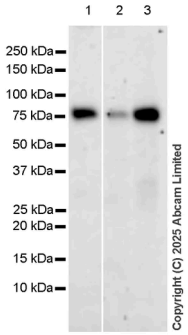
Secondary

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] (ab109526)



TAK1 Western blot staining using rabbit Anti-TAK1 antibody

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'.