abcam

ab1

Anti-HIF-1 alpha antibody [H1alpha67]

Anti-HIF-1 alpha antibody [H1alpha67] (ab1) is a mouse monoclonal antibody detecting HIF-1 alpha in **Western Blot, Flow Cytometry (Intra), IP, ICC/IF**. Suitable for **Human**.

- Clone H1alpha67 is the most cited clone to HIF-1 alpha
- KO validated for confirmed specificity
- Over 340 publications
- Trusted since 1998

KO Validated

Key facts

Isotype	IgG2b
Host species	Mouse
Storage buffer	pH: 7.4 Preservative: 0.02% Sodium azide Constituents: PBS, 6.97% L-Arginine
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	H1alpha67
Purification technique	Affinity purification
Specificity	**For WB, we recommend using positive control samples such as DFO or CoCl2 treated nulcear cell lysates such as ab180880. Ensure cell lysis occurs quickly (within 2 mins) if removed from hypoxia. Loading a high amount of sample (>50 µg) and addition of protease inhibitors (e.g. ab65621) may also enhance detection.**
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	ab170192 - Mouse monoclonal IgG2b, is suitable for use as an isotype control with this antibody.

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	5 µg/mL
Notes	We recommend blocking for 1 hour with 5% milk in TBST and reducing to 2% milk in TBST for the primary and secondary antibody incubation steps. For primary antibody incubation, we recommend 2 hours at room temperature. We recommend Goat Anti-Mouse IgG H&L (HRP) preadsorbed (ab97040) secondary antibody.

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/100 - 1/200

Notes	PubMed: 25422886 We recommend Goat Anti-Mouse IgG H&L (DyLight® 488) preadsorbed (ab96879) secondary antibody.

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

IHC-P

Not recommended

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

IHC-Fr

Not recommended

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

IP

Tested

Species	Human
Dilution info	5 µg/mL
Notes	-

Predicted

Species	Mouse, Rat
Dilution info	-

Notes	-

Target data

See full target information HIF1A

Function	Functions as a master transcriptional regulator of the adaptive response to hypoxia (PubMed:11292861, PubMed:11566883, PubMed:15465032, PubMed:16973622, PubMed:17610843, PubMed:18658046, PubMed:20624928, PubMed:22009797, PubMed:30125331, PubMed:9887100). Under hypoxic conditions, activates the transcription of over 40 genes, including erythropoietin, glucose transporters, glycolytic enzymes, vascular endothelial growth factor, HILPDA, and other genes whose protein products increase oxygen delivery or facilitate metabolic adaptation to hypoxia (PubMed:11292861, PubMed:11566883, PubMed:15465032, PubMed:16973622, PubMed:17610843, PubMed:20624928, PubMed:22009797, PubMed:30125331, PubMed:9887100). Plays an essential role in embryonic vascularization, tumor angiogenesis and pathophysiology of ischemic disease (PubMed:22009797). Heterodimerizes with ARNT; heterodimer binds to core DNA sequence 5'-TACGTG-3' within the hypoxia response element (HRE) of target gene promoters (By similarity). Activation requires recruitment of transcriptional coactivators such as CREBBP and EP300 (PubMed:16543236, PubMed:9887100). Activity is enhanced by interaction with NCOA1 and/or NCOA2 (PubMed:10594042). Interaction with redox regulatory protein APEX1 seems to activate CTAD and potentiates activation by NCOA1 and CREBBP (PubMed:10202154, PubMed:10594042). Involved in the axonal distribution and transport of mitochondria in neurons during hypoxia (PubMed:19528298). (Microbial infection) Upon infection by human coronavirus SARS-CoV-2, is required for induction of glycolysis in monocytes and the consequent pro-inflammatory state (PubMed:32697943). In monocytes, induces expression of ACE2 and cytokines such as IL1B, TNF, IL6, and interferons (PubMed:32697943). Promotes human coronavirus SARS-CoV-2 replication and monocyte inflammatory response (PubMed:32697943).

Storage

Shipped at conditions	Blue Ice
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

Anti-HIF-1 alpha antibody [H1alpha67] (ab1) is a House Mouse Monoclonal antibody and is validated for use in Flow Cyt (Intra), ICC/IF, IP, WB.

Anti-HIF-1 alpha antibody [H1alpha67] (ab1) has been cited over 343 times in peer reviewed journals and is trusted by the scientific community.

Abcams high quality validation processes ensure Anti-HIF-1 alpha antibody [H1alpha67] (ab1) has high sensitivity and specificity.

