

ALDH3A2 siRNA (m): sc-72477

BACKGROUND

Aldehyde dehydrogenases (ALDHs) mediate the NADP⁺-dependent oxidation of aldehydes into acids and play an important role in the detoxification of alcohol-derived acetaldehyde, as well as in lipid peroxidation and in the metabolism of corticosteroids, biogenic amines and neurotransmitters. ALDH3A2 (aldehyde dehydrogenase 3 family, member A2), also known as SLS, FALDH or ALDH10, is a 485 amino acid single-pass membrane protein that localizes to the cytoplasmic side of the endoplasmic reticulum and belongs to the aldehyde dehydrogenase family. Expressed in a variety of tissues, including liver, heart, lung, brain, kidney and placenta, ALDH3A2 catalyzes the NAD⁺-dependent oxidation of long-chain aliphatic aldehydes to fatty acids, a process that is necessary for detoxification and lipid metabolism. Defects in the gene encoding ALDH3A2 are the cause of Sjögren-Larsson syndrome (SLS), an autosomal recessive neurocutaneous disorder characterized by severe mental retardation, seizures and speech defects. Multiple isoforms of ALDH3A2 exist due to alternative splicing events.

REFERENCES

1. De Laurenzi, V., et al. 1996. Sjögren-Larsson syndrome is caused by mutations in the fatty aldehyde dehydrogenase gene. *Nat. Genet.* 12: 52-57.
2. Rogers, G.R., et al. 1997. Genomic organization and expression of the human fatty aldehyde dehydrogenase gene (FALDH). *Genomics* 39: 127-135.
3. Chang, C. and Yoshida, A. 1997. Human fatty aldehyde dehydrogenase gene (ALDH10): organization and tissue-dependent expression. *Genomics* 40: 80-85.
4. Jean-Francois, E., et al. 2007. Sjögren-Larsson syndrome and crystalline maculopathy associated with a novel mutation. *Arch. Ophthalmol.* 125: 1582-1583.
5. Lloyd, M.D., et al. 2007. Characterisation of recombinant human fatty aldehyde dehydrogenase: implications for Sjögren-Larsson syndrome. *J. Enzyme Inhib. Med. Chem.* 22: 584-590.

CHROMOSOMAL LOCATION

Genetic locus: Aldh3a2 (mouse) mapping to 11 B2.

PRODUCT

ALDH3A2 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 ALDH3A2 shRNA Plasmid (m): sc-72477-SH and ALDH3A2 shRNA (m) Lentiviral Particles: sc-72477-V as alternate gene silencing products.

For independent verification of ALDH3A2 (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-72477A, sc-72477B and sc-72477C.

PROTOCOLS

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

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

ALDH3A2 siRNA (m) is recommended for the inhibition of ALDH3A2 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 ALDH3A2 gene expression knockdown using RT-PCR Primer: ALDH3A2 (m)-PR: sc-72477-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.