abcam

ab32160

Anti-ATF2 antibody [E243] - ChIP Grade

Recombinant | RabMAb | Advanced Validation | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 50% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	E243
Specificity	This antibody recognises ATF2, but does not cross react with other ATF family members.
Concentration	0.54 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Tested

Species	Human
Dilution info	1/250 - 1/500
Notes	-

IP

Tested

Species	Human
Dilution info	1/60
Notes	-

ChIP

Tested

Species	Human
Dilution info	5 µg for 25 µg chromatin
Notes	-

WB

Tested

Species	Human
Dilution info	1/10000
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/250 - 1/500
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/2000

Notes	-

ChIC/CUT&RUN-seq

Tested

Species	Human
Dilution info	5 µg
Notes	-

Target data

See full target information ATF2

Function	Transcriptional activator which regulates the transcription of various genes, including those involved in anti-apoptosis, cell growth, and DNA damage response. Dependent on its binding partner, binds to CRE (cAMP response element) consensus sequences (5'-TGACGTCA-3') or to AP-1 (activator protein 1) consensus sequences (5'-TGACTCA-3'). In the nucleus, contributes to global transcription and the DNA damage response, in addition to specific transcriptional activities that are related to cell development, proliferation and death. In the cytoplasm, interacts with and perturbs HK1- and VDAC1-containing complexes at the mitochondrial outer membrane, thereby impairing mitochondrial membrane potential, inducing mitochondrial leakage and promoting cell death. The phosphorylated form (mediated by ATM) plays a role in the DNA damage response and is involved in the ionizing radiation (IR)-induced S phase checkpoint control and in the recruitment of the MRN complex into the IR-induced foci (IRIF). Exhibits histone acetyltransferase (HAT) activity which specifically acetylates histones H2B and H4 in vitro (PubMed:10821277). In concert with CUL3 and RBX1, promotes the degradation of KAT5 thereby attenuating its ability to acetylate and activate ATM. Can elicit oncogenic or tumor suppressor activities depending on the tissue or cell type.

Storage

Shipped at conditions	Conditional Ambient
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

Species reactivity
Mouse, Rat: We have preliminary internal testing data to indicate this antibody may not react with these species. Please contact us for more information.

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	The ATF2 protein also referred to as ATF-2 or activating transcription factor 2 plays a significant role as a transcription factor in cellular processes. It weighs approximately 75 kDa and is expressed in many tissues with higher levels in the brain heart and skeletal muscle. Functionally ATF2 belongs to the leucine zipper family of proteins facilitating its ability to bind DNA and regulate the expression of genes involved in stress responses development and growth.
Biological function summary	ATF2 takes part in the regulation of gene expression in response to various stimuli. It often forms a complex with other proteins such as c-Jun when binding to the DNA. This complex then influences the transcription of genes that respond to cellular stress and DNA damage. By phosphorylating specific serine residues cellular kinases activate ATF2 which then translocates to the nucleus where it exerts its function.
Pathways	ATF2 integrates into the MAPK and JNK signaling cascades which are important for transmitting stress signals from the cell surface to the nucleus. Through these pathways ATF2 interacts with proteins such as JNK and p38 MAPK modulating the transcription of downstream genes that control cell proliferation apoptosis and differentiation. Its role in these pathways positions ATF2 as a critical node where various signaling inputs merge to influence cellular outcomes.
Associated diseases and disorders	ATF2 has associations with conditions such as cancer and neurological disorders. Aberrant regulation of ATF2 can contribute to oncogenesis by affecting cell cycle control and apoptosis. For example in melanoma altered ATF2 activity is linked to tumor progression and resistance to apoptosis. Additionally in neurological

disorders its interaction with proteins like phospho-c-Jun influences neuronal survival and plasticity implicating ATF2 in pathologies related to neurodegeneration and cognitive dysfunction.

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

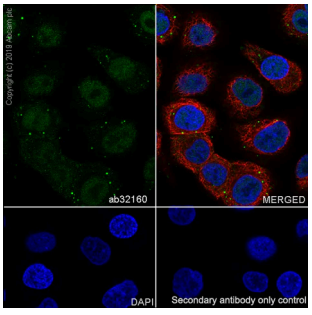
We do not recommend this combination. It is not covered by our product promise.

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.

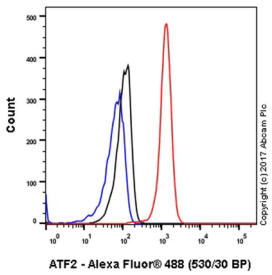
12 product images



Immunocytochemistry/ Immunofluorescence - Anti-ATF2 antibody [E243] - ChIP Grade (ab32160)

ATF2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-ATF2 antibody

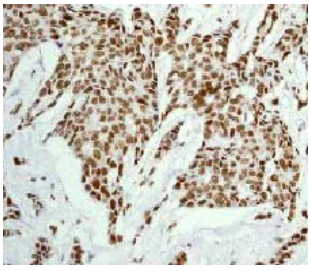
Immunocytochemistry analysis of A549 (human lung carcinoma epithelial cell) labeling ATF2 with purified ab32160 at 1/100 dilution (10 µg/ml). Cells were fixed with 4% Paraformaldehyde and permeabilised with 0.1% tritonX-100. Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) at 1/1000 (2 µg/ml) was used as the secondary antibody. ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) 1/200 (2.10 µg/ml) was used as counterstain. Nuclei were stained blue with DAPI.
Negative control: PBS instead of the primary antibody.



