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Anti-MDH2 Antibody Picoband™ (monoclonal, 5D8C1)

Catalog # ABO16600

Product Information

Application	WB, IHC, IF, ICC
Primary Accession	P40926
Host	Mouse
Isotype	Mouse IgG2b
Reactivity	Human
Clonality	Monoclonal
Format	Lyophilized
Description	Anti-MDH2 Antibody Picoband™ (monoclonal, 5D8C1) . Tested in IF, IHC, ICC, WB applications. This antibody reacts with Human.
Reconstitution	Adding 0.2 ml of distilled water will yield a concentration of 500 □g/ml.

Additional Information

Gene ID	4191
Other Names	Malate dehydrogenase, mitochondrial, 1.1.1.37, MDH2
Calculated MW	35503
Application Details	Western blot, 0.25-0.5 □g/ml, Human Immunohistochemistry(Paraffin-embedded Section), 2-5 □g/ml, Human Immunocytochemistry/Immunofluorescence, 5 □g/ml, Human
Source	Eukaryota
Contents	Each vial contains 4 mg Trehalose, 0.9 mg NaCl and 0.2 mg Na2HPO4.
Clone Names	Clone: 5D8C1
Immunogen	E.coli-derived human MDH2 recombinant protein (Position: A9-L223). Human MDH2 shares 97.7% and 98.1% amino acid (aa) sequence identity with mouse and rat MDH2, respectively.
Purification	Immunogen affinity purified.
Storage	At -20°C for one year from date of receipt. After reconstitution, at 4°C for one month. It can also be aliquotted and stored frozen at -20°C for six months. Avoid repeated freezing and thawing.

Protein Information

Name	MDH2

Function	Mitochondrial malate dehydrogenase that catalyzes the reversible conversion of malate to oxaloacetate using NAD(+) as a cofactor (PubMed:27989324). Plays a central role in the tricarboxylic acid (TCA) cycle contributing to cellular respiration and energy production via the mitochondrial electron transport chain (PubMed:35366151). Also participates in the malate-aspartate NADH shuttle, facilitating transfer of reducing equivalents between cytosol and mitochondria to maintain redox balance (NAD(+)/NADH homeostasis) and support metabolic flux between compartments (By similarity). In addition to its metabolic role, binds to RNA in cells, associating with cytosolic RNAs including tRNAs and mRNAs (PubMed:38609156).
Cellular Location	Mitochondrion matrix

Background

Malate dehydrogenase, mitochondrial also known as malate dehydrogenase 2 is an enzyme that in humans is encoded by the MDH2 gene. Malate dehydrogenase catalyzes the reversible oxidation of malate to oxaloacetate, utilizing the NAD/NADH cofactor system in the citric acid cycle. The protein encoded by this gene is localized to the mitochondria and may play pivotal roles in the malate-aspartate shuttle that operates in the metabolic coordination between cytosol and mitochondria. Several transcript variants encoding different isoforms have been found for this gene.

Images

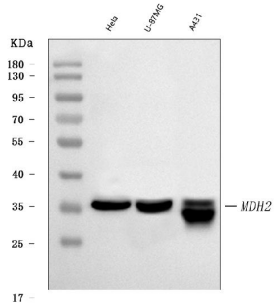
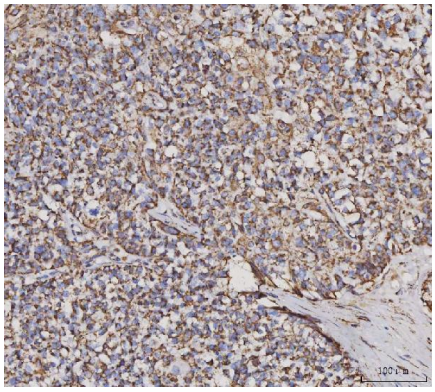


Figure 1. Western blot analysis of MDH2 using anti-MDH2 antibody (M04803-1).
Electrophoresis was performed on a 5-20% SDS-PAGE gel at 70V (Stacking gel) / 90V (Resolving gel) for 2-3 hours. The sample well of each lane was loaded with 30 ug of sample under reducing conditions.
Lane 1: human Hela whole cell lysates,
Lane 2: human U-87MG whole cell lysates,
Lane 3: human A431 whole cell lysates.
After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with mouse anti-MDH2 antigen affinity purified monoclonal antibody (Catalog # M04803-1) at 0.5 µg/mL overnight at 4°C, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-mouse IgG-HRP secondary antibody at a dilution of 1:10000 for 1.5 hour at RT. The signal is developed using an Enhanced Chemiluminescent detection (ECL) kit (Catalog # EK1001) with Tanon 5200 system. A specific band was detected for MDH2 at approximately 36 kDa. The expected band size for MDH2 is at 36 kDa.

