SANTA CRUZ BIOTECHNOLOGY, INC.

ADHα siRNA (h): sc-41436

BACKGROUND

The alcohol dehydrogenase family of proteins metabolize a wide variety of substrates, including ethanol, retinol, other aliphatic alcohols, hydroxysteroids, and lipid peroxidation products. Class I alcohol dehydrogenase, consisting of several homo- and heterodimers of α, β, and γ subunits, exhibits high activity for ethanol oxidation and plays a major role in ethanol catabolism. Three genes encoding α (ADH1A), β (ADH1B) and γ (ADH1C) subunits are tandemly organized on chromosome 4q22 as a gene cluster. The α form of ADH is monomorphic and predominant in fetal and infant livers, becoming less active in gestation and only weakly active during adulthood. The genes encoding β and γ subunits, however, are polymorphic and strongly expressed in adult livers. With the coenzyme NAD, ADH catalyzes the reversible conversion of organic alcohols to ketones or aldehydes. The physiologic function for ADH in the liver is the removal of ethanol formed by microorganisms in the intestinal tract.

REFERENCES

1. Smith, M., et al. 1973. Studies on the subunit structure and molecular size of the human dehydrogenase isozymes determined by the different loci, ADH1, ADH2, and ADH3. Ann. Hum. Genet. 36: 401-414.
2. Smith, M., et al. 1984. Derivation of probes for molecular genetic analysis of human class I alcohol dehydrogenase (ADH), a polymorphic gene family on chromosome 4. Am. J. Hum. Genet. 36: 153S.
3. Tsukahara, M. and Yoshida, A. 1989. Chromosomal assignment of the alcohol dehydrogenase cluster locus to human chromosome 4q21-23 by *in situ* hybridization. Genomics 4: 218-220.
4. Yasunami, M., et al. 1989. The organization of human class I alcohol dehydrogenase gene cluster. Cytogenet. Cell Genet. 51: 1113.
5. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 103700. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
6. Jelski, W., et al. 2007. Alcohol dehydrogenase (ADH) isoenzyme activity in the sera of patients with *Helicobacter pylori* infection. Dig. Dis. Sci. 52: 1513-1516.

CHROMOSOMAL LOCATION

Genetic locus: ADH1A (human) mapping to 4q23.

PRODUCT

ADHα siRNA (h) 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 ADHα shRNA Plasmid (h): sc-41436-SH and ADHα shRNA (h) Lentiviral Particles: sc-41436-V as alternate gene silencing products.

For independent verification of ADHα (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-41436A, sc-41436B and sc-41436C.

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

ADHα siRNA (h) is recommended for the inhibition of ADHα 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor ADHα gene expression knockdown using RT-PCR Primer: ADHα (h)-PR: sc-41436-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Tabata, Y. and Shidoji, Y. 2020. Hepatic monoamine oxidase B is involved in endogenous geranylgeranoic acid synthesis in mammalian liver cells. J. Lipid Res. 61: 778-789.

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.