The specificity of Anti-HIF-1 alpha antibody [H1alpha67] (ab1) has been confirmed by testing in knockout samples.

Anti-HIF-1 alpha antibody [H1alpha67] (ab1) has 41 independent reviews from customers.

Anti-HIF-1 alpha antibody [H1alpha67] (ab1) specifically detects HIF-1 alpha (UniProt ID: Q16665; Molecular weight: 93kDa) and is sold in 100 ug selling sizes.

Antibody clone H1alpha67 is also available pre-conjugated to a variety of labels for your convenience - Alexa Fluor® 647 (ab23848).

HIF-1 alpha, also known as hypoxia-inducible factor 1-alpha (HIF1A), is a critical regulator of cellular response to low oxygen levels. HIF1A is a transcription factor commonly referred to as a "master regulator of the hypoxic response" for its central role in the regulation of cellular adaptations to hypoxia. Hypoxia contributes to the pathophysiology of human disease, including myocardial and cerebral ischemia, cancer, pulmonary hypertension, congenital heart disease and chronic obstructive pulmonary disease. A highly specific HIF-1 alpha antibody, essential for studying hypoxia-inducible factors and oxygen homeostasis. This antibody is crucial in tumor hypoxia research, particularly in understanding cancer progression and angiogenesis. It is widely used in studies of metastasis and HIF-1 alpha inhibitors. The HIF1A molecular weight is approximately 120 kDa, and detecting it accurately is essential for understanding its role in the tumor microenvironment. Elevated HIF-1 alpha levels are linked to tumor progression, angiogenesis, and metastasis. Monitoring HIF-1 alpha can provide valuable insights into cancer biology and potential therapeutic targets.

Want a custom formulation?
This antibody clone is manufactured by Abcam. If you require a custom buffer formulation or conjugation for your experiments, please contact orders@abcam.com

Supplementary info

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

Activity summary	HIF-1 alpha also known as hypoxia-inducible factor 1-alpha is a transcription factor critical in cellular response to low oxygen levels. Its molecular weight usually ranges from 93 to 120 kDa. You can find HIF-1 alpha expressed in tissues throughout the body but its expression significantly increases under hypoxic conditions. Researchers often use the HIF-1a ELISA to measure its expression

	levels. HIF-1 alpha forms a complex with other proteins to perform its functions effectively.
Biological function summary	HIF-1 alpha regulates gene expression in response to hypoxic conditions in cells. It forms a complex with HIF-1 beta to activate transcription of various genes involved in energy metabolism angiogenesis and erythropoiesis. HIF-1 alpha enables cells to adapt to reduced oxygen availability allowing for cellular survival and function under stress. It plays an important role in promoting the expression of genes like VEGF and EPO which are important for vascular and red blood cell development respectively.
Pathways	HIF-1 alpha plays an integral role in the hypoxia signaling pathway and the glycolytic pathway. In the hypoxia signaling pathway HIF-1 alpha partners with VHL (Von Hippel-Lindau) protein that regulates its degradation under normal oxygen conditions. When oxygen levels drop HIF-1 alpha avoids degradation stabilizes and translocates into the nucleus to initiate transcription of hypoxia-responsive genes. The glycolytic pathway involvement highlights its function in adapting energy production under hypoxic conditions through collaboration with enzymes and transporters associated with glycolysis.
Associated diseases and disorders	HIF-1 alpha has been implicated in cancer and ischemic diseases. Its role in promoting angiogenesis and metabolic adaptation makes it a contributor to tumor growth and survival collaborating with oncogenes such as c-Myc. In ischemic diseases like stroke or myocardial infarction HIF-1 alpha's ability to induce protective responses can mitigate tissue damage through regulation of survival pathways. Understanding these interactions helps in the development of therapeutic strategies targeting HIF-1 alpha in disease contexts.

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

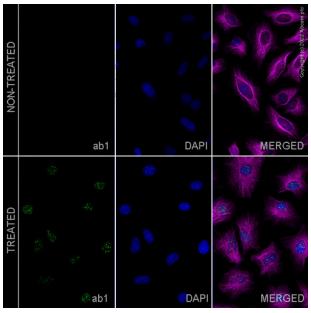
We do not recommend this combination. It is not covered by our product promise.

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.

