abcam

ab181569

Anti-ATF1 antibody [EPR17028]

Recombinant | RabMAb | KO Validated

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	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	EPR17028
Purification technique	Affinity purification Protein A
Concentration	0.711 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Mouse
Dilution info	1/50
Notes	-

Expected

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

WB

Tested

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Rat
Dilution info	1/1000
Notes	-

Species	Human
Dilution info	1/1000
Notes	-

ICC/IF

Tested

Species	Mouse
Dilution info	1/100
Notes	-

Species	Human
Dilution info	1/100
Notes	-

Expected

Species	Rat
Dilution info	Use at an assay dependent concentration.

Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/150
Notes	-

Expected

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

IHC-P

Tested

Species	Mouse
Dilution info	1/100
Notes	This antibody is not suitable for human and rat species in IHC application. Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Expected

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

Target data

See full target information Cyclic AMP-dependent transcription factor ATF-1

Function	This protein binds the cAMP response element (CRE) (consensus: 5'-GTGACGT[AC][AG]-3'), a sequence present in many viral and cellular promoters. Binds to the Tax-

responsive element (TRE) of HTLV-I. Mediates PKA-induced stimulation of CRE-reporter genes. Represses the expression of FTH1 and other antioxidant detoxification genes. Triggers cell proliferation and transformation.

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	'ATF1' also known as activating transcription factor 1 is a protein with a mass of approximately 29 kDa. This protein belongs to the ATF/CREB family of transcription factors and functions as a DNA-binding protein. It plays an important role in regulating gene expression by binding to cAMP response elements (CRE) in the promoter regions of target genes. ATF1 is widely expressed in multiple tissues including the brain and various endocrine organs functioning as an important regulator of cellular responses to environmental stimuli.

Biological function summary	ATF1 participates in the regulation of various cellular processes including proliferation differentiation and response to stress signals. It can form heterodimers with other members of the CREB family such as CREB1 allowing it to regulate diverse gene sets. These complexes enhance the DNA-binding affinity and transcriptional activity directed by CRE sites influencing cellular homeostasis and adaptation. Additionally post-translational modifications such as phosphorylation by protein kinases modulate ATF1 activity and stability.
Pathways	ATF1 integrates into the cAMP signaling pathway and the MAPK/ERK pathway. In the cAMP signaling pathway ATF1 responds to hormonal signals that activate adenylate cyclase resulting in increased levels of cAMP and subsequent activation of Protein Kinase A (PKA). PKA phosphorylates ATF1 increasing its transcriptional activity. In the MAPK/ERK pathway ATF1 links to the activation of mitogen-activated protein kinases which modulate gene expression related to cell growth and survival. This interaction also involves other proteins such as CREB and ATF2 highlighting a network of transcription factors that co-regulate gene expression.
Associated diseases and disorders	ATF1 has implications in cancer and neurodegenerative diseases. In cancer alterations in ATF1 expression or function can lead to aberrant cell growth and survival often linked to its cooperation with CREB-related proteins. Specifically chromosomal translocations involving ATF1 have been observed in certain sarcomas like clear cell sarcoma where it forms a fusion protein that acts as a potent transcriptional activator. Concerning neurodegenerative diseases ATF1 may play a role in neuronal survival and stress response with its activity being impacted by dysregulated signaling pathways and interacting proteins such as CREB and ATF2 contributing to disease progression.

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

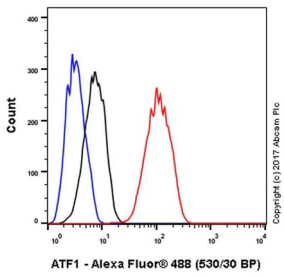
We do not recommend this combination. It is not covered by our product promise.

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.

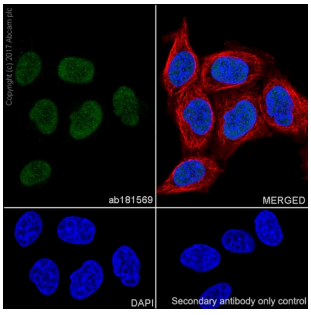
10 product images



Flow Cytometry (Intracellular) - Anti-ATF1 antibody [EPR17028] (ab181569)

ATF1 Flow Cytometry (Intracellular) staining using rabbit Anti-ATF1 antibody

Intracellular flow cytometric analysis of 2% paraformaldehyde-fixed, 0.1% Tween-20 permeabilized HeLa (human epithelial cell line from cervix adenocarcinoma) cell line labeling ATF1 with ab181569 at 1/150 dilution (red) compared with a Rabbit IgG, monoclonal [EPR25A] - Isotype Control (ab172730) (black) and an unlabeled control (cells without incubation with primary antibody and secondary antibody) (blue). Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) at 1/2000 dilution was used as the secondary antibody.

