Revision 1

Store at -20C

#25164

MTHFR (D1E4V) Rabbit mAb

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W	H	Endogenous	78	Rabbit IgG	#P42898	4524

Product Usage Information

Application	Dilution
Western Blotting	1:1000

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

Specificity/Sensitivity

MTHFR (D1E4V) Rabbit mAb recognizes endogenous levels of total MTHFR protein.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Pro39 of human MTHFR protein.

Background

Methylenetetrahydrofolate reductase (MTHFR), a key enzyme in one-carbon metabolism, catalyzes the conversion of 5,10-methylenetetrahydrofolate to 5-methyltetrahydrofolate. 5-methyltetrahydrofolate donates its methyl group for remethylation of homocysteine to methionine. Methionine is further converted to S-adenosylmethionine (SAM), a major reactive methyl carrier. DNA methyltransferases and histone methyltransferases use SAM to methylate DNA and histones with concomitant conversion of SAM to S-adenosylhomocysteine (SAH) (1, 2). In addition, MTHFR is inhibited by SAM and this feedback inhibition is partially reduced by SAH (3). Metabolically regulated levels of SAM and SAM/SAH ratio are shown to predict histone methylation levels, indicating the important role of enzymes in one-carbon metabolism including MTHFR in determining histone methylation status (4).

Background References

1. Ducker, G.S. and Rabinowitz, J.D. (2017) *Cell Metab* 25, 27-42.
2. Feil, R. and Fraga, M.F. (2012) *Nat Rev Genet* 13, 97-109.
3. Kutzbach, C. and Stokstad, E.L. (1971) *Biochim Biophys Acta* 250, 459-77.
4. Mentch, S.J. et al. (2015) *Cell Metab* 22, 861-73.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting

Cross-Reactivity Key

H: Human

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