abcam

ab314930

Alexa Fluor® 647 Anti-MTHFD2 antibody [EPR26938-20]

Recombinant | RabMAb | KO Validated

Key facts

Isotype	IgG
Host species	Rabbit
Conjugation	Alexa Fluor® 647
Excitation/Emission	Ex: 650nm, Em: 665nm
Storage buffer	pH: 7.4 Preservative: 0.02% Sodium azide Constituents: PBS, 30% Glycerol (glycerin, glycerine), 1% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR26938-20
Purification technique	Affinity purification Protein A
Concentration	0.5 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	1/100
Notes	-

Species	Mouse
Dilution info	1/100
Notes	-

Species	Rat
Dilution info	1/100
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/50
Notes	-

Species	Mouse
Dilution info	1/50
Notes	-

Expected

Species	Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Flow Cyt (Intra)

Expected

Species	Human, Mouse, Rat
Dilution info	Use at an assay dependent concentration.

Notes	-

Target data

See full target information MTHFD2

Function	Although its dehydrogenase activity is NAD-specific, it can also utilize NADP at a reduced efficiency.

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle, Store in the dark

Notes

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

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Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	MTHFD2 also known as methylenetetrahydrofolate dehydrogenase (NADP+ dependent) 2 is an enzyme with a mass of approximately 36 kDa. It catalyzes the conversion of methylenetetrahydrofolate to methenyltetrahydrofolate using NADP+ as a cofactor. MTHFD2 is a mitochondrial protein and is highly expressed in embryonic tissues and various cancers while showing low expression in normal adult tissues. This differential expression makes it an interesting target for cancer research.
Biological function summary	Methylenetetrahydrofolate dehydrogenase plays an important role in folate metabolism contributing to the one-carbon metabolic pathway. MTHFD2 is part of the tetrahydrofolate (THF) complex critical for DNA synthesis and repair. The enzyme supports the production of nucleotides and amino acids by providing necessary one-carbon units linking it to rapid cellular proliferation as seen in cancerous cells.
Pathways	MTHFD2 is key in connecting the folate-mediated one-carbon metabolic network to the central metabolism. It is involved in the metabolic pathways that synthesize purines and thymidylate. In these networks MTHFD2 interacts with proteins such as SHMT2 (serine hydroxymethyltransferase 2) facilitating serine to glycine conversion which is important for the provision of one-carbon donors for methylation reactions.
Associated diseases and disorders	The upregulation of MTHFD2 strongly associates with various cancers including breast and colorectal cancers. The involvement of MTHFD2 in these cancers indicates its potential as a biomarker and therapeutic target. Through cancer-related pathways MTHFD2 shows a connection to enzymes such as ALDH1L2 (aldehyde dehydrogenase 1 family member L2) which also participates in folate metabolism and influences cancer progression.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

We do not recommend this combination. It is not covered by our product promise.

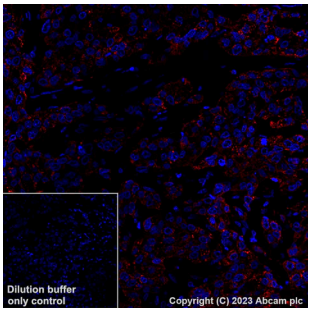
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In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

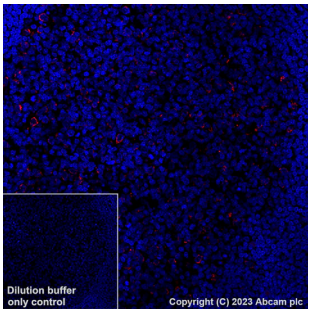
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6 product images



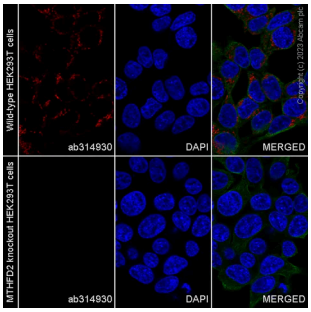
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Alexa Fluor® 647 Anti-MTHFD2 antibody [EPR26938-20] (ab314930)

Immunohistochemical analysis of paraffin-embedded Human breast cancer tissue labeling MTHFD2 with ab314930 at 1/100 (5.0 ug/ml). Positive staining on human breast cancer. The section was incubated with ab314930 for 60 mins at room temperature (shown in red). Nuclear DNA was labeled with DAPI (shown in blue). The section was then mounted using Fluoromount®. The immunostaining was performed on a Leica Biosystems BOND RX instrument. Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8). Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 40 mins.



