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Anti-Sorbitol Dehydrogenase/SORD Antibody Picoband™ (monoclonal, 12B10G2)

Catalog # ABO16245

Product Information

Application	WB, IHC, FC
Primary Accession	Q00796
Host	Mouse
Isotype	Mouse IgG1
Reactivity	Rat, Human, Mouse
Clonality	Monoclonal
Format	Lyophilized
Description	Anti-Sorbitol Dehydrogenase/SORD Antibody Picoband™ (monoclonal, 12B10G2) . Tested in Flow Cytometry, IHC, WB applications. This antibody reacts with Human, Mouse, Rat.
Reconstitution	Adding 0.2 ml of distilled water will yield a concentration of 500 □g/ml.

Additional Information

Gene ID	6652
Other Names	Sorbitol dehydrogenase, SDH, 1.1.1.-, (R, R)-butanediol dehydrogenase, 1.1.1.4, L-iditol 2-dehydrogenase, 1.1.1.14, Polyol dehydrogenase, Ribitol dehydrogenase, RDH, 1.1.1.56, Xylitol dehydrogenase, XDH, 1.1.1.9, SORD
Calculated MW	38325
Application Details	Western blot, 0.25-0.5 □g/ml, Human, Mouse, Rat Immunohistochemistry(Paraffin-embedded Section), 2-5 □g/ml, Human, Rat Flow Cytometry, 1-3 □g/1x10^6 cells, Human
Source	Eukaryota
Contents	Each vial contains 4 mg Trehalose, 0.9 mg NaCl and 0.2 mg Na2HPO4.
Clone Names	Clone: 12B10G2
Immunogen	E.coli-derived human Sorbitol Dehydrogenase/SORD recombinant protein (Position: N8-P357).
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	SORD
Function	Polyol dehydrogenase that catalyzes the reversible NAD(+)- dependent oxidation of various sugar alcohols. Is mostly active with D- sorbitol (D-glucitol), L-threitol, xylitol and ribitol as substrates, leading to the C2-oxidized products D-fructose, L-erythrulose, D- xylulose, and D-ribulose, respectively (PubMed:3365415). Is a key enzyme in the polyol pathway that interconverts glucose and fructose via sorbitol, which constitutes an important alternate route for glucose metabolism. The polyol pathway is believed to be involved in the etiology of diabetic complications, such as diabetic neuropathy and retinopathy, induced by hyperglycemia (PubMed:12962626, PubMed:25105142, PubMed:29966615). May play a role in sperm motility by using sorbitol as an alternative energy source for sperm motility (PubMed:16278369). May have a more general function in the metabolism of secondary alcohols since it also catalyzes the stereospecific oxidation of (2R,3R)-2,3-butanediol. To a lesser extent, can also oxidize L-arabinitol, galactitol and D-mannitol and glycerol in vitro. Oxidizes neither ethanol nor other primary alcohols. Cannot use NADP(+) as the electron acceptor (PubMed:3365415).
Cellular Location	Mitochondrion membrane {ECO:0000250|UniProtKB:Q64442}; Peripheral membrane protein {ECO:0000250|UniProtKB:Q64442}. Cell projection, cilium, flagellum {ECO:0000250|UniProtKB:Q64442}. Note=Associated with mitochondria of the midpiece and near the plasma membrane in the principal piece of the flagellum. Also found in the epididymosome, secreted by the epididymal epithelium and that transfers proteins from the epididymal fluid to the sperm surface. {ECO:0000250|UniProtKB:Q64442}
Tissue Location	Expressed in liver (PubMed:3365415). Expressed in kidney and epithelial cells of both benign and malignant prostate tissue. Expressed in epididymis (at protein level)

Background

Sorbitol dehydrogenase is an enzyme that in humans is encoded by the SORD gene. Sorbitol dehydrogenase (SORD) catalyzes the interconversion of polyols and their corresponding ketoses, and together with aldose reductase, makes up the sorbitol pathway that is believed to play an important role in the development of diabetic complications. The first reaction of the pathway (also called the polyol pathway) is the reduction of glucose to sorbitol by ALDR1 with NADPH as the cofactor. SORD then oxidizes the sorbitol to fructose using NAD(+) cofactor.

Images

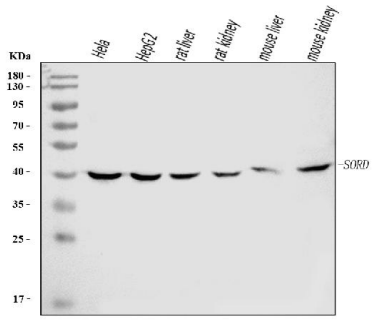


Figure 1. Western blot analysis of Sorbitol Dehydrogenase/SORD using anti-Sorbitol Dehydrogenase/SORD antibody (M07851-1). Electrophoresis was performed on a 5-20% SDS-PAGE gel at 70V (Stacking gel) / 90V (Resolving gel) for 2-3 hours. The sample well of each lane was loaded with 30 ug of sample under reducing conditions.
Lane 1: human Hela whole cell lysates,
Lane 2: human HepG2 whole cell lysates,
Lane 3: rat liver tissue tissue lysates,

Lane 4: rat kidney tissue lysates,
Lane 5: mouse liver tissue lysates,
Lane 6: mouse kidney tissue 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-Sorbitol Dehydrogenase/SORD antigen affinity purified monoclonal antibody (Catalog # M07851-1) 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 Sorbitol Dehydrogenase/SORD at approximately 40 kDa. The expected band size for Sorbitol Dehydrogenase/SORD is at 40 kDa.