7 product images



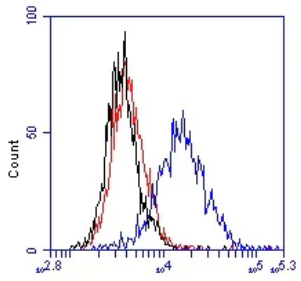
Immunocytochemistry/ Immunofluorescence - Anti-HIF-1 alpha antibody [H1alpha67] (ab1)

HIF-1 alpha Immunocytochemistry/ Immunofluorescence staining of HeLa DFO treated cells using mouse Anti-HIF-1 alpha antibody

ab1 staining HIF-1 alpha in HeLa DFO cells. The cells were fixed with 100% methanol (5 min), permeabilized with 0.1% PBS-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 overnight at 4°C with ab1 at 10µg/ml and ab6046, Rabbit polyclonal to beta Tubulin - Loading Control. Cells were then incubated with ab150117, Goat polyclonal Secondary Antibody to Mouse IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 dilution (shown in green) and ab150080, Goat polyclonal Secondary Antibody to Rabbit IgG - H&L (Alexa Fluor® 594) at 1/1000 dilution (shown in pseudocolour magenta). Nuclear DNA was labelled with DAPI (shown in blue).

Also suitable in cells fixed with 4% paraformaldehyde (10 min).

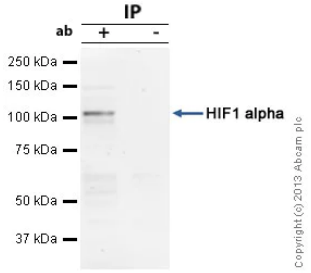
Image was acquired with a high-content analyser (Operetta CLS, Perkin Elmer) and a maximum intensity projection of confocal sections is shown.



Flow Cytometry (Intracellular) - Anti-HIF-1 alpha antibody [H1alpha67] (ab1)

HIF-1 alpha Flow Cytometry (Intracellular) staining using mouse Anti-HIF-1 alpha antibody

Flow cytometry using ab1. HeLa (Human epithelial cell line from cervix adenocarcinoma) cells were cultured untreated or with 1mM Deferoxamine (ab120727) for 24 hours to induce HIF-1-alpha protein levels. Cells were then trypsinized, fixed with paraformaldehyde and stained with ab1 (0.5 µg/mL). 1% BSA in PBS was used as the blocking buffer throughout. ab1 was labeled with and anti-mouse Alexa-Fluor® 488 dye. Unstained (black), untreated (red) and DFO treated (blue) cell traces are shown.



Immunoprecipitation - Anti-HIF-1 alpha antibody [H1alpha67] (ab1)

HIF-1 alpha was immunoprecipitated using 0.5 mg HeLa Nuclear DFO treated whole cell extract (ab180880), 5 µg of Mouse monoclonal to HIF-1 alpha and 50 µl of protein G magnetic beads (+). No antibody was added to the control (-).
The antibody was incubated under agitation with Protein G beads for 10 minutes, HeLa DFO treated whole cell extract lysate diluted in RIPA buffer was added to each sample and incubated for a further 10 minutes under agitation.

Proteins were eluted by addition of 40 µl SDS loading buffer and incubated for 10 minutes at 70°C; 10 µl of each sample was separated on a SDS PAGE gel, transferred to a nitrocellulose membrane, blocked with 5% BSA and probed with ab1.

Secondary: Goat polyclonal to mouse IgG light chain specific (HRP) at 1:20,000 dilution.

Band: 110 kDa; HIF1 alpha

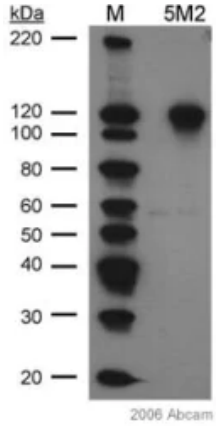
All lanes:
Immunoprecipitation - Anti-HIF-1 alpha antibody [H1alpha67] (ab1)

Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 92 kDa

Exposure time: 20min



This image is taken from a customer review submitted by Mike Campa, no further information is known about this image

Western blot - Anti-HIF-1 alpha antibody [H1alpha67] (ab1)

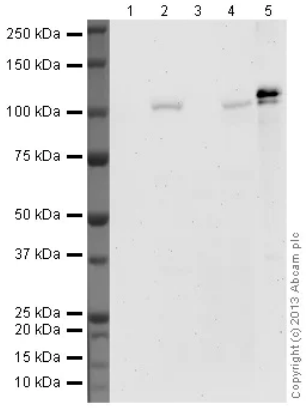
PVDF membrane was used and blocked for 16 hours in 5% milk.
All lanes:
Western blot - Anti-HIF-1 alpha antibody [H1alpha67] (ab1) at 1/400 dilution

All lanes:
Human whole cell lysate (human lung adenocarcinoma cell line ADLC-5M2) treated for 16 hours with 100 micromolar deferoxamine (DFO) at 20 µg

Performed under reducing conditions.

