

DMGDH (K-15): sc-164191

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

- 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.
- 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.
- 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.
- 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.
- 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.
- 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 (human) mapping to 5q14.1; Dmgdh (mouse) mapping to 13 C3.

SOURCE

DMGDH (K-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of DMGDH of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-164191 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

DMGDH (K-15) is recommended for detection of DMGDH of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

DMGDH (K-15) is also recommended for detection of DMGDH in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for DMGDH siRNA (h): sc-91618, DMGDH siRNA (m): sc-143059, DMGDH shRNA Plasmid (h): sc-91618-SH, DMGDH shRNA Plasmid (m): sc-143059-SH, DMGDH shRNA (h) Lentiviral Particles: sc-91618-V and DMGDH shRNA (m) Lentiviral Particles: sc-143059-V.

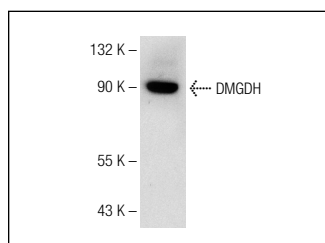
Molecular Weight of DMGDH: 97 kDa.

Positive Controls: rat liver extract: sc-2395.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



DMGDH (K-15): sc-164191. Western blot analysis of DMGDH expression in rat liver tissue extract.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.