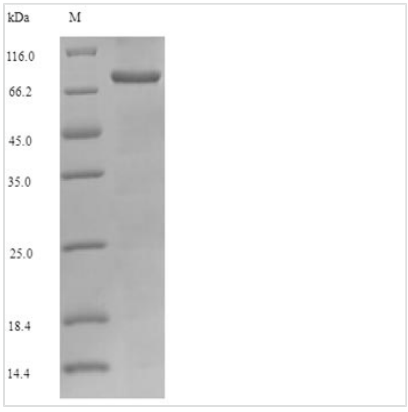
Recombinant Mouse Kelch-like ECH-associated protein 1 (Keap1)

Product Code	CSB-EP012147MO
Relevance	Acts as a substrate adapter protein for the E3 ubiquitin ligase complex formed by CUL3 and RBX1 and targets NFE2L2/NRF2 for ubiquitination and degradation by the proteasome, thus resulting in the suppression of its transcriptional activity and the repression of antioxidant response element-mediated detoxifying enzyme gene expression. Retains NFE2L2/NRF2 and may also retain BPTF in the cytosol. Targets PGAM5 for ubiquitination and degradation by the proteasome
Abbreviation	Recombinant Mouse Keap1 protein
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	Q9Z2X8
Alias	Cytosolic inhibitor of Nrf2 Short name: INrf2
Product Type	Recombinant Protein
Immunogen Species	Mus musculus (Mouse)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	MQPEPKLSGAPRSSQFLPLWSKCPEGAGDAVMYASTECKAEVTPSQDGNRT FSYTLEDHTKQAFGVMNELRLSQQLCDVTLQVKYEDIPAAQFMAHKVVLASSS PVFKAMFTNGLREQGMEVVSIEGIHPKVMERLIEFAYTASISVGEKCVLHVMNG AVMYQIDSVVRACSDFLVQQLDPSNAIGIANFAEQIGCTELHQRAREYIYMHFG EVAKQEEFFNLSHCQLATLISRDDLNVRCESEVFHACIDWVKYDCPQRRFYVQ ALLRAVRCHALTPRFLQTQLQKCEILQADARCKDYLVQIFQELTLHKPTQAVPC RAPKVGRLIYTAGGYFRQSLSYLEAYNPSNGSWLRLADLQVPRSGLAGCVVG GLLYAVGGRNNSPDGNTDSSALDCYNPMTNQWSPCASMSVPRNRIGVGVID GHIYAVGGSHGCIHHSSVERYEPERDEWHLVAPMLTRRIGVGVAVLNRLLYAV GGFDGTNRLNSAECYYPERNEWRMITPMNTIRSGAGVCVLHNCIYAAGGYDG QDQLNSVERYDVETETWTFVAPMRHHRSALGITVHQGKIYVLGGYDGHTFLD SVECYDPDSDTWSEVTRMTSGRSGVGVAVTMEPCRKQIDQQNCTC
Research Area	Epigenetics and Nuclear Signaling
Source	E.coli
Target Names	Keap1
Expression Region	1-624aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 6xHis-SUMO-tagged

Mol. Weight	85.6kDa
Protein Length	Full Length

Image



(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

Description

This recombinant mouse Keap1 protein is tagged with an N-terminal 6xHis-SUMO. It is generated by expressing the vector that contains the gene fragment encoding the 1-624aa of mouse Keap1 and the N-terminal 6xHis-SUMO-tag gene in E.coli. Its purity reaches over 90% as determined by SDS-PAGE. It is recommended for Keap1-associated epigenetics and nuclear signaling research.

Keap1 is a critical regulator of the Nrf2 signaling pathway, which plays a vital role in cellular defense against oxidative stress and inflammation. Under normal physiological conditions, Keap1 is an adaptor protein that binds to Nrf2 in the cytoplasm, facilitating its ubiquitination and subsequent proteasomal degradation. This process maintains low levels of Nrf2, thereby preventing excessive activation of antioxidant responses [1][2][3]. However, under oxidative stress, Keap1 undergoes conformational changes due to the modification of its cysteine residues, leading to the release of Nrf2. This release allows Nrf2 to translocate to the nucleus, where it activates the transcription of various antioxidant genes, including heme oxygenase-1 (HO-1) and NAD(P)H quinone oxidoreductase 1 (NQO1) [4][5][6].

The Keap1-Nrf2 pathway is particularly significant in the context of various diseases, including diabetic kidney disease and cancer. Research has also indicated that Keap1 participates in multiple cellular processes, including autophagy and lipid metabolism [7][8].

References:
[1] J. Dong, Microrna-204-5p ameliorates renal injury via regulating keap1/nrf2 pathway in diabetic kidney disease, Diabetes Metabolic Syndrome and Obesity Targets and Therapy, vol. Volume 17, p. 75-92, 2024. https://doi.org/10.2147/dmso.s441082
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generation and consumption, Toxicological Sciences, vol. 123, no. 2, p. 590-600, 2011. https://doi.org/10.1093/toxsci/kfr183
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[7] K. Taguchi, N. Fujikawa, M. Komatsu, T. Ishii, M. Unno, T. Akaikeet al., Keap1 degradation by autophagy for the maintenance of redox homeostasis, Proceedings of the National Academy of Sciences, vol. 109, no. 34, p. 13561-13566, 2012. https://doi.org/10.1073/pnas.1121572109
[8] J. Xu, A. Donepudi, J. Moscovitz, & A. Slitt, Keap1-knockdown decreases fasting-induced fatty liver via altered lipid metabolism and decreased fatty acid mobilization from adipose tissue, Plos One, vol. 8, no. 11, p. e79841, 2013. https://doi.org/10.1371/journal.pone.0079841

Reconstitution

We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL.We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.

Shelf Life

The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself.
Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.