Figure 2. IHC analysis of MDH2 using anti-MDH2 antibody (M04803-1).
MDH2 was detected in a paraffin-embedded section of human breast cancer tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 µg/ml mouse anti-MDH2 Antibody (M04803-1)



overnight at 4°C. Peroxidase Conjugated Goat Anti-mouse IgG was used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using HRP Conjugated Mouse IgG Super Vision Assay Kit (Catalog # SV0001) with DAB as the chromogen.

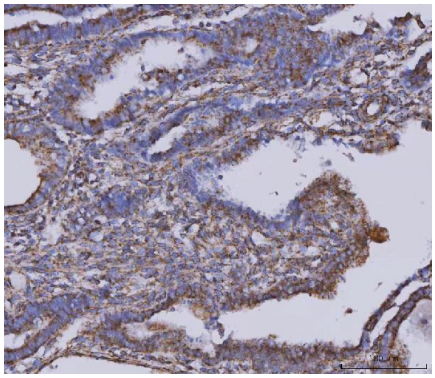


Figure 3. IHC analysis of MDH2 using anti-MDH2 antibody (M04803-1).
MDH2 was detected in a paraffin-embedded section of human cervical cancer tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 µg/ml mouse anti-MDH2 Antibody (M04803-1) overnight at 4°C. Peroxidase Conjugated Goat Anti-mouse IgG was used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using HRP Conjugated Mouse IgG Super Vision Assay Kit (Catalog # SV0001) with DAB as the chromogen.

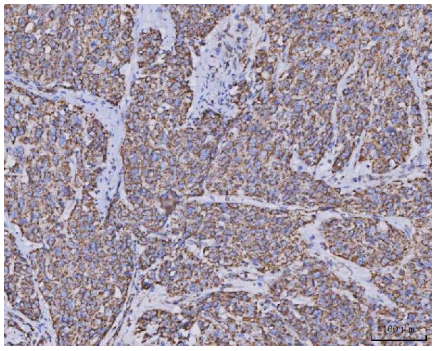


Figure 4. IHC analysis of MDH2 using anti-MDH2 antibody (M04803-1).
MDH2 was detected in a paraffin-embedded section of human squamous cell carcinoma tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 µg/ml mouse anti-MDH2 Antibody (M04803-1) overnight at 4°C. Peroxidase Conjugated Goat Anti-mouse IgG was used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using HRP Conjugated Mouse IgG Super Vision Assay Kit (Catalog # SV0001) with DAB as the chromogen.

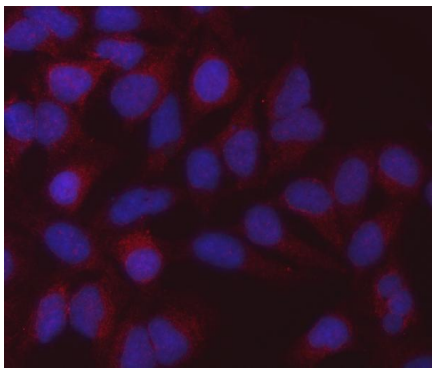


Figure 5. IF analysis of MDH2 using anti-MDH2 antibody (M04803-1).
MDH2 was detected in an immunocytochemical section of Hela cells. Enzyme antigen retrieval was performed using IHC enzyme antigen retrieval reagent (AR0022) for 15 mins. The cells were blocked with 10% goat serum. And then incubated with 5 µg/mL mouse anti-MDH2 Antibody (M04803-1) overnight at 4°C. Cy3 Conjugated Goat Anti-Mouse IgG (BA1031) was used as secondary antibody at 1:100 dilution and incubated for 30 minutes at 37°C. The section was counterstained with DAPI. Visualize using a fluorescence microscope and filter sets appropriate for the label used.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.