

# PRODUCT INFORMATION



## I $\kappa$ B $\alpha$ (human, recombinant)

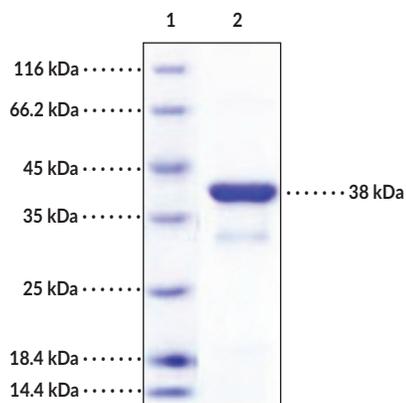
Item No. 43691

### Overview and Properties

**Synonyms:** NFKBIA, NF- $\kappa$ B Inhibitor  $\alpha$   
**Source:** Recombinant human N-terminal His-tagged I $\kappa$ B $\alpha$  expressed in *E. coli*  
**Amino Acids:** 2-317 (full length)  
**Uniprot No.:** P25963  
**Molecular Weight:** 36.4 kDa  
**Storage:** -80°C (as supplied)  
**Stability:**  $\geq$ 1 year  
**Purity:**  $\geq$ 90% estimated by SDS-PAGE  
**Supplied in:** Lyophilized from sterile 50 mM Tris, pH 8.0, 0.5 M sodium chloride  
**Protein Concentration:** *batch specific* mg/ml

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Image



Lane 1: MW Markers  
Lane 2: I $\kappa$ B $\alpha$

**SDS-PAGE Analysis of I $\kappa$ B $\alpha$ .** This protein has a calculated molecular weight of 36.4 kDa. It has an apparent molecular weight of approximately 38 kDa by SDS-PAGE under reducing conditions.

### Description

**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.

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Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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# PRODUCT INFORMATION

I $\kappa$ B $\alpha$  is an inhibitor of NF- $\kappa$ B and a member of the I $\kappa$ B family of proteins.<sup>1-3</sup> It is composed of an N-terminal signal-receiving domain, which contains several post-translational modification sites that regulate its activity, an ankyrin-repeat domain, which contains six ankyrin repeats that mediate protein-protein interactions with NF- $\kappa$ B dimers, a proline-glutamic acid-serine-threonine (PEST) domain, and two nuclear export sequences.<sup>2</sup> I $\kappa$ B $\alpha$  is ubiquitously expressed and shuttles between the cytoplasm and nucleus.<sup>1-3</sup> I $\kappa$ B $\alpha$  is phosphorylated by the I $\kappa$ B kinase (IKK) complex, which is activated via downstream signaling events stimulated by TNF- $\alpha$ , other cytokines, viruses, or bacteria, and its phosphorylation leads to its ubiquitination and degradation by the proteasome. The degradation of I $\kappa$ B $\alpha$  results in unmasking of the nuclear localization signal of NF- $\kappa$ B dimers, which subsequently translocate to the nucleus and activate target genes. Mutations in *NFKBIA*, the gene encoding I $\kappa$ B $\alpha$ , are associated with anhidrotic ectodermal dysplasia with immunodeficiency.<sup>4</sup> Cayman's I $\kappa$ B $\alpha$  (human, recombinant) protein consists of 323 amino acids and has a calculated molecular weight of 36.4 kDa. By SDS-PAGE, under reducing conditions, the apparent molecular mass of the protein is approximately 38 kDa.

## References

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1. Majdalawieh, A.R., H.-S. Regulation of I $\kappa$ B $\alpha$  function and NF- $\kappa$ B signaling: AEBP1 is a novel proinflammatory mediator in macrophages. *Mediators Inflamm.* **2010**, 823821 (2010).
2. Wang, X., Peng, H., Huang, Y., *et al.* Post-translational modifications of I $\kappa$ B $\alpha$ : The state of the art. *Front. Cell Dev. Biol.* **8**, 574706 (2020).
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4. Boisson, B., Puel, A., Picard, C., *et al.* Human I $\kappa$ B $\alpha$  gain of function: A severe and syndromic immunodeficiency. *J. Clin. Immunol.* **37(5)**, 397-412 (2017).