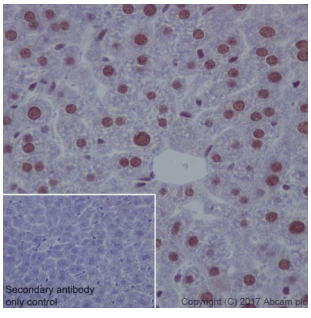


Immunocytochemistry/ Immunofluorescence - Anti-ATF1 antibody [EPR17028] (ab181569)

ATF1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-ATF1 antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized HeLa (human epithelial cell line from cervix adenocarcinoma) cells labeling ATF1 with ab181569 at 1/100 dilution followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing nuclear staining on HeLa cell line. The nuclear counter stain is DAPI (blue). Tubulin is detected with Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) (ab195889) (red) at 1/200 dilution.

Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution.

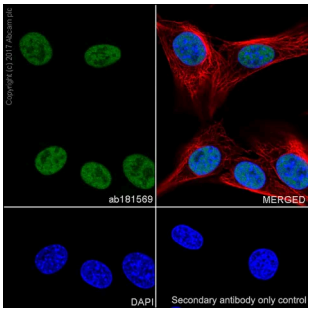


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ATF1 antibody [EPR17028] (ab181569)

ATF1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-ATF1 antibody

Immunohistochemical analysis of paraffin-embedded mouse liver tissue labeling ATF1 with ab181569 at 1/100 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) Ready to use. Nuclear staining on mouse liver (PMID: 11865068; PMID: 28032861). Counter stained with hematoxylin. Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) Ready to use.

Perform heat mediated antigen retrieval using ab93684 (Tris/EDTA buffer, pH 9.0).

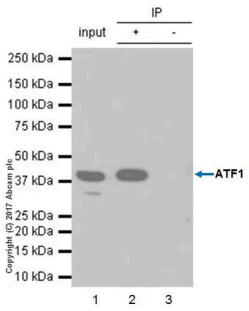


Immunocytochemistry/ Immunofluorescence - Anti-ATF1 antibody [EPR17028] (ab181569)

ATF1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-ATF1 antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized NIH/3T3 (mouse embryo fibroblast cell line) cells labeling ATF1 with ab181569 at 1/100 dilution followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing nuclear staining on NIH/3T3 cell line.
The nuclear counter stain is DAPI (blue). Tubulin is detected with Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) (ab195889) (red) at 1/200 dilution.

Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution.



Immunoprecipitation - Anti-ATF1 antibody [EPR17028] (ab181569)

ATF1 was immunoprecipitated from 1 mg of mouse kidney lysate with ab181569 at 1/50 dilution. Western blot was performed from the immunoprecipitate using ab181569 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP) (ab131366), was used for detection at 1/10000 dilution.
Lane 1: Mouse kidney lysate 10 µg (Input).

Lane 2: ab181569 IP in mouse kidney lysate (+).

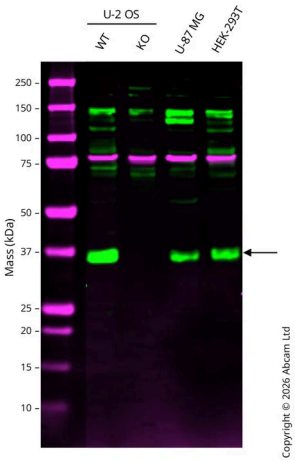
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab181569 in mouse kidney lysate (-).

Blocking and dilution buffer and concentration: 5% NFDM/TBST.

Exposure time: 30 seconds.

All lanes:
Immunoprecipitation - Anti-ATF1 antibody [EPR17028] (ab181569)

Predicted band size: 29 kDa



Western blot - Anti-ATF1 antibody [EPR17028] (ab181569)

ATF1 Western blot staining using rabbit Anti-ATF1 antibody

Western blot: Anti-ATF1 antibody [EPR17028] ab181569 staining at 1/1000 dilution, shown in green; Mouse anti-CANX ab238078 loading control staining at 1/20000 dilution, shown in magenta. A band was observed at 35 kDa in Wild-type U-2 OS cell line with no signal observed at this size in ATF1 knockout U-2 OS cell line. To generate this image, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 5% Milk in TBS-0.1 % Tween® 20 (TBS-T) before incubation with primary antibodies overnight at 4 °C. Blots were washed four times in TBS-T, incubated with secondary antibodies for 1 h at room temperature, washed again four times then imaged. Secondary antibodies used were Goat anti-Rabbit 800CW and Goat anti-Mouse 680RD at 1/20,000 dilution.
All lanes:
Western blot - Anti-ATF1 antibody [EPR17028] (ab181569) at 1/1000 dilution

Lane 1:
Wild-type U-2 OS at 20 µg

Lane 2:
Western blot - Human ATF1 knockout U-2 OS cell line (ab277176) at 20 µg

Lane 3:
U-87 MG at 20 µg

Lane 4:
HEK-293T at 20 µg

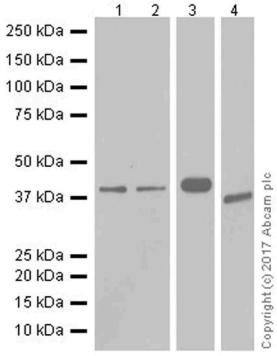
Secondary

All lanes:
Goat anti-Rabbit 800CW & Goat anti-Mouse 680RD at 1/20000 dilution

Performed under reducing conditions.

