

# DMGDH (E-6): sc-393178

## 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., et al. 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., et al. 1994. Tissue specificity of rat mitochondrial dimethylglycine dehydrogenase expression. *Biochem. J.* 299: 393-398.
- Moolenaar, S.H., et al. 1999. Defect in dimethylglycine dehydrogenase, a new inborn error of metabolism: NMR spectroscopy study. *Clin. Chem.* 45: 459-464.

## CHROMOSOMAL LOCATION

Genetic locus: DMGDH (human) mapping to 5q14.1; Dmgdh (mouse) mapping to 13 C3.

## SOURCE

DMGDH (E-6) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 449-483 within an internal region of DMGDH of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>2b</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

DMGDH (E-6) is available conjugated to agarose (sc-393178 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-393178 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-393178 PE), fluorescein (sc-393178 FITC), Alexa Fluor<sup>®</sup> 488 (sc-393178 AF488), Alexa Fluor<sup>®</sup> 546 (sc-393178 AF546), Alexa Fluor<sup>®</sup> 594 (sc-393178 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-393178 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-393178 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-393178 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-393178 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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## STORAGE

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

## APPLICATIONS

DMGDH (E-6) is recommended for detection of DMGDH of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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 (E-6) is also recommended for detection of DMGDH in additional species, including equine, canine and bovine.

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.

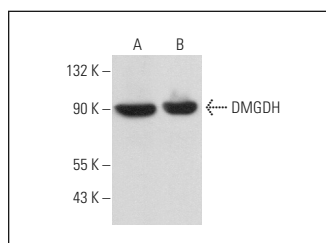
Positive Controls: mouse liver extract: sc-2256, rat liver extract: sc-2395 or human liver extract: sc-363766.

## RECOMMENDED SUPPORT REAGENTS

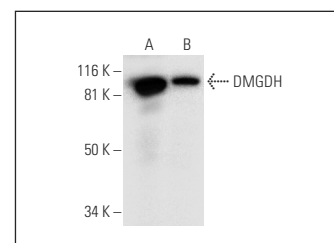
To ensure optimal results, the following support reagents are recommended:

- 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<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 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 m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## DATA



DMGDH (E-6): sc-393178. Western blot analysis of DMGDH expression in rat liver (A) and mouse liver (B) tissue extracts.



DMGDH (E-6): sc-393178. Western blot analysis of DMGDH expression in rat liver (A) and human liver (B) tissue extracts.

## SELECT PRODUCT CITATIONS

1. Seale, L.A., et al. 2019. Combined omics reveals that disruption of the selenocysteine lyase gene affects amino acid pathways in mice. *Nutrients* 11: 2584.

## RESEARCH USE

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