SANTA CRUZ BIOTECHNOLOGY, INC.

Keap1 (N-19): sc-15244

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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. 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.
2. Zhang, D.D., et al. 2004. Keap1 is a redox-regulated substrate adaptor protein for a Cul3-dependent ubiquitin ligase complex. Mol. Cell. Biol. 24: 10941-10953.
3. Devling, T.W., et al. 2005. Utility of siRNA against Keap1 as a strategy to stimulate a cancer chemopreventive phenotype. Proc. Natl. Acad. Sci. USA 102: 7280-7285.
4. Velichkova, M., et al. 2005. Keap1 regulates the oxidation-sensitive shuttling of Nrf2 into and out of the nucleus via a Crm1-dependent nuclear export mechanism. Mol. Cell. Biol. 25: 4501-4513.
5. Hosoya, T., et al. 2005. Differential responses of the Nrf2-Keap1 system to laminar and oscillatory shear stresses in endothelial cells. J. Biol. Chem. 280: 27244-27250.

CHROMOSOMAL LOCATION

Genetic locus: KEAP1 (human) mapping to 19p13.2.

SOURCE

Keap1 (N-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of Keap1 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-15244 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

APPLICATIONS

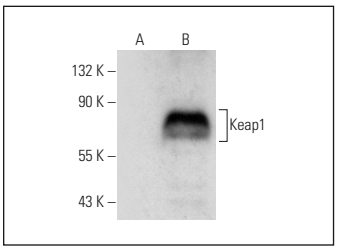
Keap1 (N-19) is recommended for detection of Keap1 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and 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 shRNA Plasmid (h): sc-43878-SH, and Keap1 shRNA (h) Lentiviral Particles: sc-43878-V.

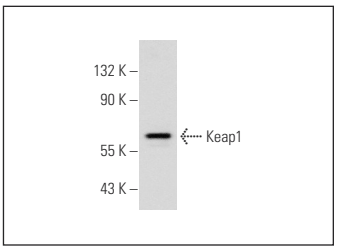
Molecular Weight of Keap1: 69 kDa.

Positive Controls: MCF7 whole cell lysate: sc-2206, A-673 cell lysate: sc-2414 or Keap1 (h2): 293T Lysate: sc-171655.

DATA



Keap1 (N-19): sc-15244. Western blot analysis of Keap1 expression in non-transfected: sc-117752 (**A**) and human Keap1 transfected: sc-171655 (**B**) 293T whole cell lysates.



Keap1 (N-19): sc-15244. Western blot analysis of Keap1 expression in MCF7 whole cell lysate.

SELECT PRODUCT CITATIONS

1. Jakubikova, J., et al. 2006. Effect of isothiocyanates on nuclear accumulation of NFκB, Nrf2, and thioredoxin in caco-2 cells. J. Agric. Food Chem. 54: 1656-1662.
2. Yueh, M.F., et al. 2007. Nrf2-Keap1 signaling pathway regulates human UGT1A1 expression *in vitro* and in transgenic UGT1 mice. J. Biol. Chem. 282: 8749-8758.

RESEARCH USE

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