SANTA CRUZ BIOTECHNOLOGY, INC.

DHTKD1 siRNA (m): sc-143036

BACKGROUND

The 2-oxoglutarate dehydrogenase complex catalyzes the overall conversion of 2-oxoglutarate to succinyl-CoA and CO_2. The complex contains multiple copies of three enzymatic components: 2-oxoglutarate dehydrogenase (E1), dihydrolipoamide succinyltransferase (E2) and lipoamide dehydrogenase (E3). DHTKD1 (probable 2-oxoglutarate dehydrogenase E1 component DHKTD1, mitochondrial), also known as KIAA1630 or dehydrogenase E1 and transketolase domain-containing protein 1, is a 919 amino acid protein belonging to the α-ketoglutarate dehydrogenase family. Thiamine pyrophosphate serves as the cofactor for DHKTD1, which is localized to the mitochondrion. The gene encoding DHTKD1 maps to human chromosome 10p14 and mouse chromosome 2 A1.

REFERENCES

1. Rice, J.E. and Lindsay, J.G. 1991. Evidence for a protein X-like domain at the N-terminus of the E1 component of the mammalian 2-oxoglutarate dehydrogenase complex. Biochem. Soc. Trans. 19: 403S.
2. Fukushima, N., et al. 1995. Establishment and structural analysis of human mAb to the E2 component of the 2-oxoglutarate dehydrogenase complex generated from a patient with primary biliary cirrhosis. Int. Immunol. 7: 1047-1055.
3. Nagase, T., et al. 2000. Prediction of the coding sequences of unidentified human genes. XVIII. The complete sequences of 100 new cDNA clones from brain which code for large proteins *in vitro*. DNA Res. 7: 273-281.
4. Surendran, S., et al. 2002. DOOR syndrome: deficiency of E1 component of the 2-oxoglutarate dehydrogenase complex. Am. J. Med. Genet. 113: 371-374.
5. Hiromasa, Y., et al. 2004. Organization of the cores of the mammalian pyruvate dehydrogenase complex formed by E2 and E2 plus the E3-binding protein and their capacities to bind the E1 and E3 components. J. Biol. Chem. 279: 6921-6933.
6. Fries, M., et al. 2007. Distinct modes of recognition of the lipoyl domain as substrate by the E1 and E3 components of the pyruvate dehydrogenase multienzyme complex. J. Mol. Biol. 366: 132-139.
7. Bunik, V.I. and Degtyarev, D. 2008. Structure-function relationships in the 2-oxo acid dehydrogenase family: substrate-specific signatures and functional predictions for the 2-oxoglutarate dehydrogenase-like proteins. Proteins 71: 874-890.

CHROMOSOMAL LOCATION

Genetic locus: Dhtkd1 (mouse) mapping to 2 A1.

PRODUCT

DHTKD1 siRNA (m) is a target-specific 19-25 nt siRNA 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 DHTKD1 shRNA Plasmid (m): sc-143036-SH and DHTKD1 shRNA (m) Lentiviral Particles: sc-143036-V as alternate gene silencing 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

DHTKD1 siRNA (m) is recommended for the inhibition of DHTKD1 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

DHTKD1 (F-11): sc-398620 is recommended as a control antibody for monitoring of DHTKD1 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 DHTKD1 gene expression knockdown using RT-PCR Primer: DHTKD1 (m)-PR: sc-143036-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.