

Ref-1 (15): sc-136057

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.
5. Xanthoudakis, S., et al. 1992. Redox activation of Fos-Jun DNA binding activity is mediated by a DNA repair enzyme. *EMBO J.* 11: 3323-3335.
6. Guehmann, S., et al. 1992. Reduction of a conserved Cys is essential for Myb DNA-binding. *Nucleic Acids Res.* 20: 2279-2286.
7. Walker, L.J., et al. 1993. Identification of residues in the human DNA repair enzyme HAP1 (Ref-1) that are essential for redox regulation of Jun DNA binding. *Mol. Cell. Biol.* 13: 5370-5376.
8. Xanthoudakis, S., et al. 1994. The redox and DNA-repair activities of Ref-1 are encoded by nonoverlapping domains. *Proc. Natl. Acad. Sci. USA* 91: 23-27.

CHROMOSOMAL LOCATION

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

SOURCE

Ref-1 (15) is a mouse monoclonal antibody raised against amino acids 3-142 of Ref-1 of human origin.

PRODUCT

Each vial contains 50 µg IgG₁ in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

RESEARCH USE

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

APPLICATIONS

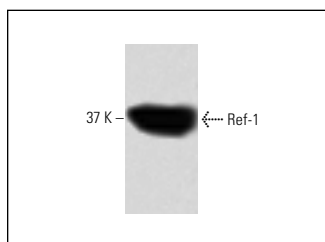
Ref-1 (15) is recommended for detection of Ref-1 of mouse, rat, human and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

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.

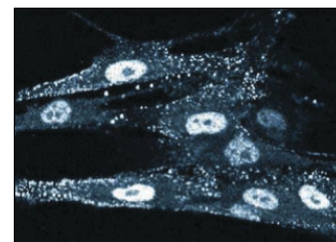
Molecular Weight of Ref-1: 37 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, NIH/3T3 nuclear extract: sc-2138 or KNRK nuclear extract: sc-2141.

DATA



Ref-1 (15): sc-136057. Western blot analysis of Ref-1 expression in HeLa whole cell lysate.



Ref-1 (15): sc-136057. Immunofluorescence staining of FHS cells showing nuclear and cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Hou, X., et al. 2017. Nuclear complex of glyceraldehyde-3-phosphate dehydrogenase and DNA repair enzyme apurinic/apyrimidinic endonuclease I protect smooth muscle cells against oxidant-induced cell death. *FASEB J.* 31: 3179-3192.

STORAGE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.



See **Ref-1 (C-4): sc-17774** for Ref-1 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor[®] 488, 546, 594, 647, 680 and 790.