SANTA CRUZ BIOTECHNOLOGY, INC.

Rhodanese siRNA (m): sc-36419

BACKGROUND

Rhodanese (also known as thiosulfate sulfurtransferase) is a mitochondrial matrix enzyme that is encoded by the nucleus. Rhodanese is a 297-residue polypeptide and has been proposed to play roles in cyanide detoxification, the formation of iron-sulfur proteins, and the modification of sulfur-containing enzymes. Rhodanese was first identified in human red cells in 1956 and has been crystallized from beef liver. In mammals, most cyanide is converted to thiocyanate by Rhodanese. There is an association between Leber's optic neuropathy and deficiency of Rhodanese activity in liver and rectal mucosa. Greatly reduced activity of this enzyme has been observed in the livers of two males with Leber optic atrophy from a well-studied Swiss family with five symptomatic persons in four generations. The red cell and tissue Rhodanese are determined by separate genes, but more than one locus may be concerned with the synthesis of heterogeneous tissue isozymes. The gene which encodes rhodanese maps to human chromosome 22q12.3.

REFERENCES

1. Cagianut, B., et al. 1981. Thiosulphate-sulphur transferase (rhodanese) deficiency in Leber's hereditary optic atrophy. Lancet 2: 981-982.
2. Pallini, R., et al. 1990. Synthesis of rhodanese in Hep 3B cells. Mol. Cell. Biochem. 93: 61-67.
3. Pallini, R., et al. 1991. Cloning and sequence analysis of the human liver rhodanese: comparison with the bovine and chicken enzymes. Biochem. Biophys. Res. Commun. 180: 887-893.
4. Aita, N., et al. 1997. Cloning and expression of human liver Rhodanese cDNA. Biochem. Biophys. Res. Commun. 231: 56-60.
5. Tan, G., et al. 2003. Decreased expression of genes involved in sulfur amino acid metabolism in frataxin-deficient cells. Hum. Mol. Genet. 12: 1699-1711.
6. Horibe, T., et al. 2004. Different contributions of the three CXXC motifs of human protein-disulfide isomerase-related protein to isomerase activity and oxidative refolding. J. Biol. Chem. 279: 4604-4611.
7. Kim, M.V., et al. 2004. Some properties of human small heat shock protein Hsp22 (H11 or HspB8). Biochem. Biophys. Res. Commun. 315: 796-801.

CHROMOSOMAL LOCATION

Genetic locus: Tst (mouse) mapping to 15 E1.

PRODUCT

Rhodanese 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 Rhodanese shRNA Plasmid (m): sc-36419-SH and Rhodanese shRNA (m) Lentiviral Particles: sc-36419-V as alternate gene silencing products.

For independent verification of Rhodanese (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-36419A, sc-36419B and sc-36419C.

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

Rhodanese siRNA (m) is recommended for the inhibition of Rhodanese 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

Rhodanese (G-7): sc-271883 is recommended as a control antibody for monitoring of Rhodanese 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 Rhodanese gene expression knockdown using RT-PCR Primer: Rhodanese (m)-PR: sc-36419-PR (20 µl, 487 bp). 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.

PROTOCOLS

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