

Sulfiredoxin (B-4): sc-373829

BACKGROUND

Sulfiredoxin, also designated Sulfiredoxin-1 and chromosome 20 open reading frame 139 (C20orf139), is a cytoplasmic antioxidant protein involved in signaling through catalytic reduction of oxidative modifications. It regulates peroxiredoxins (PRXs), a family of proteins that reduce hydroperoxides, by reducing the conserved cysteine from sulfinic to sulfenic acid. This impacts the role of PRX in the reduction of other downstream transcription factors and kinase signaling pathways. The Sulfiredoxin protein specifically acts on the PRDX1, PRDX2, PRDX3 and PRDX4 peroxiredoxins, but not on PRDX5 or PRDX6. Sulfiredoxin acts as a phosphotransferase and an a-thioltransferase and is widely expressed, with highest levels detected in lung, spleen, kidney and thymus tissues.

REFERENCES

1. Chang, T.S., et al. 2004. Characterization of mammalian Sulfiredoxin and its reactivation of hyperoxidized peroxiredoxin through reduction of cysteine sulfinic acid in the active site to cysteine. *J. Biol. Chem.* 279: 50994-51001.
2. Findlay, V.J., et al. 2005. Sulfiredoxin: a potential therapeutic agent? *Biomed. Pharmacother.* 59: 374-379.
3. Basu, M.K., et al. 2005. Evolution of eukaryotic cysteine sulfinic acid reductase, Sulfiredoxin (Srx), from bacterial chromosome partitioning protein ParB. *Cell Cycle* 4: 947-952.
4. Lee, D.Y., et al. 2005. ¹H, ¹⁵N, and ¹³C chemical shift assignments of the human Sulfiredoxin (hSrx). *J. Biomol. NMR* 32: 339.
5. Woo, H.A., et al. 2005. Reduction of cysteine sulfinic acid by Sulfiredoxin is specific to 2-Cys peroxiredoxins. *J. Biol. Chem.* 280: 3125-3128.
6. Bozonet, S.M., et al. 2005. Oxidation of a eukaryotic 2-Cys peroxiredoxin is a molecular switch controlling the transcriptional response to increasing levels of hydrogen peroxide. *J. Biol. Chem.* 280: 23319-23327.
7. Jonsson, T.J., et al. 2005. Structural basis for the retroreduction of inactivated peroxiredoxins by human Sulfiredoxin. *Biochemistry* 44: 8634-8642.

CHROMOSOMAL LOCATION

Genetic locus: SRXN1 (human) mapping to 20p13.

SOURCE

Sulfiredoxin (B-4) is a mouse monoclonal antibody raised against amino acids 1-137 representing full length Sulfiredoxin 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.

STORAGE

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

APPLICATIONS

Sulfiredoxin (B-4) is recommended for detection of Sulfiredoxin of 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), 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 Sulfiredoxin siRNA (h): sc-61622, Sulfiredoxin shRNA Plasmid (h): sc-61622-SH and Sulfiredoxin shRNA (h) Lentiviral Particles: sc-61622-V.

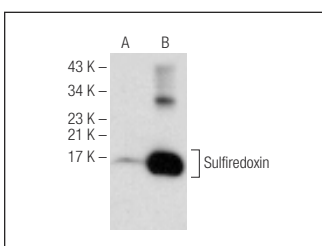
Molecular Weight of Sulfiredoxin: 13 kDa.

Positive Controls: Sulfiredoxin (h2): 293T Lysate: sc-116088.

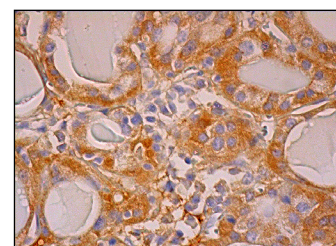
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



Sulfiredoxin (B-4): sc-373829. Western blot analysis of Sulfiredoxin expression in non-transfected: sc-117752 (A) and human Sulfiredoxin transfected: sc-116088 (B) 293T whole cell lysates.



Sulfiredoxin (B-4): sc-373829. Immunoperoxidase staining of formalin fixed, paraffin-embedded human thyroid gland tissue showing cytoplasmic staining of glandular cells.

SELECT PRODUCT CITATIONS

1. Ishaq, M., et al. 2014. Atmospheric pressure gas plasma-induced colorectal cancer cell death is mediated by Nox2-ASK1 apoptosis pathways and oxidative stress is mitigated by Srx-Nrf2 anti-oxidant system. *Biochim. Biophys. Acta* 1843: 2827-2837.

RESEARCH USE

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