



Hypoxia-Inducible Factor-1 Alpha Human Recombinant PRO-477

HIF1A Human Recombinant produced in E.Coli is a single, non-glycosylated polypeptide chain containing 298 amino acids (530-826) and having a molecular mass of 32.8kDa. The protein migrates as a 32.8kDa band on SDS-PAGE. The HIF1-A is purified by proprietary chromatographic techniques.

Source: Escherichia Coli.

The HIF1A recombinant Human solution (1mg/ml) is formulated in PBS pH-7.4 and 10% glycerol.

Purity: Greater than 90.0% as determined by SDS-PAGE.

Introduction

Hypoxia-inducible factor-1 (HIF-1), identified as one of the transcription factors, has been found to play an essential role in cellular and systemic oxygen homeostasis. HIF-1 is a heterodimer composed of HIF-1b subunit and one of three subunits (Hif-1a, Hif-2 (or Hif-3)). The activation of Hif-1 is closely associated with a variety of tumors and oncogenic pathways. Hif-1 (consists of DNA binding domain (DBD domain), Dimerization domain and C-terminal regulatory domains, including two transactivation domains (TAD), an oxygen-dependent degradation (ODD) domain, and inhibitory domains. Under hypoxic conditions HIF1A activates the transcription of more than 40 genes, including, erythropoietin, glucose transporters, glycolytic enzymes, VEGF, and other genes whose protein products increase oxygen delivery or facilitate metabolic adaptation to hypoxia. HIF-1A also plays a crucial role in embryonic vascularization, tumor angiogenesis and pathophysiology of ischemic disease. It binds to core DNA sequence 5'-[AG]CGTG-3' within the hypoxia response element (HRE) of target gene promoters. Activation involves recruitment of transcriptional coactivators such as CREBBP and EP300. Its activity is improved by interaction with both, NCOA1 or NCOA2. Interaction with redox regulatory protein APEX appears to activate CTAD and potentiates activation by NCOA1 and CREBBP. The induction is under reduced oxygen tension. HIF1A is also induced by a variety of receptor-mediated factors such as growth factors, cytokines, and circulatory factors for example PDGF, EGF, FGF-2, IGF-2, TGF-1 beta, HGF, TNF alpha, IL-1 beta, angiotensin-2 and thrombin. Nevertheless, this induction is less intense than that stimulated by hypoxia.

Synonyms

Hypoxia-inducible factor 1 alpha, HIF-1 alpha, HIF1 alpha, ARNT-interacting protein, Member of PAS protein 1, Basic-helix-loop-helix-PAS protein MOP1, HIF1A, MOP1, HIF1, PASD8, HIF-1A.

Physical Appearance

Sterile filtered colorless solution.



Store at 4°C if entire vial will be used within 2-4 weeks. Store, frozen at -20°C for longer periods of time. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Avoid multiple freeze-thaw cycles.

Amino Acid Sequence

MEFKLELVEK LFAEDTEAKN PFSTQDSDL LEMLAPYIPM DDDFQLRSFD QLSPLESSSA
SPESASPST VTVFQQTQIQ EPTANATTTT ATTDELKTVT KDRMEDIKIL IASPSPTIH
KETTSATSSP YRDTQSRTAS PNRAGKGVIE QTEKSHPRSP NVLSVALSQR TTVPEEELNP
KILALQNAQR KRKMEHDGSL FQAVGIGTLL QQPDDHAATT SLSWKRVKGC
KSSEQNGMEQ KTIILPSDL ACRLLGQSMQ ESGLPQLTSY DCEVNAPIQG SRNLLQGEEL
LRALDQVN.