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SZABO-SCANDIC HandelsgmbH

Quellenstraße 110, A-1100 Wien

T. +43(0)1 489 3961-0

F. +43(0)1 489 3961-7

mail@szabo-scandic.com

www.szabo-scandic.com

[linkedin.com/company/szaboscandic](https://www.linkedin.com/company/szaboscandic) 

SO siRNA (h): sc-44404

BACKGROUND

Sulfite oxidase (SO), a homodimeric protein that localizes to the intermembrane space of mitochondria, catalyzes the oxidation of sulfite to sulfate, the terminal reaction in the oxidative degradation of the sulfur amino acids cysteine and methionine. Genetic deficiency of SO contributes to neurological abnormalities and often leads to death at an early age. Mutation of Arginine 160 in humans decreases the intramolecular electron transfer (IET) rate, which contributes to the fatality of this genetic disorder. Also, the tyrosine 343 residue in humans plays an important role in both substrate binding and oxidation of sulfite by SO. The human SO gene maps to chromosome 12, and shows high expression in liver, kidney, skeletal muscle, heart, placenta and brain.

REFERENCES

1. Kisker, C., et al. 1997. Molecular basis of sulfite oxidase deficiency from the structure of sulfite oxidase. *Cell* 91: 973-983.
2. Garrett, R.M., et al. 1998. Human sulfite oxidase R160Q: identification of the mutation in a sulfite oxidase-deficient patient and expression and characterization of the mutant enzyme. *Proc. Natl. Acad. Sci. USA* 95: 6394-6398.
3. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 606887. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
4. Feng, C., et al. 2003. Essential role of conserved arginine 160 in intramolecular electron transfer in human sulfite oxidase. *Biochemistry* 42: 12235-12242.
5. Sass, J.O., et al. 2004. New approaches towards laboratory diagnosis of isolated sulphite oxidase deficiency. *Ann. Clin. Biochem.* 41: 157-159.
6. Wilson, H.L., et al. 2004. The role of Tyrosine 343 in substrate binding and catalysis by human sulfite oxidase. *J. Biol. Chem.* 279: 15105-15113.
7. Izgut-Uysal, V.N., et al. 2005. Effect of sulfite on macrophage functions of normal and sulfite oxidase-deficient rats. *Food Chem. Toxicol.* 43: 599-605.

CHROMOSOMAL LOCATION

Genetic locus: SUOX (human) mapping to 12q13.2.

PRODUCT

SO siRNA (h) 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see SO shRNA Plasmid (h): sc-44404-SH and SO shRNA (h) Lentiviral Particles: sc-44404-V as alternate gene silencing products.

For independent verification of SO (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-44404A, sc-44404B and sc-44404C.

RESEARCH USE

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

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

SO siRNA (h) is recommended for the inhibition of SO expression in human 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 μ M in 66 μ l. 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

SO (F-6): sc-393688 is recommended as a control antibody for monitoring of SO 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-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 SO gene expression knockdown using RT-PCR Primer: SO (h)-PR: sc-44404-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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