

## HIF1A Human

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

**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.

**Source:** Escherichia Coli.

**Physical Appearance:** Sterile filtered liquid formulation.

**Amino Acid Sequence:** MEFKLELVEK LFAEDTEAKN PFSTQDLD LEMLAPYIPM  
DDDFQLRSFD QLSPLESSSA SPESASPQST VTFVQQTQIQ EPTANATTTT ATTDELKTVT  
KDRMEDIKIL IASPSPTIH KETTSATSSP YRDTQSRTAS PNRAGKGVIE QTEKSHPRSP  
NVLSVALSQR TTVPEEELNP KILALQNAQR KRKMEHDGSL FQAVGIGTLL QQPDDHAATT  
SLSWKRVKGC KS

**Purity:** Greater than 95.0% as determined by SDS-PAGE.

**Formulation:**

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

**Stability:**

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.

**Usage:**

NeoBiolab's products are furnished for LABORATORY RESEARCH USE ONLY. The product may not be used as drugs, agricultural or pesticidal products, food additives or household chemicals.

**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 CREBPB and EP300. Its activity is improved by interaction with both, NCOA1 or NCOA2. Interaction with redox regulatory protein APEX appears to activate

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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.

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