



ASA siRNA (m): sc-72543

BACKGROUND

ASA (arylsulfatase A), also known as Cerebroside-sulfatase, ARSA or MLD, is a 507 amino acid lysosomal protein that belongs to the sulfatase family. Functioning as a homodimer at a neutral pH and as a homooctamer at an acidic pH, ASA uses magnesium as a cofactor to catalyze the H₂O-dependent hydrolysis of cerebroside 3-sulfate to cerebroside and sulfate. Defects in the gene encoding ASA are a cause of metachromatic leukodystrophy (MLD), an intralysosomal storage disease that is characterized by ataxias, dementia, seizures, spastic tetraparesis and, ultimately, death. Additionally, defects in ASA activity are associated with multiple sulfatase deficiency (MSD), a disorder that results in decreased activity of all known sulfatases and is generally characterized by metachromatic leukodystrophy, mucopolysaccharidosis, chondrodysplasia punctata, hydrocephalus, ichthyosis, neurologic deterioration and developmental delay.

REFERENCES

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2. Jean, S., et al. 2006. Ethanol decreases rat hepatic arylsulfatase A activity levels. *Alcohol. Clin. Exp. Res.* 30: 1950-1955.
3. Jiménez, I., et al. 2006. Carbohydrate affinity chromatography indicates that arylsulfatase-A from capacitated boar sperm has mannose and N-acetylglucosamine/sialic acid residues. *Arch. Androl.* 52: 455-462.
4. Biffi, A., et al. 2006. Gene therapy of metachromatic leukodystrophy reverses neurological damage and deficits in mice. *J. Clin. Invest.* 116: 3070-3082.
5. Sevin, C., et al. 2007. Partial cure of established disease in an animal model of metachromatic leukodystrophy after intracerebral adeno-associated virus-mediated gene transfer. *Gene Ther.* 14: 405-414.
6. Consiglio, A., et al. 2007. Metabolic correction in oligodendrocytes derived from metachromatic leukodystrophy mouse model by using encapsulated recombinant myoblasts. *J. Neurol. Sci.* 255: 7-16.

CHROMOSOMAL LOCATION

Genetic locus: Arsa (mouse) mapping to 15 E3.

PRODUCT

ASA 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see ASA shRNA Plasmid (m): sc-72543-SH and ASA shRNA (m) Lentiviral Particles: sc-72543-V as alternate gene silencing products.

For independent verification of ASA (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-72543A, sc-72543B and sc-72543C.

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

ASA siRNA (m) is recommended for the inhibition of ASA 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 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor ASA gene expression knockdown using RT-PCR Primer: ASA (m)-PR: sc-72543-PR (20 μ l). 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.