SANTA CRUZ BIOTECHNOLOGY, INC.

Ref-1 (H-6): sc-55498

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The role of transcription factors in the regulation of gene expression is well established. Although the activity of these factors can be regulated by phosphorylation, evidence has indicated regulation of DNA binding mediated by changes in reduction-oxidation (redox) status. Mutational analysis has identified a single conserved cysteine residue mapping within the DNA binding domains of Fos and Jun. Chemical oxidation or modification of this cysteine residue inhibits the DNA binding activity of Fos and Jun. A similar mode of regulation has been recently proposed for other nuclear transcription factors. Oxidation is reversible by these compounds or by a cellular redox/DNA repair protein identified originally as Ref-1 (redox factor 1). Ref-1 is identical to a previously characterized DNA repair enzyme designated HAP1, APE or APEX.

CHROMOSOMAL LOCATION

Genetic locus: APEX1 (human) mapping to 14q11.2; Apex1 (mouse) mapping to 14 C1.

SOURCE

Ref-1 (H-6) is a mouse monoclonal antibody raised against amino acids 1-300 mapping near the N-terminus of Ref-1 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.

Ref-1 (H-6) is available conjugated to agarose (sc-55498 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-55498 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-55498 PE), fluorescein (sc-55498 FITC), Alexa Fluor® 488 (sc-55498 AF488), Alexa Fluor® 546 (sc-55498 AF546), Alexa Fluor® 594 (sc-55498 AF594) or Alexa Fluor® 647 (sc-55498 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-55498 AF680) or Alexa Fluor® 790 (sc-55498 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Ref-1 (H-6) is recommended for detection of Ref-1 of mouse, rat and 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), immunohistochemistry (including paraffin-embedded sections) (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 Ref-1 siRNA (h): sc-29470, Ref-1 siRNA (m): sc-36401, Ref-1 siRNA (r): sc-72399, Ref-1 shRNA Plasmid (h): sc-29470-SH, Ref-1 shRNA Plasmid (m): sc-36401-SH, Ref-1 shRNA Plasmid (r): sc-72399-SH, Ref-1 shRNA (h) Lentiviral Particles: sc-29470-V, Ref-1 shRNA (m) Lentiviral Particles: sc-36401-V and Ref-1 shRNA (r) Lentiviral Particles: sc-72399-V.

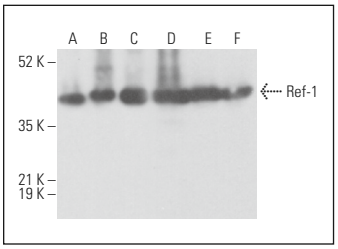
Molecular Weight of Ref-1: 37 kDa.

Positive Controls: NIH/3T3 nuclear extract: sc-2138, HeLa nuclear extract: sc-2120 or Daudi cell lysate: sc-2415.

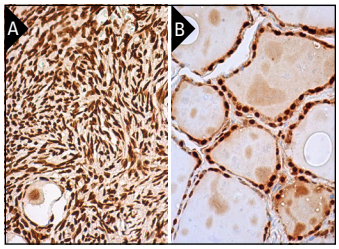
STORAGE

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

DATA



Ref-1 (H-6): sc-55498. Western blot analysis of Ref-1 expression in NIH/3T3 (**A**), HeLa (**B**) and HL-60 (**C**) nuclear extracts and Daudi (**D**), U-2 OS (**E**) and A-431 (**F**) whole cell lysates.



Ref-1 (H-6): sc-55498. Immunoperoxidase staining of formalin fixed, paraffin-embedded human ovary tissue showing nuclear staining of follicle cells, ovarian stroma cells and oocytes (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human thyroid gland tissue showing nuclear staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Busso, C.S., et al. 2011. Ubiquitination of human AP-endonuclease 1 (APE1) enhanced by T233E substitution and by Cdk5. Nucleic Acids Res. 39: 8017-8028.
2. Shaked, H., et al. 2012. Chronic epithelial NFκB activation accelerates APC loss and intestinal tumor initiation through iNOS up-regulation. Proc. Natl. Acad. Sci. USA 109: 14007-14012.
3. Suganya, R., et al. 2015. Suppression of oxidative phosphorylation in mouse embryonic fibroblast cells deficient in apurinic/apyrimidinic endonuclease. DNA Repair 27: 40-48.
4. Zhou, T., et al. 2016. R152C DNA Pol β mutation impairs base excision repair and induces cellular transformation. Oncotarget 7: 6902-6915.
5. He, L., et al. 2018. Wnt pathway is involved in 5-FU drug resistance of colorectal cancer cells. Exp. Mol. Med. 50: 101.
6. Zavadil, J.A., et al. 2019. C3HeB/FeJ mice mimic many aspects of gene expression and pathobiological features of human hepatocellular carcinoma. Mol. Carcinog. 58: 309-320.
7. He, L., et al. 2020. PRMT1 is critical to FEN1 expression and drug resistance in lung cancer cells. DNA Repair 95: 102953.
8. Wei, Z., et al. 2021. Mitotic activation around wound edges and epithelialization repair in UVB-induced capsular cataracts. Invest. Ophthalmol. Vis. Sci. 62: 29.
9. Izumi, T., et al. 2023. Copy number variation that influences the ionizing radiation sensitivity of oral squamous cell carcinoma. Cells 12: 2425.

RESEARCH USE

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

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