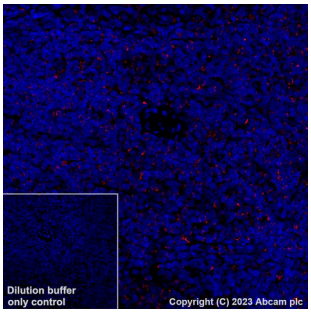
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Alexa Fluor® 647 Anti-MTHFD2 antibody [EPR26938-20] (ab314930)

Immunohistochemical analysis of paraffin-embedded Human tonsil tissue labeling MTHFD2 with ab314930 at 1/100 (5.0 ug/ml). Positive staining on human tonsil. The section was incubated with ab314930 for 60 mins at room temperature (shown in red). Nuclear DNA was labeled with DAPI (shown in blue). The section was then mounted using Fluoromount®. The immunostaining was performed on a Leica Biosystems BOND RX instrument. Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8). Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 40 mins.



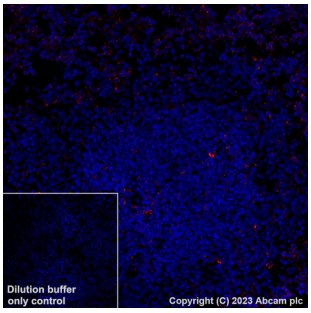
Immunocytochemistry/ Immunofluorescence - Alexa Fluor® 647 Anti-MTHFD2 antibody [EPR26938-20] (ab314930)

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized MTHFD2 KO HEK293T (MTHFD2 knockout human embryonic kidney epithelial cell) (ab266383) cells labelling MTHFD2 with ab314930 at 1/50 (10.0 ug/ml) dilution. Confocal image showing cytoplasmic staining in wildtype HEK293T cells and no staining in MTHFD2 knockout HEK293T. Image was taken with a confocal microscope(Leica-Microsystems, TCS SP8). ab195887 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 488) was used to counterstain tubulin at 1/200 2.5ug/ml dilution (Red). The Nuclear counterstain was DAPI (Blue).



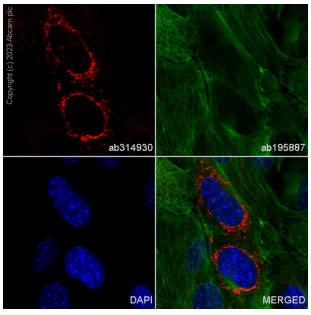
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Alexa Fluor® 647 Anti-MTHFD2 antibody [EPR26938-20] (ab314930)

Immunohistochemical analysis of paraffin-embedded Rat spleen tissue labeling MTHFD2 with ab314930 at 1/100 (5.0 ug/ml). Positive staining on rat spleen. The section was incubated with ab314930 for 60 mins at room temperature (shown in red). Nuclear DNA was labeled with DAPI (shown in blue). The section was then mounted using Fluoromount®. The immunostaining was performed on a Leica Biosystems BOND RX instrument. Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8). Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 40 mins.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Alexa Fluor® 647 Anti-MTHFD2 antibody [EPR26938-20] (ab314930)

Immunohistochemical analysis of paraffin-embedded Mouse spleen tissue labeling MTHFD2 with ab314930 at 1/100 (5.0 ug/ml). Positive staining on mouse spleen. The section was incubated with ab314930 for 60 mins at room temperature (shown in red). Nuclear DNA was labeled with DAPI (shown in blue). The section was then mounted using Fluoromount®. The immunostaining was performed on a Leica Biosystems BOND RX instrument. Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8). Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 40 mins.



Immunocytochemistry/ Immunofluorescence - Alexa Fluor® 647 Anti-MTHFD2 antibody [EPR26938-20] (ab314930)

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized MEF (mouse embryo fibroblast) cells labelling MTHFD2 with ab314930 at 1/50 (10.0 ug/ml) dilution. Confocal image showing cytoplasmic staining in MEF cell line. Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8). ab195887 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 488) was used to counterstain tubulin at 1/200 2.5ug/ml dilution (Red). The Nuclear counterstain was DAPI (Blue).

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