Flow Cytometry (Intracellular) - Anti-ATF2 antibody [E243] - ChIP Grade (ab32160)

ATF2 Flow Cytometry (Intracellular) staining using rabbit Anti-ATF2 antibody

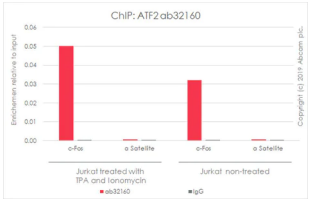
Intracellular Flow Cytometry analysis of HeLa (human cervix adenocarcinoma) cells labeling ATF2 (red) with ab32160 at a 1/2000 dilution. Cells were fixed with 4% paraformaldehyde and permeabilized with 90% methanol. A goat anti-rabbit IgG (Alexa Fluorr® 488) (ab150077) was used as the secondary antibody at a 1/2000 dilution. Black - Rabbit monoclonal IgG (ab172730). Blue (unlabeled control) - Cells without incubation with the primary and secondary antibodies.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ATF2 antibody [E243] - ChIP Grade (ab32160)

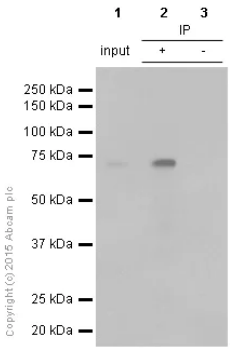
ATF2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-ATF2 antibody

ab32160 at a dilution of 1/250 staining ATF2 in paraffin embedded breast carcinoma tissue by Immunohistochemistry.
Perform heat mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.



ChIP - Anti-ATF2 antibody [E243] - ChIP Grade (ab32160)

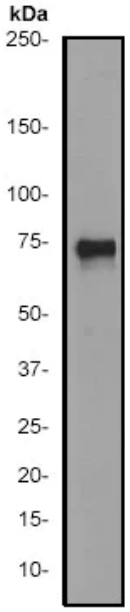
Chromatin was prepared from Jurkat (TPA and Ionomycin treated or not) cells according to the Abcam X-ChIP protocol. Cells were fixed with 1% formaldehyde for 10 minutes. The ChIP was performed with 25µg of chromatin 5µg of ab32160 (red) and 20µl of protein A/G sepharose beads slurry (10µl of sepharose A beads + 10µl of sepharose G beads). 5µg of rabbit normal IgG was added to the beads control (grey). The immunoprecipitated DNA was quantified by real time PCR (Sybr green approach).



Immunoprecipitation - Anti-ATF2 antibody [E243] - ChIP Grade (ab32160)

ab32160 (purified) at 1/1000 dilution (2.284 ©:g/ml) immunoprecipitating ATF2 in HeLa whole cell lysate.
Lane 3 (-): HeLa(Human cervix adenocarcinoma epithelial cell) whole cell lysate 10©:gab32160 & HeLa whole cell lysateRabbit monoclonal IgG (ab172730) instead of ab32160 in HeLa whole cell lysate
For western blotting, Rabbit TureBlot: Anti-Rabbit IgG HRP was used as the secondary antibody at 1/1500 dilution.
Blocking and diluting buffer: 5% NFDM /TBST .
All lanes:
Immunoprecipitation - Anti-ATF2 antibody [E243] - ChIP Grade (ab32160)

Predicted band size: 55 kDa



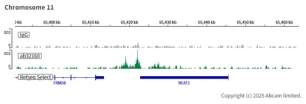
Western blot - Anti-ATF2 antibody [E243] - ChIP Grade (ab32160)

All lanes:
Western blot - Anti-ATF2 antibody [E243] - ChIP Grade (ab32160) at 1/10000 dilution

All lanes:
HeLa cell lysate

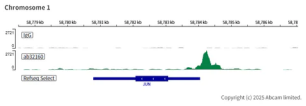
Predicted band size: 55 kDa

Observed band size: 70 kDa



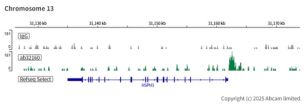
ChIC/CUT&RUN sequencing - Anti-ATF2 antibody [E243] - ChIP Grade (ab32160)

ChIC/CUT&RUN was performed using a pAG-MNase at a final concentration of 700 ng/mL, 2.5 x 10^5 K-562 (human chronic myelogenous leukemia lymphoblast) cells and 5 µg of ab ab32160[E243]. The resulting DNA was sequenced on the Illumina NovaSeq 6000 to a depth of 10 million reads. The negative IgG control ab172730 is also shown.
The University of Geneva owns patents relevant to ChIC (Chromatin Immuno-Cleavage) methods.