Predicted band size: 14 kDa, 54 kDa, 92 kDa

Observed band size: 120 kDa



Western blot - Anti-HIF-1 alpha antibody [H1alpha67] (ab1)

HIF-1 alpha Western blot staining using mouse Anti-HIF-1 alpha antibody

We recommend using 5% milk in TBST as the blocking agent, decreasing to 2% milk in TBST during primary and secondary antibody incubation.
Blots were developed with Goat Anti-Mouse IgG H&L (HRP) preadsorbed (ab97040) secondary antibody

All lanes:
Western blot - Anti-HIF-1 alpha antibody [H1alpha67] (ab1) at 5 µg/mL

Lane 1:
Western blot - HeLa nuclear extract lysate (ab150036) at 40 µg

Lane 2:
Western blot - Hela-DFO treated (0.5mM, 24h) Nuclear Lysate (ab180880) at 40 µg

Lane 3:
HeLa nuclear control at 40 µg

Lane 4:
HeLa nuclear DFO treated at 40 µg

Lane 5:
Western blot - Recombinant Human HIF-1 alpha protein (ab154478) at 0.001 µg

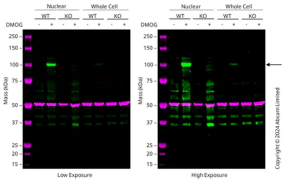
Secondary

All lanes:
Western blot - Goat Anti-Mouse IgG H&L (HRP) preadsorbed (ab97040) at 1/10000 dilution

Performed under reducing conditions.

Predicted band size: 92 kDa

Exposure time: 20min



Western blot - Anti-HIF-1 alpha antibody [H1alpha67] (ab1)

Western blot: Anti-HIF1A antibody [H1alpha67] (ab1) staining at 5 ug/ml, shown in green; Rabbit anti-alpha Tubulin antibody [EP1332Y] (ab52866) loading control staining at 1/20000 dilution, shown in magenta. In Western blot, ab1 was shown to bind specifically to HIF1A. A band was observed at 100 kDa in wild-type HCT 116 cell lysates with no signal observed at this size in HIF1A knockout cell line. To generate this image, wild-type and HIF1A knockout HCT 116 cell lysates were analysed. First, 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-Mouse IgG H&L 800CW and Goat anti-Rabbit IgG H&L 680RD at 1/20000 dilution.
All lanes:
Western blot - Anti-HIF-1 alpha antibody [H1alpha67] (ab1) at 5 µg/mL

Lane 1:
Wild-type HCT 116 DMOG (0 mM, 4 h) nuclear cell lysate at 20 µg

Lane 2:
Wild-type HCT 116 treated DMOG (1 mM, 4 h) nuclear cell lysate at 20 µg

Lane 3:
HIF1A knockout HCT 116 DMOG (0 mM, 4 h) nuclear cell lysate at 20 µg

Lane 4:
HIF1A knockout HCT 116 treated DMOG (1 mM, 4 h) nuclear cell lysate at 20 µg

Lane 5:
Wild-type HCT 116 DMOG (0 mM, 4 h) cell lysate at 20 µg

Lane 6:
Wild-type HCT 116 treated DMOG (1 mM, 4 h) cell lysate at 20 µg

Lane 7:
HIF1A knockout HCT 116 DMOG (0 mM, 4 h) cell lysate at 20 µg

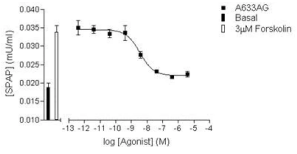
Lane 8:
HIF1A knockout HCT 116 treated DMOG (1 mM, 4 h) cell lysate at 20 µg

Secondary

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

Performed under reducing conditions.

Observed band size: 100 kDa



Western blot - Anti-HIF-1 alpha antibody [H1alpha67] (ab1)

All lanes:
Western blot - Anti-HIF-1 alpha antibody [H1alpha67] (ab1)

Lanes 1, 3, 4, 5, 6, 7, 8, 9 and 10:
Hela cell lysate

Lane 2:
Hela cell lysate with Western blot

Secondary

All lanes:
Western blot

Predicted band size: 56 kDa

Observed band size: 23 kDa

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