SANTA CRUZ BIOTECHNOLOGY, INC.

Sulfiredoxin siRNA (m): sc-61623

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 athioltransferase 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 (mouse) mapping to 2 G3.

PRODUCT

Sulfiredoxin siRNA (m) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Sulfiredoxin shRNA Plasmid (m): sc-61623-SH and Sulfiredoxin shRNA (m) Lentiviral Particles: sc-61623-V as alternate gene silencing products.

For independent verification of Sulfiredoxin (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-61623A, sc-61623B and sc-61623C.

PROTOCOLS

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

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

Sulfiredoxin siRNA (m) is recommended for the inhibition of Sulfiredoxin expression in mouse cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

GENE EXPRESSION MONITORING

Sulfiredoxin (E-2): sc-166747 is recommended as a control antibody for monitoring of Sulfiredoxin gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

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) 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Sulfiredoxin gene expression knockdown using RT-PCR Primer: Sulfiredoxin (m)-PR: sc-61623-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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