SANTA CRUZ BIOTECHNOLOGY, INC.

Arylsulfatase B siRNA (h): sc-91951

BACKGROUND

Arylsulfatase B, also known as ARSB, ASB, MPS6 or G4S, is a 533 amino acid lysosomal protein that belongs to the sulfatase family. Existing as both a monomer and a homodimer, Arylsulfatase B uses calcium as a cofactor to hydrolyze C4-sulfate groups of N-Acetyl-D-galactosamine, dermatan sulfate and chondriotin sulfate, thereby playing a role in lysosomal degradation. Defects in the gene encoding Arylsulfatase B are the cause of mucopolysaccharidosis type 6 (MPS6) and multiple sulfatase deficiency (MSD), the first of which is a lysosomal storage disease that is characterized by short stature, stiff joints, skeletal malformations, corneal clouding, hepatosplenomegaly and cardiac abnormalities. In contrast, MSD is characterized by a decreased activity of all known sulfatases and is usually associated with mucopolysaccharidosis, chondrodysplasia punctata, hydrocephalus, ichthyosis and neurologic deterioration. Multiple isoforms of Arylsulfatase B exist due to alternative splicing events.

REFERENCES

1. Litjens, T., et al. 1991. Human N-acetylgalactosamine-4-sulphatase: protein maturation and isolation of genomic clones. Biochem. Int. 24: 209-215.
2. Modaressi, S., et al. 1993. Structure of the human arylsulfatase B gene. Biol. Chem. Hoppe-Seyler 374: 327-335.
3. Voskoboeva, E., et al. 1994. Four novel mutant alleles of the arylsulfatase B gene in two patients with intermediate form of mucopolysaccharidosis VI (Maroteaux-Lamy syndrome). Hum. Genet. 93: 259-264.
4. Bond, C.S., et al. 1997. Structure of a human lysosomal sulfatase. Structure 5: 277-289.
5. Litjens, T., et al. 2001. Mucopolysaccharidosis type VI: structural and clinical implications of mutations in N-acetylgalactosamine-4-sulfatase. Hum. Mutat. 18: 282-295.
6. Bhattacharyya, S., et al. 2007. Increased arylsulfatase B activity in cystic fibrosis cells following correction of CFTR. Clin. Chim. Acta 380: 122-127.
7. Bhattacharyya, S., et al. 2008. Distinct effects of N-acetylgalactosamine-4-sulfatase and galactose-6-sulfatase expression on chondroitin sulfates. J. Biol. Chem. 283: 9523-9530.

CHROMOSOMAL LOCATION

Genetic locus: ARSB (human) mapping to 5q14.1.

PRODUCT

Arylsulfatase B siRNA (h) is a pool of 2 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 Arylsulfatase B shRNA Plasmid (h): sc-91951-SH and Arylsulfatase B shRNA (h) Lentiviral Particles: sc-91951-V as alternate gene silencing products.

For independent verification of Arylsulfatase B (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-91951A and sc-91951B.

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

Arylsulfatase B siRNA (h) is recommended for the inhibition of Arylsulfatase B 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 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

Arylsulfatase B (2G6): sc-517158 is recommended as a control antibody for monitoring of Arylsulfatase B 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 Arylsulfatase B gene expression knockdown using RT-PCR Primer: Arylsulfatase B (h)-PR: sc-91951-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.