

DMGDH siRNA (h): sc-91618

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

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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.
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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.
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CHROMOSOMAL LOCATION

Genetic locus: DMGDH (human) mapping to 5q14.1.

PRODUCT

DMGDH 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see DMGDH shRNA Plasmid (h): sc-91618-SH and DMGDH shRNA (h) Lentiviral Particles: sc-91618-V as alternate gene silencing products.

For independent verification of DMGDH (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-91618A, sc-91618B and sc-91618C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

DMGDH siRNA (h) is recommended for the inhibition of DMGDH 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 μ M in 66 μ l. 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-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 (h)-PR: sc-91618-PR (20 μ l). 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.