



## Product Datasheet

<b>Product Name</b>	Hypoxia-Inducible Factor-1 Alpha Human Recombinant
<b>Cata No</b>	CB501093
<b>Source</b>	<i>Escherichia Coli.</i>
<b>Synonyms</b>	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.

### Description

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-1 $\beta$  subunit and one of three subunits (Hif-1 $\alpha$ , 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 CREBPB 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.

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 32.8 Dalton. The protein migrates as a 40kDa band on SDS-PAGE. The HIF1-A is purified by proprietary chromatographic techniques.

### Physical Appearance

Sterile filtered liquid formulation.

### Purity

Greater than 95.0% as determined by:

- (a) Analysis by RP-HPLC.
- (b) Analysis by SDS-PAGE.

### Formulation

The HIF1A recombinant Human solution is formulated 20mM Tris pH-7.5 and 1mM DTT.

### Stability

MOP1 Recombinant Human although stable at 4°C for 30 days, should be stored desiccated below -20°C for periods greater than 30 days.

**Please avoid freeze-thaw cycles.**

**\* For Non-Clinical Research Use Only \***



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## Sequence

MEFKLELVEK LFAEDTEAKN PFSTQDTDLD  
LEMLAPYIPM DDDFQLRSFD QLSPLESSA  
SPESASPQST VTVFQQTQIQ EPTANATTTT  
ATTDELKTVT KDRMEDIKIL IASPSPTIHI  
KETTSATSSP YRDTQSRTAS PNRAGKGVIE

## Product Data Sheet

QTEKSHPRSP NVLSV  
KILALQNAQR KRKMEHDGSL FQAVGIGTLL  
QQPDDHAATT SLSWKRVKGC KSSEQNGMEQ  
KTILIPSDL ACRLLGQSMD ESGLPQLTSY  
DCEVNAPIQG SRNLLQGEEL LRALDQVN.

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