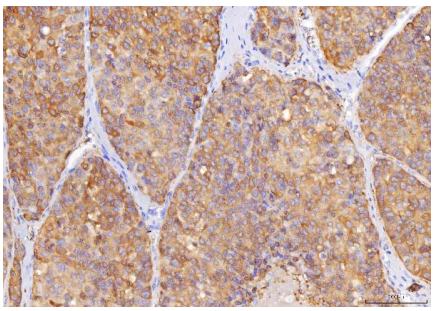


Figure 2. IHC analysis of Sorbitol Dehydrogenase/SORD using anti-Sorbitol Dehydrogenase/SORD antibody (M07851-1).
Sorbitol Dehydrogenase/SORD was detected in a paraffin-embedded section of human liver cancer tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 µg/ml mouse anti-Sorbitol Dehydrogenase/SORD Antibody (M07851-1) 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.

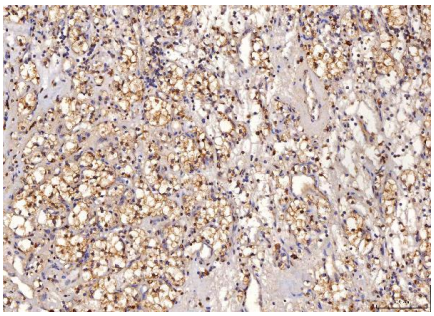
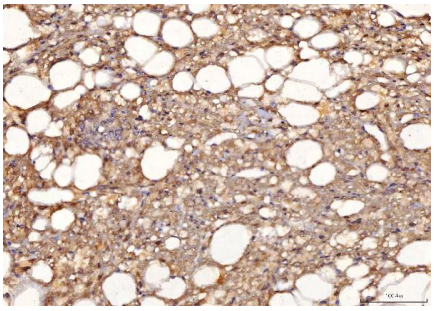


Figure 3. IHC analysis of Sorbitol Dehydrogenase/SORD using anti-Sorbitol Dehydrogenase/SORD antibody (M07851-1).
Sorbitol Dehydrogenase/SORD was detected in a paraffin-embedded section of human renal clear cell carcinoma tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 µg/ml mouse anti-Sorbitol Dehydrogenase/SORD Antibody (M07851-1) 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 Sorbitol Dehydrogenase/SORD using anti-Sorbitol Dehydrogenase/SORD antibody (M07851-1).
Sorbitol Dehydrogenase/SORD was detected in a paraffin-embedded section of human SM fatty carcinoma of the left kidney 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-Sorbitol Dehydrogenase/SORD Antibody (M07851-1) 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.

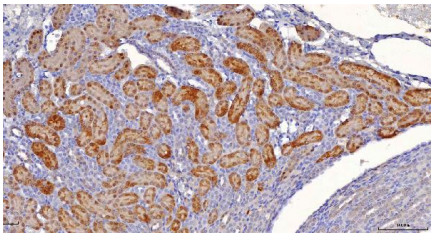


Figure 5. IHC analysis of Sorbitol Dehydrogenase/SORD using anti-Sorbitol Dehydrogenase/SORD antibody (M07851-1).
Sorbitol Dehydrogenase/SORD was detected in a paraffin-embedded section of rat kidney tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 µg/ml mouse anti-Sorbitol Dehydrogenase/SORD Antibody (M07851-1) 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.

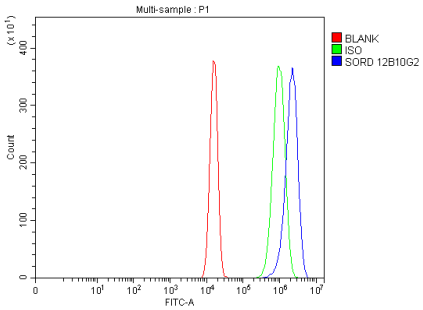


Figure 6. Flow Cytometry analysis of U20S cells using anti-Sorbitol Dehydrogenase/SORD antibody (M07851-1). Overlay histogram showing U20S cells stained with M07851-1 (Blue line). The cells were blocked with 10% normal goat serum. And then incubated with mouse anti-Sorbitol Dehydrogenase/SORD Antibody (M07851-1, 1 µg/1x10^6 cells) for 30 min at 20°C. DyLight®488 conjugated goat anti-mouse IgG (BA1126, 5-10 µg/1x10^6 cells) was used as secondary antibody for 30 minutes at 20°C. Isotype control antibody (Green line) was mouse IgG (1 µg/1x10^6) used under the same conditions. Unlabelled sample (Red line) was also used as a control.

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