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f

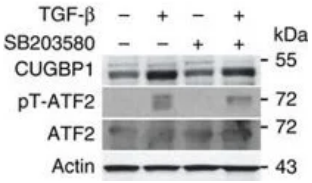


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Western blot - Anti-ATF2 antibody [E243] - ChIP Grade (ab32160)

ATF2 Western blot staining using rabbit Anti-ATF2 antibody

Western Blotting using Anti-ATF2 antibody [E243] - ChIP Grade, ab32160. Publication image from Sun, B. et al., 2016, Nat Commun, 27853137. Legend direct from paper.

TGF-β increases CUGBP1 expression in HSCs via p38 MAPK.(a) Quantitative PCR analyses of CUGBP1 mRNA from the human hepatic stellate cell line LX-2 or human hepatocyte L02 cells treated with or without 5 ng ml−1 TGF-β for 6 h (mean±s.e.m.; n=3, **P<0.01 by Student's t-test). (b,c) Western blot analyses of CUGBP1 from LX-2 cells, primary mouse HSCs (b), and primary mouse hepatocytes (c) treated with or without 5 ng ml−1 TGF-β for 24 h. The data are representative of three independent experiments (mean±s.e.m.; n=3, **P<0.01 by Student's t-test). (d,e) LX-2 cells were treated with actinomycin D (1 μg ml−1) and with or without 5 ng ml−1 TGF-β for indicated time intervals (d). LX-2 cells were treated with or without SB431542 (10 μM), SB203580 (10 μM), SP600125 (10 μM), FR180204 (10 μM) or SIS3 (20 μM), following 5 ng ml−1 TGF-β treatment for 6 h (e). And then quantitative PCR was carried out to detect the remaining mRNA expression of CUGBP1. (mean±s.e.m.; n=3, *P<0.05, **P<0.01 by one-way analysis of variance followed by Dunnett's test). (f) Western blot analyses of LX-2 cells treated with or without SB431542, following 5 ng ml−1 TGF-β treatment for 24 h. (g) Gene2promotor analyses of promoter and transcription factors of human CUGBP1 gene. (h) Probe pull down assay was performed by mixing CUGBP1-CRE-Bio or mCUGBP1-CRE-Bio with total cell extracts from LX-2 cells treated as in f. Precipitates were prepared for Western blotting using SoftLink Soft Release avidin resin. The data in f and h are representative of two independent experiments.

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b

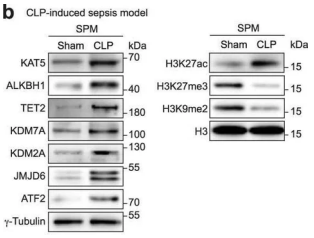


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ATF2 Western blot staining using rabbit Anti-ATF2 antibody

Western Blotting using Anti-ATF2 antibody [E243] - ChIP Grade, ab32160. Publication image from Solier, S. et al., 2023, Nature, 37100912. Legend direct from paper.

Pharmacological inactivation of mitochondrial copper(II) attenuates inflammation in vivo.a, Western blots of copper-signalling effectors in SPMs from mice treated with LPS. Macrophages of several mice were pooled (4–7 mice per condition). b, Western blots of copper-signalling effectors in SPMs from mice subjected to CLP. Macrophages of several mice were pooled (7–8 mice per condition). H3 is a sample processing control. c, Western blots of copper-signalling effectors in AMs from K18-hACE2 mice infected with SARS-CoV-2. Macrophages of several mice were pooled (10 mice per condition). H3 is a sample processing control. d, Average body temperature of mice treated as indicated (n = 6–9 mice per group). e, GO term analysis of downregulated genes in lung tissues of SARS-CoV-2 infected K18-hACE2 mice treated with LCC-12 (0.5 mg/kg). f, RNA-seq analysis of gene expression in lung tissues of SARS-CoV-2-infected K18-hACE2 mice treated with LCC-12 (0.5 mg/kg) (n = 8 mice per group). Inflammatory signature genes highlighted. Dashed lines, adjusted P value = 0.05. g, Illustration of copper-signalling. Cell plasticity involves upregulation of the cell surface marker CD44, which mediates endocytosis of metal-bound hyaluronates. In the presence of copper(II), NADH reacts with H2O2 to replenish NAD+ in mitochondria, an enzyme cofactor involved in the biosynthesis ofαKG and acetyl-CoA. These co-substrates of iron-dependent demethylases and acetyl-transferases are required for epigenetic and transcriptional programming of inflammation and the regulation of cell plasticity. Pharmacological inactivation of mitochondrial copper(II) blocks NAD(H) redox cycling, leading to distinct epigenetic states and transcriptional profiles. Targeting copper(II) interferes with cell plasticity in immune and cancer cells. For a – c gating strategy of SPMs and AMs see Methods and Supplementary Information. For d 2-way ANOVA. Mean values ± s.e.m. For e and f differential gene expression was assessed with the limma/voom framework. GO enrichment was assessed with the enrichGO method from clusterProfiler. P-values were corrected for multiple testing with the Benjamini-Hochberg procedure.Source data

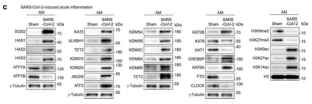


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