PRODUCT INFORMATION

Keap1 (human, recombinant)

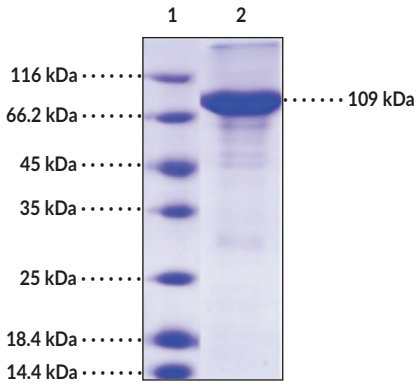
Item No. 32035

Overview and Properties

Synonyms:	Cytosolic Inhibitor of Nrf2, INRF2, Kelch-Like ECH-Associated Protein 1, KLHL19
Source:	Recombinant human N-terminal His-GST-tagged Keap1 expressed in insect cells (baculovirus)
Amino Acids:	2-624 (full length)
Molecular Weight:	97.37 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥85% estimated by SDS-PAGE
Supplied in:	Lyophilized from sterile 20 mM Tris, pH 7.4, with 500 mM sodium chloride and 10% glycerol
Endotoxin Testing:	<1.0 EU/µg, determined by the LAL endotoxin assay

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

Image



Lane 1: MW Markers
Lane 2: Keap1

SDS-PAGE Analysis of Keap1. This protein has a calculated molecular weight of 97.37 kDa. It has an apparent molecular weight of approximately 109 kDa by SDS-PAGE under reducing conditions.

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Description

Kelch-like ECH-associated protein 1 (Keap1) is a substrate adapter protein in the Kelch-like (KLHL) family of proteins.[1] It contains an N-terminal region, a BTB/POZ domain that facilitates protein binding and Keap1 dimerization, a central intervening region (IVR), a double glycine repeat (DGR)/Kelch repeat domain, a BACK that binds to other proteins, and a C-terminal region.[1-3] Keap1 is ubiquitously expressed and localized to the perinuclear region of the cytosol and bound to the actin skeleton *via* its DGR region.[4-6] Under homeostatic conditions, it associates with Nrf2, preventing its nuclear translocation and promoting its ubiquitination and proteasomal degradation.[2,6] In the presence of electrophiles or oxidants, Keap1 releases Nrf2, which translocates to the nucleus to induce the expression of cytoprotective genes.[6] Somatic mutations in *Keap1* have been found in various cancers and human cancer cell lines and are associated with loss of Keap1 function and constitutive activation of Nrf2, which contributes to tumor growth and chemoresistance.[3] Cayman's Keap1 (human, recombinant) protein is comprised of Keap1 (amino acids 2-264) fused to His and GST tags at its N-terminus, consists of 860 amino acids, and has a calculated molecular weight of 97.37 kDa. By SDS-PAGE, under reducing conditions, the apparent molecular mass of this protein is approximately 109 kDa.

References

1. Dhanoa, B.S., Cogliati, T., Satish, A.G., *et al.* Update on the Kelch-like (KLHL) gene family. *Hum. Genomics* **7(1)**, 13 (2013).
2. Zipper, L.M. and Mulcahy, R.T. The Keap1 BTB/POZ dimerization function is required to sequester Nrf2 in cytoplasm. *J. Biol. Chem.* **277(39)**, 36544-36552 (2002).
3. Dhamodharan, U., Ponjayanthi, B., Sireesh, D., *et al.* Association of single-nucleotide polymorphisms of the Keap1 gene with the risk of various human diseases and its functional impact using *in silico* analysis. *Pharmacol. Res.* **137**, 205-218 (2018).
4. Cuadrado, A., Rojo, A.I., Wells, G., *et al.* Therapeutic targeting of the NRF2 and Keap1 partnership in chronic diseases. *Nat. Rev. Drug Discov.* **18(4)**, 295-217 (2019).
5. Watai, Y., Kobayashi, A., Nagase, H., *et al.* Subcellular localization and cytoplasmic complex status of endogenous Keap1. *Genes Cells* **12(10)**, 1163-1178 (2007).
6. Kang, M.-I., Kobayashi, A., Wakabayashi, N., *et al.* Scaffolding of Keap1 to the actin cytoskeleton controls the function of Nrf2 as key regulator of cytoprotective phase 2 genes. *Proc. Natl. Acad. Sci. USA* **101(7)**, 2046-2051 (2004).

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