Predicted band size: 29 kDa

Observed band size: 35 kDa



Western blot - Anti-ATF1 antibody [EPR17028] (ab181569)

Blocking/Dilution buffer: 5% NFDM/TBST.
The expression profile/ molecular weight observed is consistent with what has been described in the literature (PMID:10574952).

All lanes:
Western blot - Anti-ATF1 antibody [EPR17028] (ab181569) at 1/1000 dilution

Lane 1:
Mouse heart lysate at 20 µg

Lane 2:
Mouse kidney lysate at 20 µg

Lane 3:
Rat heart lysate at 20 µg

Lane 4:
HeLa (human epithelial cell line from cervix adenocarcinoma) whole cell lysate at 20 µg

Secondary

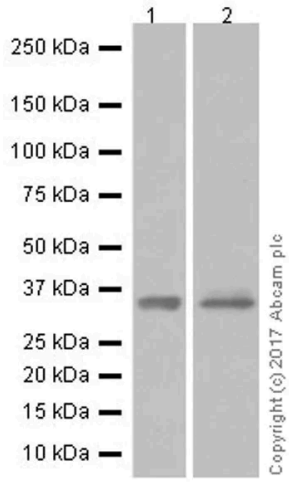
All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Developed using the ECL technique.

Predicted band size: 29 kDa

Observed band size: 35 kDa

Exposure time: 3min



Western blot - Anti-ATF1 antibody [EPR17028] (ab181569)

Exposure time : Lane 1: 3 minutes; Lane 2: 30 seconds.

Blocking/Dilution buffer: 5% NFDM/TBST.

All lanes:
Western blot - Anti-ATF1 antibody [EPR17028] (ab181569) at 1/1000 dilution

Lane 1:
C6 (rat glial tumor cell line) whole cell lysate at 10 µg

Lane 2:
RAW 264.7 (Mouse macrophage cell line transformed with Abelson murine leukemia virus) whole cell lysate at 10 µg

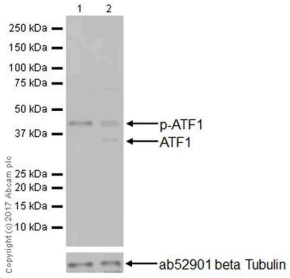
Secondary

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

Developed using the ECL technique.

Predicted band size: 29 kDa

Observed band size: 35 kDa



Western blot - Anti-ATF1 antibody [EPR17028] (ab181569)

Blocking/Dilution buffer: 5% NFDM/TBST.
ATF1 has been shown to be phosphorylated in cultured cells and hyperphosphorylation in tissues (PMID:20730097). Treatment of cell lysates with alkaline phosphatase lead to complete dephosphorylation, while we were only able to partial dephosphorylate ATF1 in tissue lysates.

All lanes:
Western blot - Anti-ATF1 antibody [EPR17028] (ab181569) at 1/1000 dilution

Lane 1:
Mouse kidney lysate at 2.5 µg

Lane 2:
Mouse kidney lysate treated with alkaline phosphatase for 1 hour at 37°C at 2.5 µg

Secondary

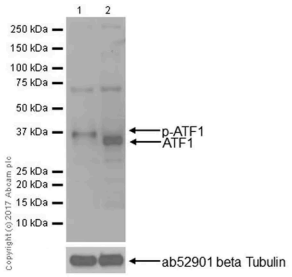
All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Developed using the ECL technique.

Predicted band size: 29 kDa

Observed band size: 35 kDa

Exposure time: 1s



Western blot - Anti-ATF1 antibody [EPR17028] (ab181569)

Blocking/Dilution buffer: 5% NFDM/TBST.
ATF1 has been shown to be phosphorylated in cultured cells and hyperphosphorylation in tissues (PMID:20730097). Treatment of cell lysates with alkaline phosphatase lead to complete dephosphorylation, while we were only able to partial dephosphorylate ATF1 in tissue lysates.

All lanes:
Western blot - Anti-ATF1 antibody [EPR17028] (ab181569) at 1/1000 dilution

Lane 1:
NIH/3T3 (mouse embryo fibroblast cell line) whole cell lysate at 25 µg

Lane 2:
NIH/3T3 (mouse embryo fibroblast cell line) whole cell lysate treated with alkaline phosphatase for 1 hour at 37°C at 25 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051)

Developed using the ECL technique.

Predicted band size: 29 kDa

Observed band size: 35 kDa

Exposure time: 1s

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