

Human HIF-1 alpha / HIF1A Protein (His Tag)



Sino Biological
Biological Solution Specialist

Catalog Number: 11977-H07E

General Information

Gene Name Synonym:

bHLHe78; HIF-1A; HIF-1alpha; HIF1; HIF1-ALPHA; MOP1; PASD8

Protein Construction:

A DNA sequence encoding the human HIF1A isoform 1 (Q16665-1) N-terminal segment (Arg 575-Asn 826) was expressed, with a polyhistidine tag at the N-terminus.

Source: Human

Expression Host: E. coli

QC Testing

Purity: > 95 % as determined by SDS-PAGE

Endotoxin:

Please contact us for more information.

Stability:

Samples are stable for up to twelve months from date of receipt at -70 °C

Predicted N terminal: Met

Molecular Mass:

The recombinant human HIF1A consisting of 259 amino acids and has a calculated molecular mass of 28.4 kDa. It migrates as an approximately 34 kDa band in SDS-PAGE under reducing conditions.

Formulation:

Lyophilized from sterile 50mM Tris, 100mM NaCl, 1mM EDTA, pH 8.0.

Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween80 are added as protectants before lyophilization. Specific concentrations are included in the hardcopy of COA. Please contact us for any concerns or special requirements.

Usage Guide

Storage:

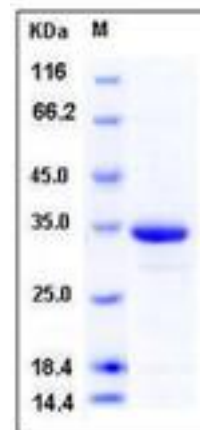
Store it under sterile conditions at -20°C to -80°C upon receiving. Recommend to aliquot the protein into smaller quantities for optimal storage.

Avoid repeated freeze-thaw cycles.

Reconstitution:

Detailed reconstitution instructions are sent along with the products.

SDS-PAGE:



Protein Description

HIF-1 alpha, also known as HIF1A, contains 1 basic helix-loop-helix (bHLH) domain, 1 PAC (PAS-associated C-terminal) domain and 2 PAS (PER-ARNT-SIM) domains. It is one of the two subunits of Hypoxia-inducible factor-1 (HIF1). HIF1 is a transcription factor found in mammalian cells cultured under reduced oxygen tension that plays an essential role in cellular and systemic homeostatic responses to hypoxia. HIF1 is a heterodimer composed of an alpha subunit and a beta subunit. The beta subunit has been identified as the aryl hydrocarbon receptor nuclear translocator (ARNT). HIF-1 alpha is expressed in most tissues with highest levels in kidney and heart. It is 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. HIF-1 alpha functions as a master transcriptional regulator of the adaptive response to hypoxia. Under hypoxic conditions, it activates the transcription of over 4 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. HIF1A plays an essential role in embryonic vascularization, tumor angiogenesis and pathophysiology of ischemic disease. HIF-1 alpha 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 EP3.

References

1. Zhou Q, *et al.* (2011) Loss of either hypoxia inducible factor 1 or 2 promotes lung cancer cell colonization. *Cell Cycle*. 10(13):2233-4.
2. Krishnan J, *et al.* (2012) Dietary obesity-associated Hif1 alpha activation in adipocytes restricts fatty acid oxidation and energy expenditure via suppression of the Sirt2-NAD+ system. *Genes Dev.* 26(3):259-70.
3. Novo E, *et al.* (2012) The biphasic nature of hypoxia-induced directional migration of activated human hepatic stellate cells. *J Pathol.* 226(4):588-97.

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For US Customer: Fax: 267-657-0217 • Tel: 215-583-7898

Global Customer: Fax :+86-10-5862-8288 • Tel:+86-400-890-9989 • <http://www.sinobiological.com>