Technical Data Sheet

Purified Mouse Anti-Human HIF-1α

Product Information

Material Number:	**610958**
Alternate Name:	MOP1
Size:	50 µg
Concentration:	250 µg/ml
Clone:	54/HIF-1α
Immunogen:	Human HIF-1α aa. 610-727
Isotype:	Mouse IgG1, κ
Reactivity:	QC Testing: Human
Target MW:	120 kDa
Storage Buffer:	Aqueous buffered solution containing BSA, glycerol, and ≤0.09% sodium azide.

Description

Molecular oxygen (O2) is essential for mammalian metabolic processes such as oxidative phosphorylation. Thus, survival depends upon instantaneous transcriptional modulation of genes that maintain O2 homeostasis. Transcriptional control of several of these genes is mediated by hypoxia-inducible factor 1 (HIF-1). HIF-1 is a heterodimer whose α and β subunits are members of the PAS family of basic helix-loop-helix (bHLH) transcription factors. Common structural features of these proteins are an N-terminal bHLH DNA-binding domain and multiple PAS domains that confer dimerization ability and target gene specificity. Members diverge in their C-terminal regions. HIF-1β is also known as the arylhydrocarbon nuclear translocator which is part of the functional dioxin receptor. However, HIF-1α functions exclusively to mediate responses to O2 deprivation. It contains C-terminal and internal transactivation domains. Although HIF-1 aproteinlevels increase during hypoxia, it is unstable in the presence of O2 due to an oxygen-dependent degradation domain (ODD) that targets it for ubiquitination. Thus, HIF-1α is essential for functional HIF-1 to mediate gene transcription in response to hypoxia.

Western blot analysis of HIF-1α on HeLa cells stimulated with CoCl2 lysate. *Lane 1: 1:250, lane 2: 1:500, lane 3: 1:1000 dilution of the Mouse Anti- HIF-1α antibody.*

Preparation and Storage

Store undiluted at -20°C.

The monoclonal antibody was purified from tissue culture supernatant or ascites by affinity chromatography.

Application Notes

Application

Western blot	Routinely Tested
Immunofluorescence	Tested During Development

Suggested Companion Products

Catalog Number	Name	Size	Clone
554001	FITC Goat Anti-Mouse Ig	0.5 mg	Polyclonal
554002	HRP Goat Anti-Mouse Ig	1.0 ml	(none)

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Product Notices

1. Since applications vary, each investigator should titrate the reagent to obtain optimal results.
2. Source of all serum proteins is from USDA inspected abattoirs located in the United States.
3. Caution: Sodium azide yields highly toxic hydrazoic acid under acidic conditions. Dilute azide compounds in running water before discarding to avoid accumulation of potentially explosive deposits in plumbing.
4. Please refer to www.bdbiosciences.com/pharmingen/protocols for technical protocols.

References

Arsham AM, Plas DR, Thompson CB, Simon MC. Phosphatidylinositol 3-kinase/Akt signaling is neither required for hypoxic stabilization of HIF-1 alpha nor sufficient for HIF-1-dependent target gene transcription. *J Biol Chem.* 2002; 277(17):15162-15170. (Clone-specific: Western blot)

Effects of cellular iron deficiency on the formation of vascular endothelial growth factor and angiogenesis. Iron deficiency and angiogenesis. *Cancer Cell.* 2010; 10(28). (Clone-specific: Western blot)

Fallone F, Britton S, Nieto L, Salles B, Muller C. ATR controls cellular adaptation to hypoxia through positive regulation of hypoxia-inducible factor 1 (HIF-1) expression. *Oncogene.* 2013; 32(37):4387-4396. (Clone-specific: Western blot)

Sanchez-Elsner T, Botella LM, Velasco B, Langa C, Bernabeu C. Endoglin expression is regulated by transcriptional cooperation between the hypoxia and transforming growth factor-beta pathways. *J Biol Chem.* 2002; 277(46):43799-43808. (Clone-specific: Immunoprecipitation, Western blot)

Srinivas V, Leshchinsky I, Sang N, King MP, Minchenko A, Caro J. Oxygen sensing and HIF-1 activation does not require an active mitochondrial respiratory chain electron-transfer pathway. *J Biol Chem.* 2002; 276(25):21995-21998. (Clone-specific: Immunofluorescence, Western blot)

Wang GL, Jiang BH, Rue EA, Semenza GL. Hypoxia-inducible factor 1 is a basic-helix-loop-helix-PAS heterodimer regulated by cellular O2 tension. *Proc Natl Acad Sci U S A.* 1995; 92(12):5510-5514. (Biology)

Wiesener MS, Munchenhagen PM, Berger I, et al. Constitutive activation of hypoxia-inducible genes related to overexpression of hypoxia-inducible factor-1alpha in clear cell renal carcinomas. *Cancer Res.* 2001; 61(13):5215-5222. (Clone-specific: Immunohistochemistry, Western blot)

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