abcam

Product datasheet

Recombinant Human HIF-1 alpha protein ab154478

3 Images

Overview

Product name	Recombinant Human HIF-1 alpha protein
Protein length	Full length protein

Description

Nature	Recombinant
Source	Escherichia coli
Amino Acid Sequence	
Accession	Q16665-2
Species	Human
Sequence	MSDKIIHLTDDSFDTDVLKADGAILVDFWAEWCGPCK MIAPILDEIADEY QGKLTVAKLNIDQNPGTAPKYGIRGIPTLLLFKNGEVAA TKVGALSKGQL KEFLDANLAGSGSGHMHHHHHHSSGLVPRGSGMKET AAAKFERQHMDSPD LGTENLYFQGMEGAGGANDKKKISSERRKEKSRDAAR SRRSKESEVFYEL AHQLPLPHNVSSHLDKASVMRLTISYLRVRKLLDAGDL DIEDDMKAQMNC FYLKALDGFVMVLTDDGDMIYISDNVNKYMGLTQFELT GHSVFDFTHPCD HEEMREMLTHRNGLVKKGKEQNTQRSFFLRMKCTLTS RGRTMNIKSATWK VLHCTGHIHVYDTNSNQPQCGYKKPPMTCLVLICEPIPH PSNIEIPLDSK TFLSRHSLDMKFSYCDERITELMGYEPEELLGRSIYEYY HALDSDHLTKT HHDMFTKGQVTTGQYRMLAKRGGYVWVETQATVIYNT KNSQPQCIVCVNY VVSGIIQHDLIFSLQQTECVLKPVESSDMKMTQLFTKV ESEDTSSLFDKL KKEPDALTLLAPAAGDTIISLDFGSNDTETDDQQLEEV PLYNDVMLPSPN EKLQNINLAMSPLPTAETPKPLRSSADPALNQEVALKL

EPNPESLELSFT
MPQIQDQTPSPSDGSTRQSSPEPNSPSEYCFYVDSD
MVNEFKLELVEKLF
AEDTEAKNPFSTQDTDLDLEMLAPYIPMDDDFQLRSF
DQLSPLESSSASP
ESASPQSTVTVFQQTQIQEPTANATTTTATTDELKTVTK
DRMEDIKILIA
SPSPTHIHKETTSATSSPYRDTQSRTASPNRAGKGVIE
QTEKSHPRSPNV
LSVALSQRTTVPEEELNPKILALQNAQRKRKMEHDGS
LFQAVGIG

Molecular weight	100 kDa including tags
Amino acids	1 to 735
Tags	His tag N-Terminus

Specifications

Our Abpromise guarantee covers the use of **ab154478** in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Applications	ELISA Western blot SDS-PAGE
Purity	> 75 % SDS-PAGE. ab154478 was purified by Ni chromatography and sterile filtered.
Form	Liquid
Additional notes	Product was previously marketed under the MitoSciences sub-brand.

Preparation and Storage

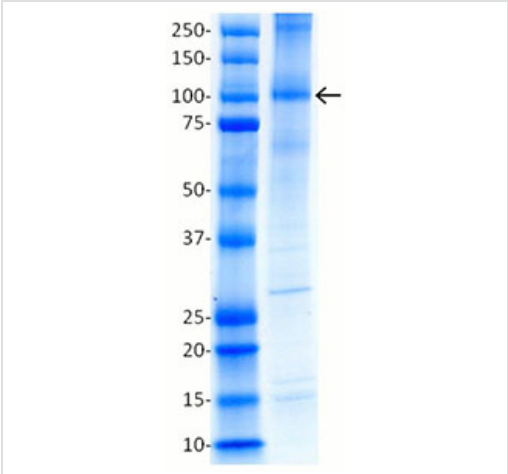
Stability and Storage	Shipped on dry ice. Upon delivery aliquot and store at -80ºC. Avoid freeze / thaw cycles. pH: 8.00 Constituents: 0.61% Tris, 10% Glycerol, 0.88% Sodium chloride

General Info

Function	Functions as a master transcriptional regulator of the adaptive response to hypoxia. Under hypoxic conditions activates the transcription of over 40 genes, including, erythropoietin, glucose transporters, glycolytic enzymes, vascular endothelial growth factor, and other genes whose protein products increase oxygen delivery or facilitate metabolic adaptation to hypoxia. Plays an essential role in embryonic vascularization, tumor angiogenesis and pathophysiology of ischemic disease. Binds to core DNA sequence 5'-[AG]CGTG-3' within the hypoxia response element (HRE) of target gene promoters. Activation requires recruitment of transcriptional coactivators such as CREBPB and EP300. Activity is enhanced by interaction with both, NCOA1 or NCOA2. Interaction with redox regulatory protein APEX seems to activate CTAD and potentiates activation by NCOA1 and CREBBP.
Tissue specificity	Expressed in most tissues with highest levels in kidney and heart. Overexpressed in the majority

