

# PRODUCT INFORMATION



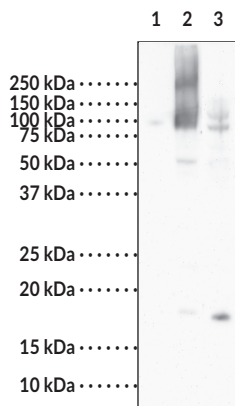
## HIF-1 $\alpha$ (C-Term) Monoclonal Antibody (Clone 8B12)

Item No. 27227

### Overview and Properties

<b>Contents:</b>	This vial contains 100 $\mu$ g of protein G-purified monoclonal antibody.
<b>Synonyms:</b>	ARNT-interacting protein, Hypoxia-Inducible Factor-1 $\alpha$
<b>Immunogen:</b>	Peptide from the C-terminal region of the human HIF-1 $\alpha$ protein
<b>Species Reactivity:</b>	(+) Human, mouse; other species not tested
<b>Uniprot No.:</b>	Q16665
<b>Form:</b>	Liquid
<b>Storage:</b>	-20°C (as supplied)
<b>Stability:</b>	$\geq$ 3 years
<b>Storage Buffer:</b>	PBS, pH 7.2, with 50% glycerol and 0.02% sodium azide
<b>Clone:</b>	8B12
<b>Host:</b>	Mouse
<b>Isotype:</b>	IgG2a, $\kappa$
<b>Applications:</b>	Immunocytochemistry (ICC) and Western blot (WB); the recommended starting dilution is 1:1000. Other applications were not tested, therefore the optimal working concentration/dilution should be determined empirically.

### Image



Lane 1: HIF-1 $\alpha$  inclusion bodies (4  $\mu$ l)  
Lane 2: Hypoxic HeLa cell lysate (15  $\mu$ g)  
Lane 3: A549 cell lysate (50  $\mu$ g)

WARNING  
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA  
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY  
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

Copyright Cayman Chemical Company, 02/06/2023

CAYMAN CHEMICAL  
1180 EAST ELLSWORTH RD  
ANN ARBOR, MI 48108 · USA  
PHONE: [800] 364-9897  
[734] 971-3335  
FAX: [734] 971-3640  
CUSTSERV@CAYMANCHEM.COM  
WWW.CAYMANCHEM.COM

# PRODUCT INFORMATION



## Description

---

Hypoxia-inducible factor-1 $\alpha$  (HIF-1 $\alpha$ ) is a transcription factor subunit that belongs to the basic helix-loop-helix PER-ARNT-SIM (bHLH-PAS) protein family.<sup>1,2</sup> It contains bHLH and PAS domains that mediate DNA binding and heterodimerization with the HIF-1 $\beta$  subunit, an oxygen-dependent degradation (ODD) domain that is hydroxylated by prolyl hydroxylase in the presence of oxygen to target HIF-1 $\alpha$  for proteasomal degradation, and N- and C-terminal transactivation domains responsible for regulating the expression of HIF-1 target genes.<sup>2,3</sup> Under hypoxic conditions, HIF-1 $\alpha$  is stabilized, accumulates in the cytoplasm, and is translocated to the nucleus where it forms a heterodimer with HIF-1 $\beta$  and induces the expression of genes involved in maintaining cellular oxygen homeostasis.<sup>1,2,4,5</sup> It is also involved in angiogenesis, glucose utilization, and pH regulation under hypoxic conditions, including in the tumor microenvironment.<sup>6</sup> HIF-1 $\alpha$  is overexpressed in a variety of cancer cell lines where it promotes survival of cancer cells and increases invasiveness under hypoxic conditions and, *in vivo*, overexpression is associated with aggressiveness and progression of various cancers and poor disease-free survival.<sup>6-9</sup> Homozygous knockout of HIF-1 $\alpha$  is embryonic lethal due to disruptions in vascular development but conditional knockout models have demonstrated a role for HIF-1 $\alpha$  in inflammation, immunity, and osteogenesis.<sup>6</sup> Cayman's HIF-1 $\alpha$  Monoclonal Antibody can be used for Western blot and immunocytochemistry applications. The antibody recognizes HIF-1 $\alpha$  at 93 kDa from human and mouse samples.

## References

---

1. Wang, G.L., Jiang, B.H., Rue, E.A., *et al.* Hypoxia-inducible factor 1 is a basic-helix-loop-helix-PAS heterodimer regulated by cellular O<sub>2</sub> tension. *Proc. Natl. Acad. Sci. USA* **92(12)**, 5510-5514 (1995).
2. Bhattarai, D., Xu, X., and Lee, K. Hypoxia-inducible factor-1 (HIF-1) inhibitors from the last decade (2007 to 2016): A "structure-activity relationship" perspective. *Med. Res. Rev.* **38(4)**, 1404-1442 (2018).
3. Li, J., Xi, W., Li, X., *et al.* Advances in inhibition of protein-protein interactions targeting hypoxia-inducible factor-1 for cancer therapy. *Bioorg. Med. Chem.* **27(7)**, 1145-1158 (2019).
4. Wenger, R.H. Cellular adaptation to hypoxia: O<sub>2</sub>-sensing protein hydroxylases, hypoxia-inducible transcription factors, and O<sub>2</sub> regulated gene expression. *FASEB J.* **16(10)**, 1151-1162 (2002).
5. Safran, M., and Kaelin, W.G., Jr. HIF hydroxylation and the mammalian oxygen-sensing pathway. *J. Clin. Invest.* **111(6)**, 779-783 (2003).
6. Weidemann, A. and Johnson, R.S. Biology of HIF-1 $\alpha$ . *Cell Death Differ.* **15(4)**, 621-627 (2008).
7. Talks, K.L., Turley, H., Gatter, K.C., *et al.* The expression and distribution of the hypoxia-inducible factors HIF-1 $\alpha$  and HIF-2 $\alpha$  in normal human tissues, cancers, and tumor-associated macrophages. *Am. J. Pathol.* **157(2)**, 411-421 (2000).
8. Choi, J.Y., Jang, Y.S., Min, S.Y., *et al.* Overexpression of MMP-9 and HIF-1 $\alpha$  in breast cancer cells under hypoxic conditions. *J. Breast Cancer* **14(2)**, 88-95 (2011).
9. Chen, L., Shi, Y., Yuan, J., *et al.* HIF-1 alpha overexpression correlates with poor overall survival and disease-free survival in gastric cancer patients post-gastrectomy. *PLoS One* **9(3)**, e90678 (2014).

CAYMAN CHEMICAL  
1180 EAST ELLSWORTH RD  
ANN ARBOR, MI 48108 · USA  
PHONE: [800] 364-9897  
[734] 971-3335  
FAX: [734] 971-3640  
CUSTSERV@CAYMANCHEM.COM  
WWW.CAYMANCHEM.COM