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MTHFD1 Antibody (Center P550)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP2788f

Product Information

Application	IF, WB, IHC-P, E
Primary Accession	P11586
Other Accession	P27653, Q922D8, NP_005947
Reactivity	Human
Predicted	Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB19391
Calculated MW	101531
Antigen Region	535-562

Additional Information

Gene ID	4522
Other Names	C-1-tetrahydrofolate synthase, cytoplasmic, C1-THF synthase, Methylenetetrahydrofolate dehydrogenase, Methenyltetrahydrofolate cyclohydrolase, Formyltetrahydrofolate synthetase, C-1-tetrahydrofolate synthase, cytoplasmic, N-terminally processed, MTHFD1, MTHFC, MTHFD
Target/Specificity	This MTHFD1 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 535-562 amino acids from the Central region of human MTHFD1.
Dilution	IF~~1:10~50 WB~~1:1000 IHC-P~~1:100~500 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation followed by dialysis against PBS.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	MTHFD1 Antibody (Center P550) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	MTHFD1

Synonyms	MTHFC, MTHFD
Function	Trifunctional enzyme that catalyzes the interconversion of three forms of one-carbon-substituted tetrahydrofolate: (6R)-5,10-methylene-5,6,7,8-tetrahydrofolate, 5,10-methenyltetrahydrofolate and (6S)-10-formyltetrahydrofolate (PubMed:10828945, PubMed:18767138, PubMed:1881876). These derivatives of tetrahydrofolate are differentially required in nucleotide and amino acid biosynthesis, (6S)-10-formyltetrahydrofolate being required for purine biosynthesis while (6R)-5,10-methylene-5,6,7,8-tetrahydrofolate is used for serine and methionine biosynthesis for instance (PubMed:18767138, PubMed:25633902).
Cellular Location	Cytoplasm.
Tissue Location	Ubiquitous.

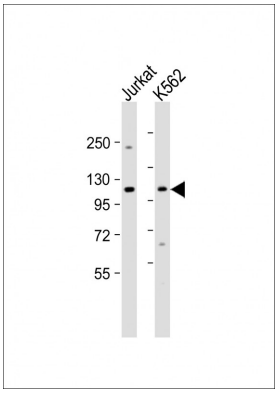
Background

MTHFD1 is a protein that possesses three distinct enzymatic activities, 5,10-methylenetetrahydrofolate dehydrogenase, 5,10-methenyltetrahydrofolate cyclohydrolase and 10-formyltetrahydrofolate synthetase. Each of these activities catalyzes one of three sequential reactions in the interconversion of 1-carbon derivatives of tetrahydrofolate, which are substrates for methionine, thymidylate, and de novo purine syntheses. The trifunctional enzymatic activities are conferred by two major domains, an aminoterminal portion containing the dehydrogenase and cyclohydrolase activities and a larger synthetase domain.

References

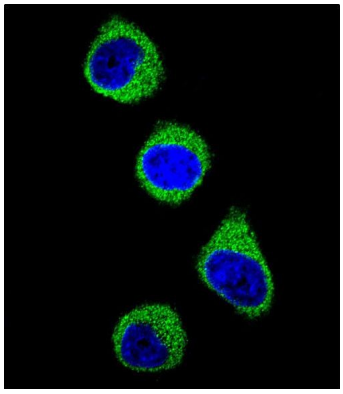
Ivanov,A., J Am Diet Assoc 109 (2), 313-318 (2009)
Schmidt A., Biochemistry 39:6325-6335(2000)
Hol F.A., Clin. Genet. 53:119-125(1998)

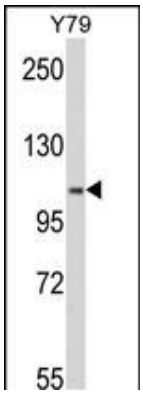
Images



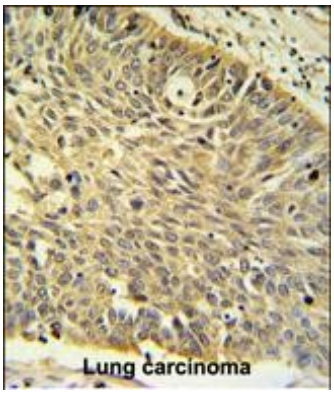
All lanes : Anti-MTHFD1 Antibody (Center P550) at 1:1000 dilution Lane 1: Jurkat whole cell lysate Lane 2: K562 whole cell lysate Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/10000 dilution. Predicted band size : 102 kDa Blocking/Dilution buffer: 5% NFDM/TBST.

Confocal immunofluorescent analysis of MTHFD1 Antibody (Center P550) (Cat#AP2788f) with 293 cell followed by Alexa Fluor 488-conjugated goat anti-rabbit lgG (green). DAPI was used to stain the cell nuclear (blue).





Western blot analysis of MTHFD1 Antibody (Center P550) (Cat. #AP2788f) in Y79 cell line lysates (35ug/lane). MTHFD1 (arrow) was detected using the purified Pab.



MTHFD1 Antibody (Center P550) (Cat. #AP2788f) IHC analysis in formalin fixed and paraffin embedded human Lung carcinoma followed by peroxidase conjugation of the secondary antibody and DAB staining. This data demonstrates the use of the MTHFD1 Antibody (Center P550) for immunohistochemistry. Clinical relevance has not been evaluated.

Citations

- Divergent effects of glutathione depletion on isocitrate dehydrogenase 1 and the pentose phosphate pathway in hamster liver