SANTA CRUZ BIOTECHNOLOGY, INC.

D2HGDH siRNA (m): sc-142809

BACKGROUND

D2HGDH (D-2-hydroxyglutarate dehydrogenase), also known as FLJ42195 or MGC25181, is a 521 amino acid member of the FAD-binding oxidoreductase/transferase type 4 protein family. Localized to mitochondria, D2HGDH is activated by cobalt and zinc and utilizes FAD as a cofactor. D2HGDH catalyzes the oxidation of D-2-hydroxyglutarate, resulting in α-ketoglutarate. Defects in the gene that encodes D2HGDH are the cause of D-2-hydroxyglutaric aciduria (D2HGA), a rare recessive neurometabolic disorder characterized by early infantile-onset epileptic encephalopathy and cardiomyopathy. D2HGA causes developmental delay, hypotonia, epilepsy and dysmorphic features. D2HGDH contains one FAD-binding PCMH-type domain and is expressed as two isoforms produced by alternative splicing.

REFERENCES

1. Gibson, K.M., et al. 1993. D-2-hydroxyglutaric aciduria in a newborn with neurological abnormalities: a new neurometabolic disorder? J. Inherit. Metab. Dis. 16: 497-500.
2. Achouri, Y., et al. 2004. Identification of a dehydrogenase acting on D-2-hydroxyglutarate. Biochem. J. 381: 35-42.
3. Struys, E.A., et al. 2005. Mutations in the D-2-hydroxyglutarate dehydrogenase gene cause D-2-hydroxyglutaric aciduria. Am. J. Hum. Genet. 76: 358-360.
4. Struys, E.A., et al. 2005. Mutations in phenotypically mild D-2-hydroxyglutaric aciduria. Ann. Neurol. 58: 626-630.
5. Misra, V.K., et al. 2005. Phenotypic heterogeneity in the presentation of D-2-hydroxyglutaric aciduria in monozygotic twins. Mol. Genet. Metab. 86: 200-205.
6. Struys, E.A., et al. 2006. D-2-hydroxyglutaric aciduria in three patients with proven SSADH deficiency: genetic coincidence or a related biochemical epiphenomenon? Mol. Genet. Metab. 88: 53-57.
7. Wickenhagen, W.V., et al. 2009. Measurement of D: -2-hydroxyglutarate dehydrogenase activity in cell homogenates derived from D: -2-hydroxyglutaric aciduria patients. J. Inherit. Metab. Dis. 32: 264-268.

CHROMOSOMAL LOCATION

Genetic locus: D2hgdh (mouse) mapping to 1 D.

PRODUCT

D2HGDH 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 D2HGDH shRNA Plasmid (m): sc-142809-SH and D2HGDH shRNA (m) Lentiviral Particles: sc-142809-V as alternate gene silencing products.

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

D2HGDH siRNA (m) is recommended for the inhibition of D2HGDH 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor D2HGDH gene expression knockdown using RT-PCR Primer: D2HGDH (m)-PR: sc-142809-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.