SANTA CRUZ BIOTECHNOLOGY, INC.

Keap1 (A-4): sc-515432

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Keap1 (Kelch-like ECH-associated protein 1, INrf2, KLHL19) is a stress sensing adaptor for the Cullin3 (Cul3)-dependent E3 ubiquitin ligase complex that negatively regulates Nrf2 (NF-E2-related factor 2). Steady state levels of proteins are under the influence of the ubiquitin pathway, which consists of ubiquitin activation (E1), conjugation (E2) and ligation (E3). Keap1 assembles into an E3 ubiquitin ligase complex with Cul3 and Rbx1 and targets lysine residues in the N-terminal Neh2 domain of Nrf2 for ubiquitin conjugation. The Keap1-Nrf2 system mediates cytoprotective gene expression in response to oxidative and/or electrophilic stresses. Keap1 constitutively suppresses Nrf2 activity under unstressed conditions, oxidants or electrophiles provoke the repression of Keap1 activity, inducing Nrf2 activation. Cys 273 and Cys 288 residues of Keap1 are required for suppressing Nrf2 nuclear accumulation. Keap1 sequesters Nrf2 in the cytoplasm through an active Crm1/exportin-dependent nuclear export mechanism.

REFERENCES

1. Zhang, D.D., et al. 2003. Distinct cysteine residues in Keap1 are required for Keap1-dependent ubiquitination of Nrf2 and for stabilization of Nrf2 by chemopreventive agents and oxidative stress. Mol. Cell. Biol. 23: 8137-8151.
2. Kobayashi, A., et al. 2004. Oxidative stress sensor Keap1 functions as an adaptor for Cul3-based E3 ligase to regulate proteasomal degradation of Nrf2. Mol. Cell. Biol. 24: 7130-7139.

CHROMOSOMAL LOCATION

Genetic locus: KEAP1 (human) mapping to 19p13.2; Keap1 (mouse) mapping to 9 A3.

SOURCE

Keap1 (A-4) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 40-62 near the N-terminus of Keap1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Keap1 (A-4) is available conjugated to agarose (sc-515432 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-515432 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-515432 PE), fluorescein (sc-515432 FITC), Alexa Fluor® 488 (sc-515432 AF488), Alexa Fluor® 546 (sc-515432 AF546), Alexa Fluor® 594 (sc-515432 AF594) or Alexa Fluor® 647 (sc-515432 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-515432 AF680) or Alexa Fluor® 790 (sc-515432 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-515432 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

RESEARCH USE

For research use only, not for use in diagnostic procedures.

APPLICATIONS

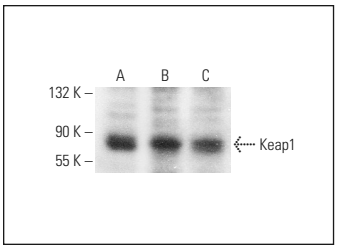
Keap1 (A-4) is recommended for detection of Keap1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Keap1 siRNA (h): sc-43878, Keap1 siRNA (m): sc-43879, Keap1 siRNA (r): sc-270459, Keap1 shRNA Plasmid (h): sc-43878-SH, Keap1 shRNA Plasmid (m): sc-43879-SH, Keap1 shRNA Plasmid (r): sc-270459-SH, Keap1 shRNA (h) Lentiviral Particles: sc-43878-V, Keap1 shRNA (m) Lentiviral Particles: sc-43879-V and Keap1 shRNA (r) Lentiviral Particles: sc-270459-V.

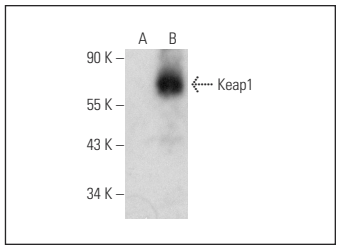
Molecular Weight of Keap1: 69 kDa.

Positive Controls: RAW 264.7 whole cell lysate: sc-2211, TF-1 cell lysate: sc-2412 or Keap1 (h2): 293T Lysate: sc-171655.

DATA



Keap1 (A-4): sc-515432. Western blot analysis of Keap1 expression in RD (**A**), RAW 264.7 (**B**) and TF-1 (**C**) whole cell lysates.



Keap1 (A-4): sc-515432. Western blot analysis of Keap1 expression in non-transfected: sc-117752 (**A**) and human Keap1 transfected: sc-171655 (**B**) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Wang, W., et al. 2019. Sinomenine attenuates septic-associated lung injury through the Nrf2-Keap1 and autophagy. J. Pharm. Pharmacol. 72: 259-270.
2. Georgiou-Siafis, S.K., et al. 2020. Activation of Keap1/Nrf2 stress signaling involved in the molecular basis of hemin-induced cytotoxicity in human pro-erythroid K562 cells. Biochem. Pharmacol. 175: 113900.
3. Li, Q., et al. 2021. Tea polyphenols alleviate hydrogen peroxide-induced oxidative stress damage through the Mst/Nrf2 axis and the Keap1/Nrf2/HO-1 pathway in murine RAW264.7 cells. Exp. Ther. Med. 22: 1473.
4. Gong, P., et al. 2021. Proanthocyanidins protect against cadmium-induced diabetic nephropathy through p38 MAPK and Keap1/Nrf2 signaling pathways. Front. Pharmacol. 12: 801048.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.