SANTA CRUZ BIOTECHNOLOGY, INC.

ALDH9A1 siRNA (m): sc-105052

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. ALDH9A1 (aldehyde dehydrogenase family 9 member A1), also known as E3, ALDH4, ALDH7, ALDH9 or TMABADH, is a 494 amino acid cytoplasmic protein that is highly expressed in adult liver, skeletal muscle, kidney and embryonic brain. ALDH9A1 converts γ-trimethylaminobutyraldehyde into γ-butyrobetaine and catalyzes the irreversible oxidation of a broad range of aldehydes to the corresponding acids in a NAD-dependent reaction.

REFERENCES

1. Vasiliou, V., et al. 1999. Eukaryotic aldehyde dehydrogenase (ALDH) genes: human polymorphisms, and recommended nomenclature based on divergent evolution and chromosomal mapping. Pharmacogenetics 9: 421-434.
2. Vasiliou, V., et al. 2000. Polymorphisms of human aldehyde dehydrogenases. Consequences for drug metabolism and disease. Pharmacology 61: 192-198.
3. Sophos, N.A., et al. 2003. Aldehyde dehydrogenase gene superfamily: the 2002 update. Chem. Biol. Interact. 143-144: 5-22.
4. Aldenhoven, J., et al. 2003. Improving the comparative map of porcine chromosome 10 with respect to human chromosomes 1, 9 and 10. Cytogenet. Genome Res. 102: 121-127.
5. Vasiliou, V., et al. 2005. Analysis and update of the human aldehyde dehydrogenase (ALDH) gene family. Hum. Genomics 2: 138-143.
6. Sato, W., et al. 2006. Hepatic gene expression in hepatocyte-specific Pten deficient mice showing steatohepatitis without ethanol challenge. Hepatol. Res. 34: 256-265.

CHROMOSOMAL LOCATION

Genetic locus: Aldh9a1 (mouse) mapping to 1 H2.3.

PRODUCT

ALDH9A1 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 ALDH9A1 shRNA Plasmid (m): sc-105052-SH and ALDH9A1 shRNA (m) Lentiviral Particles: sc-105052-V as alternate gene silencing products.

For independent verification of ALDH9A1 (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-105052A, sc-105052B and sc-105052C.

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.

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

ALDH9A1 siRNA (m) is recommended for the inhibition of ALDH9A1 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

ALDH9A1 (F-6): sc-398054 is recommended as a control antibody for monitoring of ALDH9A1 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 ALDH9A1 gene expression knockdown using RT-PCR Primer: ALDH9A1 (m)-PR: sc-105052-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.