

#3716 Store at -20°C

HIF-1 α Antibody



✓ 100 μ l
(10 western blots)

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This product is intended for research purposes only. This product is not intended to be used for therapeutic or diagnostic purposes in humans or animals.

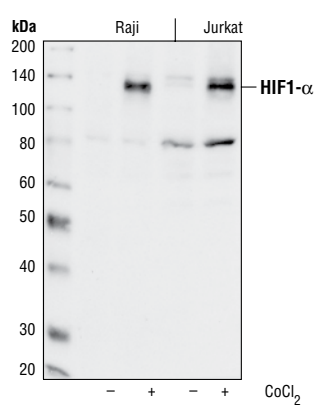
Applications	Species Cross-Reactivity*	Molecular Wt.	Source
W	H	120 kDa	Rabbit**
Endogenous			

Background: Hypoxia-inducible factor 1 (HIF1) is a heterodimeric transcription factor that plays a critical role in the cellular response to hypoxia (1). The HIF1 complex consists of two subunits, HIF-1 α and HIF-1 β , which are basic helix-loop-helix proteins of the PAS (Per, ARNT, Sim) family (2). HIF1 regulates the transcription of a broad range of genes that facilitate responses to the hypoxic environment, including genes regulating angiogenesis, erythropoiesis, cell cycle, metabolism and apoptosis. The widely expressed HIF-1 α is typically degraded rapidly in normoxic cells by the ubiquitin/proteasomal pathway. Under normoxic conditions, HIF-1 α is proline hydroxylated leading to a conformational change that promotes binding to the von Hippel Lindau protein (VHL) E3 ligase complex; ubiquitination and proteasomal degradation follows (3,4). Both hypoxic conditions and chemical hydroxylase inhibitors (such as desferrioxamine and cobalt) inhibit HIF-1 α degradation and lead to its stabilization. In addition, HIF-1 α can be induced in an oxygen-independent manner by various cytokines through the PI3K-AKT-mTOR pathway (5-7).

HIF-1 β is also known as AhR nuclear translocator (ARNT) due to its ability to partner with the aryl hydrocarbon receptor (AhR) to form a heterodimeric transcription factor complex (8). Together with AhR, HIF-1 β plays an important role in xenobiotics metabolism (8). In addition, a chromosomal translocation leading to a TEL-ARNT fusion protein is associated with acute myeloblastic leukemia (9). Studies also found that ARNT/HIF-1 β expression levels decrease significantly in pancreatic islets from patients with type 2 diabetes, suggesting that HIF-1 β plays an important role in pancreatic β -cell function (10).

Specificity/Sensitivity: HIF-1 α Antibody detects endogenous levels of total HIF-1 α protein. The antibody does not cross-react with other family members at physiological conditions, and does not detect significant levels of hydroxylated HIF-1 α .

Source/Purification: Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Ser653 of human HIF-1 α . Antibodies are purified by protein A and peptide affinity chromatography.



Western blot analysis of extracts from Raji and Jurkat cells, untreated or treated with cobalt chloride (0.1 mM for 4 hours), using HIF-1 α Antibody.

Background References:

- (1) Sharp, F.R. and Bernaudin, M. (2004) *Nat Rev Neurosci* 5, 437-48.
- (2) Wang, G.L. et al. (1995) *Proc Natl Acad Sci U S A* 92, 5510-4.
- (3) Jaakkola, P. et al. (2001) *Science* 292, 468-72.
- (4) Maxwell, P.H. et al. (1999) *Nature* 399, 271-5.
- (5) Fukuda, R. et al. (2002) *J Biol Chem* 277, 38205-11.
- (6) Jiang, B.H. et al. (2001) *Cell Growth Differ* 12, 363-9.
- (7) Laughner, E. et al. (2001) *Mol Cell Biol* 21, 3995-4004.
- (8) Walisser, J.A. et al. (2004) *Proc Natl Acad Sci U S A* 101, 16677-82.
- (9) Salomon-Nguyen, F. et al. (2000) *Proc Natl Acad Sci U S A* 97, 6757-62.
- (10) Gunton, J.E. et al. (2005) *Cell* 122, 337-49.

Entrez-Gene ID # 3091
Swiss-Prot Acc. # Q16665

Storage: Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 μ g/ml BSA and 50% glycerol. Store at -20°C. Do not aliquot the antibody.

*Species cross-reactivity is determined by western blot.

**Anti-rabbit secondary antibodies must be used to detect this antibody.

Recommended Antibody Dilutions:

Western blotting 1:1000

For application specific protocols please see the web page for this product at www.cellsignal.com.

Please visit www.cellsignal.com for a complete listing of recommended companion products.

IMPORTANT: For western blots, incubate membrane with diluted antibody in 5% w/v BSA, 1X TBS, 0.1% Tween-20 at 4°C with gentle shaking, overnight.

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Applications Key: W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide
Species Cross-Reactivity Key: H—human M—mouse R—rat Hm—hamster Mk—monkey Mi—mink C—chicken Dm—D. melanogaster X—Xenopus Z—zebrafish B—bovine
 Dg—dog Pg—pig Sc—S. cerevisiae Ce—C. elegans Hr—Horse All—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.