

# PRODUCT INFORMATION



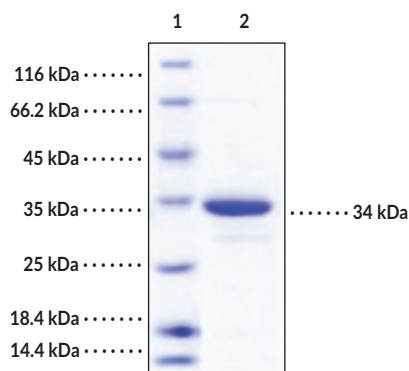
## HIF-1 $\alpha$ (human, recombinant; aa 575-826)

Item No. 35439

### Overview and Properties

**Synonyms:** ARNT-interacting Protein, Hypoxia-Inducible Factor 1 $\alpha$   
**Source:** Recombinant N-terminal His-tagged human HIF-1 $\alpha$  expressed in *E. coli*  
**Amino Acids:** 575-826  
**Uniprot No.:** Q16665  
**Molecular Weight:** 28.4 kDa  
**Storage:** -80°C (as supplied)  
**Stability:**  $\geq 1$  year  
**Purity:**  $\geq 95\%$  estimated by SDS-PAGE  
**Supplied in:** Lyophilized from sterile 50 mM Tris, 100 mM sodium chloride, 1 mM EDTA, pH 8.0  
*Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.*

### Image



Lane 1: MW Markers  
Lane 2: HIF-1 $\alpha$

**SDS-PAGE Analysis of HIF-1 $\alpha$ .** This protein has a calculated molecular weight of 28.4 kDa. It has an apparent molecular weight of approximately 34 kDa by SDS-PAGE under reducing conditions.

**WARNING**  
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

**SAFETY DATA**  
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

**WARRANTY AND LIMITATION OF REMEDY**  
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## Description

Hypoxia-inducible factor-1 $\alpha$  (HIF-1 $\alpha$ ) is a transcription factor subunit that belongs to the basic helix-loop-helix PER-ARNT-SIM (bHLH-PAS) protein family.<sup>1,2</sup> It contains bHLH and PAS domains that mediate DNA binding and heterodimerization with the HIF-1 $\beta$  subunit, an oxygen-dependent degradation (ODD) domain that is hydroxylated by prolyl hydroxylase in the presence of oxygen to target HIF-1 $\alpha$  for proteasomal degradation, and N- and C-terminal transactivation domains responsible for regulating the expression of HIF-1 target genes.<sup>2,3</sup> Under hypoxic conditions, HIF-1 $\alpha$  is stabilized, accumulates in the cytoplasm, and is translocated to the nucleus where it forms a heterodimer with HIF-1 $\beta$  and induces the expression of genes involved in maintaining cellular oxygen homeostasis.<sup>1,2,6,7</sup> It is also involved in angiogenesis, glucose utilization, and pH regulation under hypoxic conditions, including in the tumor microenvironment.<sup>8</sup> HIF-1 $\alpha$  is overexpressed in a variety of cancer cell lines where it promotes survival of cancer cells and increases invasiveness under hypoxic conditions and, *in vivo*, overexpression is associated with aggressiveness and progression of various cancers and poor disease-free survival.<sup>4,5,8,9</sup> Homozygous knockout of HIF-1 $\alpha$  is embryonic lethal due to disruptions in vascular development but conditional knockout models have demonstrated a role for HIF-1 $\alpha$  in inflammation, immunity, and osteogenesis.<sup>8</sup> Cayman's HIF-1 $\alpha$  (human, recombinant; aa 575-826) protein consists of 259 amino acids and has a calculated molecular weight of 28.4 kDa. By SDS-PAGE, under reducing conditions, the apparent molecular mass of the protein is approximately 34 kDa.

## References

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