SANTA CRUZ BIOTECHNOLOGY, INC.

Ref-1 (C-4): sc-17774

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.

REFERENCES

1. Abate, C., et al. 1990. Redox regulation of Fos and Jun DNA binding activity *in vitro*. Science 249: 1157-1161.
2. Boyle, W.J., et al. 1991. Activation of PKC decreases phosphorylation of c-Jun at sites that only regulate its DNA binding activity. Cell 64: 573-584.
3. Hunter, T. and Karin, M. 1992. The regulation of transcription by phosphorylation. Cell 70: 375-387.
4. Xanthoudakis, S. and Curran, T. 1992. Identification and characterization of Ref-1, a nuclear protein that facilitates AP-1 DNA-binding activity. EMBO J. 11: 653-665.

CHROMOSOMAL LOCATION

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

SOURCE

Ref-1 (C-4) is a mouse monoclonal antibody raised against amino acids 1-300 of Ref-1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-17774 X, 200 µg/0.1 ml.

Ref-1 (C-4) is available conjugated to agarose (sc-17774 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-17774 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-17774 PE), fluorescein (sc-17774 FITC), Alexa Fluor® 488 (sc-17774 AF488), Alexa Fluor® 546 (sc-17774 AF546), Alexa Fluor® 594 (sc-17774 AF594) or Alexa Fluor® 647 (sc-17774 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-17774 AF680) or Alexa Fluor® 790 (sc-17774 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

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

APPLICATIONS

Ref-1 (C-4) is recommended for detection of Ref-1 of mouse, rat and human origin by Western Blotting (starting dilution 1:500, dilution range 1:500-1:5,000), 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).

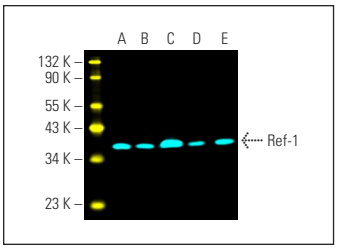
Suitable for use as control antibody for Ref-1 siRNA (h): sc-29470, Ref-1 siRNA (m): sc-36401, Ref-1 siRNA (r): sc-72399, Ref-1 shRNA Plasmid (h): sc-29470-SH, Ref-1 shRNA Plasmid (m): sc-36401-SH, Ref-1 shRNA Plasmid (r): sc-72399-SH, Ref-1 shRNA (h) Lentiviral Particles: sc-29470-V, Ref-1 shRNA (m) Lentiviral Particles: sc-36401-V and Ref-1 shRNA (r) Lentiviral Particles: sc-72399-V.

Ref-1 (C-4) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

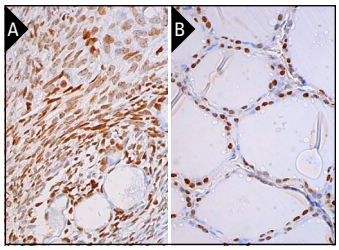
Molecular Weight of Ref-1: 37 kDa.

Positive Controls: A549 cell lysate: sc-2413, A-431 nuclear extract: sc-2122 or Daudi cell lysate: sc-2415.

DATA



Ref-1 (C-4) Alexa Fluor® 647: sc-17774 AF647. Direct fluorescent western blot analysis of Ref-1 expression in A-431 nuclear extract (**A**) and Daudi (**B**), Y79 (**C**), A549 (**D**) and U-2 OS (**E**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Cruz Marker™ Molecular Weight Standards detected with Cruz Marker™ MW Tag-Alexa Fluor® 488: sc-516790.



Ref-1 (C-4): sc-17774. Immunoperoxidase staining of formalin fixed, paraffin-embedded human ovary tissue showing nuclear staining of follicle cells and ovarian stroma cells (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human thyroid gland tissue showing nuclear staining of glandular cells (**B**). Blocked with 0.25X UltraCruz® Blocking Reagent: sc-516214. Detection reagents used: m-IgGκ BP-B: sc-516142 and ImmunoCruz® ABC Kit: sc-516216.

SELECT PRODUCT CITATIONS

1. Chiang, Y.M., et al. 2005. Ethyl caffeate suppresses NFκB activation and its downstream inflammatory mediators, iNOS, COX-2, and PGE2 *in vitro* or in mouse skin. Br. J. Pharmacol. 146: 352-363.
2. Wang, R., et al. 2018. OGG1-initiated base excision repair exacerbates oxidative stress-induced parthanatos. Cell Death Dis. 9: 628.
3. Sica, V., et al. 2019. Lethal poisoning of cancer cells by respiratory chain inhibition plus dimethyl α-ketoglutarate. Cell Rep. 27: 820-834.e9.

RESEARCH USE

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