SANTA CRUZ BIOTECHNOLOGY, INC.

# DMGDH siRNA (m): sc-143059

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*The Power to Question*

## BACKGROUND

DMGDH (dimethylglycine dehydrogenase), also known as ME2GLYDH or DMGDHD, is an 866 amino acid mitochondrial protein that plays a role in choline catabolism by catalyzing the demethylation of dimethylglycine to form sarcosine. Existing as a monomer that belongs to the gcvT family, DMGDH utilizes flavin adenine dinucleotide (FAD) and folate as cofactors. DMGDH is encoded by a gene that maps to human chromosome 5q14.1, defects of which are the cause of DMGDH deficiency (DMGDHD). Patients with DMGDHD experience muscle fatigue, have a fish-like odor and excrete an elevated level of N,N-dimethylglycine (DMG) in urine.

## REFERENCES


1. Lang, H., Polster, M. and Brandsch, R. 1991. Rat liver dimethylglycine dehydrogenase. Flavinylation of the enzyme in hepatocytes in primary culture and characterization of a cDNA clone. Eur. J. Biochem. 198: 793-799.
2. Lang, H., Minaian, K., Freudenberg, N., Hoffmann, R. and Brandsch, R. 1994. Tissue specificity of rat mitochondrial dimethylglycine dehydrogenase expression. Biochem. J. 299: 393-398.
3. Moolenaar, S.H., Poggi-Bach, J., Engelke, U.F., Corstiaensen, J.M., Heerschap, A., de Jong, J.G., Binzak, B.A., Vockley, J. and Wevers, R.A. 1999. Defect in dimethylglycine dehydrogenase, a new inborn error of metabolism: NMR spectroscopy study. Clin. Chem. 45: 459-464.
4. Binzak, B.A., Vockley, J.G., Jenkins, R.B. and Vockley, J. 2000. Structure and analysis of the human dimethylglycine dehydrogenase gene. Mol. Genet. Metab. 69: 181-187.
5. Binzak, B.A., Wevers, R.A., Moolenaar, S.H., Lee, Y.M., Hwu, W.L., Poggi-Bach, J., Engelke, U.F., Hoard, H.M., Vockley, J.G. and Vockley, J. 2001. Cloning of dimethylglycine dehydrogenase and a new human inborn error of metabolism, dimethylglycine dehydrogenase deficiency. Am. J. Hum. Genet. 68: 839-847.
6. Online Mendelian Inheritance in Man, OMIM™. 2010. Johns Hopkins University, Baltimore, MD. MIM Number: 605850. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/


## CHROMOSOMAL LOCATION

Genetic locus: Dmgdh (mouse) mapping to 13 C3.

## PRODUCT

DMGDH 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 DMGDH shRNA Plasmid (m): sc-143059-SH and DMGDH shRNA (m) Lentiviral Particles: sc-143059-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

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

DMGDH (E-6): sc-393178 is recommended as a control antibody for monitoring of DMGDH 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 DMGDH gene expression knockdown using RT-PCR Primer: DMGDH (m)-PR: sc-143059-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.