SANTA CRUZ BIOTECHNOLOGY, INC.

MOCS2 siRNA (m): sc-72269

BACKGROUND

MOCS2 (molybdopterin synthase) is a heterotetrameric synthase composed of two small (MOCS2A) and two large (MOCS2B) subunits. The small and large subunits are both encoded by a single bicistronic mRNA, with the open reading frames overlapping by 77 nucleotides. MOCS2 functions in the second step of the synthesis of molybdenum cofactor or molybdopterin (MPT). It catalyzes the formation of MPT from precursor Z by incorporating a dithiolene functional group. The C-terminus of the small subunit of MOCS2 acts as the sulfur donor for the synthesis of this functional group. MPT is inserted into molybdoenzymes and is required for the proper function of aldehyde oxidase, xanthine dehydrogenase and sulphite oxidase enzymes. Mutations in the gene encoding MOCS2 can lead to molybdenum cofactor deficiency and can result in early childhood death.

REFERENCES

1. Reiss, J., et al. 1999. Human molybdopterin synthase gene: genomic structure and mutations in molybdenum cofactor deficiency type B. Am. J. Hum. Genet. 64: 706-711.
2. Rudolph, M.J., et al. 2003. Structural studies of molybdopterin synthase provide insights into its catalytic mechanism. J. Biol. Chem. 278: 14514-14522.
3. Leimkuhler, S., et al. 2003. Mechanistic studies of human molybdopterin synthase reaction and characterization of mutants identified in group B patients of molybdenum cofactor deficiency. J. Biol. Chem. 278: 26127-26134.
4. Suzuki, M., et al. 2005. The maize viviparous.locus encodes the molybdopterin synthase small subunit. Plant J. 45: 264-274.
5. Leimkühler, S., et al. 2005. Ten novel mutations in the molybdenum cofactor genes MOCS1 and MOCS2 and *in vitro* characterization of a MOCS2 mutation that abolishes the binding ability of molybdopterin synthase. Hum. Genet. 117: 565-570.
6. Singh, S., et al. 2005. Three-dimensional structure of the AAH26994.1 protein from Mus musculus, a putative eukaryotic Urm1. Protein Sci. 14: 2095-2102.

CHROMOSOMAL LOCATION

Genetic locus: Mocs2 (mouse) mapping to 13 D2.2.

PRODUCT

MOCS2 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 MOCS2 shRNA Plasmid (m): sc-72269-SH and MOCS2 shRNA (m) Lentiviral Particles: sc-72269-V as alternate gene silencing products.

For independent verification of MOCS2 (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-72269A, sc-72269B and sc-72269C.

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

MOCS2 siRNA (m) is recommended for the inhibition of MOCS2 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

MOCS2 (F-9): sc-377169 is recommended as a control antibody for monitoring of MOCS2 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 MOCS2 gene expression knockdown using RT-PCR Primer: MOCS2 (m)-PR: sc-72269-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.

PROTOCOLS

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