	of common human cancers and their metastases, due to the presence of intratumoral hypoxia and as a result of mutations in genes encoding oncoproteins and tumor suppressors.
Sequence similarities	Contains 1 basic helix-loop-helix (bHLH) domain. Contains 1 PAC (PAS-associated C-terminal) domain. Contains 2 PAS (PER-ARNT-SIM) domains.
Domain	Contains two independent C-terminal transactivation domains, NTAD and CTAD, which function synergistically. Their transcriptional activity is repressed by an intervening inhibitory domain (ID).
Post-translational modifications	In normoxia, is hydroxylated on Pro-402 and Pro-564 in the oxygen-dependent degradation domain (ODD) by EGLN1/PHD1 and EGLN2/PHD2. EGLN3/PHD3 has also been shown to hydroxylate Pro-564. The hydroxylated prolines promote interaction with VHL, initiating rapid ubiquitination and subsequent proteasomal degradation. Deubiquitinated by USP20. Under hypoxia, proline hydroxylation is impaired and ubiquitination is attenuated, resulting in stabilization. In normoxia, is hydroxylated on Asn-803 by HIF1AN, thus abrogating interaction with CREBBP and EP300 and preventing transcriptional activation. This hydroxylation is inhibited by the Cu/Zn-chelator, Clioquinol. S-nitrosylation of Cys-800 may be responsible for increased recruitment of p300 coactivator necessary for transcriptional activity of HIF-1 complex. Requires phosphorylation for DNA-binding. Sumoylated; by SUMO1 under hypoxia. Sumoylation is enhanced through interaction with RWDD3. Desumoylation by SENP1 leads to increased HIF1A stability and transriptional activity. Ubiquitinated; in normoxia, following hydroxylation and interaction with VHL. Lys-532 appears to be the principal site of ubiquitination. Clioquinol, the Cu/Zn-chelator, inhibits ubiquitination through preventing hydroxylation at Asn-803. The iron and 2-oxoglutarate dependent 3-hydroxylation of asparagine is (S) stereospecific within HIF CTAD domains.
Cellular localization	Cytoplasm. Nucleus. Cytoplasmic in normoxia, nuclear translocation in response to hypoxia. Colocalizes with SUMO1 in the nucleus, under hypoxia.

Images

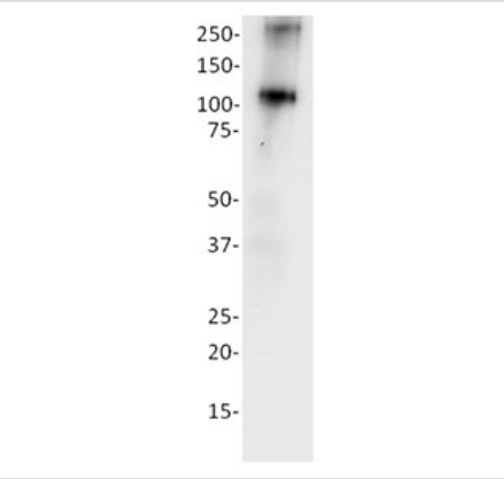


SDS-PAGE - Recombinant Human HIF-1 alpha protein (ab154478)

1µg of ab154478 was examined by SDS-PAGE and commassie blue protein stain. Full-length HIF-1-alpha is indicated by the arrow.

Purity is judged to be >75%.

Expected MW is 100kDa.

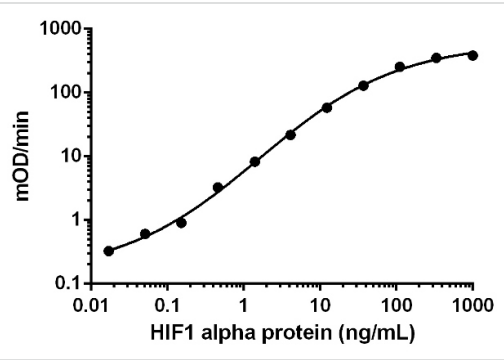


Western blot - Recombinant Human HIF-1 alpha protein (ab154478)

ab154478 was examined by western blot with an anti-HIF-1-alpha antibody.

Lane1: 10ng HIF1 alpha full-length protein (ab154478)

Block: 4% milk/PBS Primary antibody: anti-HIF-1-alpha (ab51608), 1:1000; 2 hours room temperature. Secondary antibody: anti-Rabbit HRP 1:5000 ECL detection



ELISA - Recombinant Human HIF-1 alpha protein (ab154478)

ab154478 was tested in the HIF1A Human ELISA Kit (ab117996). ab154478 was tested under standard conditions in the sandwich ELISA kit using a 3-fold dilution series from 3µg/ml.

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