abcam

ab170950

Anti-Aspartate Aminotransferase + FABP-1 antibody [EPR12145]

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR12145
Purification technique	Affinity purification Protein A
Concentration	0.531 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Human
Dilution info	1/3000
Notes	-

Species	Mouse
Dilution info	1/3000
Notes	-

Species	Rat
Dilution info	1/3000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/500
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/20
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

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

IHC-P

Tested

Species	Human
Dilution info	1/170
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

Target data

See full target information Aspartate aminotransferase, cytoplasmic

Function	Biosynthesis of L-glutamate from L-aspartate or L-cysteine (PubMed:21900944). Important regulator of levels of glutamate, the major excitatory neurotransmitter of the vertebrate central nervous system. Acts as a scavenger of glutamate in brain neuroprotection. The aspartate aminotransferase activity is involved in hepatic glucose synthesis during development and in adipocyte glyceroneogenesis. Using L-cysteine as substrate, regulates levels of mercaptopyruvate, an important source of hydrogen sulfide. Mercaptopyruvate is converted into H(2)S via the action of 3-mercaptopyruvate sulfurtransferase (3MST). Hydrogen sulfide is an important synaptic modulator and neuroprotectant in the brain. In addition, catalyzes (2S)-2-aminobutanoate, a by-product in the cysteine biosynthesis pathway (PubMed:27827456).

Storage

Shipped at conditions	Conditional Ambient
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

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.

Supplementary info

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

Activity summary	Aspartate Aminotransferase also known as AST or alkaline aminotransferase is an important enzyme in amino acid metabolism. It catalyzes the transfer of an amino group from aspartate to alpha-ketoglutarate forming glutamate and oxaloacetate. This enzyme has an approximate molecular mass of 46 kDa and is expressed in the liver heart skeletal muscle and kidney tissues. AST plays a significant role in the intracellular balance of amino acids and is an important biomarker in clinical diagnostics.
Biological function summary	AST functions in the transamination process a mechanism central to the synthesis and degradation of amino acids. This process is fundamental in the production of energy and the maintenance of the urea cycle. AST does not form a part of a complex but interacts dynamically with substrates and cofactors like pyridoxal phosphate essential for its enzymatic activity. The activity of AST is important in ensuring the proper function of amino acid metabolism in various tissues.
Pathways	AST operates within the citric acid cycle and the urea cycle. In the citric acid cycle AST contributes to the interconversion of amino acids and metabolic intermediates aiding in energy production. It links to proteins such as malate dehydrogenase and glutamate dehydrogenase which play roles in associated metabolic conversions and energy cycles. These interactions reflect AST's integration in maintaining cellular metabolic processes.
Associated diseases and disorders	AST levels serve as an indicator of liver health and are often elevated in conditions such as hepatitis and myocardial infarction. Hepatitis causes liver damage resulting in increased AST release into the bloodstream. In myocardial infarction damaged cardiac tissue releases AST providing a diagnostic cue for tissue injury.

Elevated AST levels can associate with other enzymes like alanine aminotransferase (ALT) used together to assess liver and heart function.

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

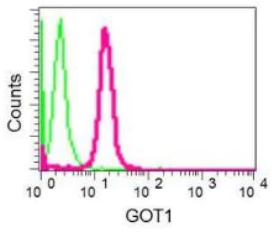
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

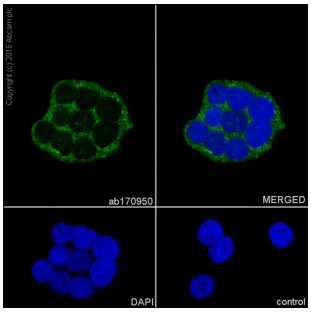
10 product images



Flow Cytometry (Intracellular) - Anti-Aspartate Aminotransferase + FABP-1 antibody [EPR12145] (ab170950)

Aspartate Aminotransferase + FABP-1 Flow Cytometry (Intracellular) staining using rabbit Anti-Aspartate Aminotransferase + FABP-1 antibody

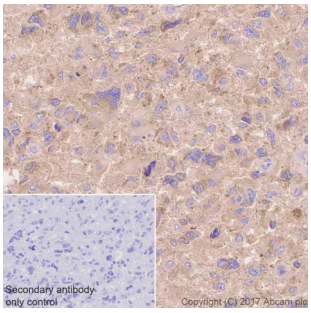
Intracellular flow cytometric analysis of permeabilized K562 cells labeling Aspartate Aminotransferase + FABP-1 using unpurified ab170950 at 1/10 dilution (red) or a rabbit IgG negative (green).



Immunocytochemistry/ Immunofluorescence - Anti-Aspartate Aminotransferase + FABP-1 antibody [EPR12145] (ab170950)

Aspartate Aminotransferase + FABP-1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Aspartate Aminotransferase + FABP-1 antibody

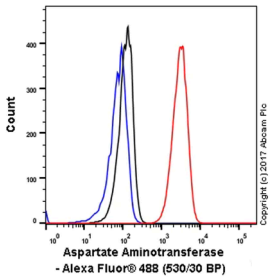
Immunocytochemistry/Immunofluorescence analysis of HT-29 (human colorectal adenocarcinoma) cells labelling Aspartate Aminotransferase + FABP-1 with purified ab170950 at 1/120. Cells were fixed with 100% methanol. An Alexa Fluor® 488-conjugated goat anti-rabbit IgG (ab150077) at 1/1000 dilution was used as the secondary antibody. Nuclei counterstained with DAPI (blue).
Secondary Only Control: PBS was used instead of the primary antibody as the negative control.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Aspartate Aminotransferase + FABP-1 antibody [EPR12145] (ab170950)

Aspartate Aminotransferase + FABP-1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Aspartate Aminotransferase + FABP-1 antibody

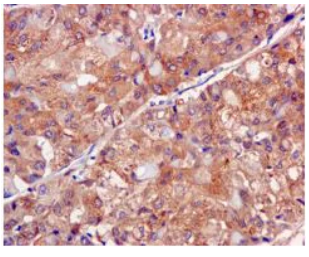
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human glioma tissue sections labeling Aspartate Aminotransferase + FABP-1 with Purified ab170950 at 1:170 dilution. Heat mediated antigen retrieval was performed using ab93684 (Tris/EDTA buffer, pH 9.0). Tissue was counterstained with Hematoxylin. ImmunoHistoProbe one step HRP Polymer (ready to use) secondary antibody was used at 1:0 dilution. PBS instead of the primary antibody was used as the negative control.



Flow Cytometry (Intracellular) - Anti-Aspartate Aminotransferase + FABP-1 antibody [EPR12145] (ab170950)

Aspartate Aminotransferase + FABP-1 Flow Cytometry (Intracellular) staining using rabbit Anti-Aspartate Aminotransferase + FABP-1 antibody

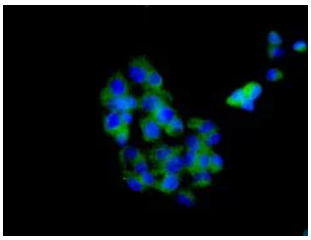
Intracellular Flow Cytometry analysis of K-562 (Human chronic myelogenous leukemia lymphoblast) cells labeling Aspartate Aminotransferase + FABP-1 with purified ab170950 at 1/20 dilution (red). Cells were fixed with 4% Paraformaldehyde. A Goat anti rabbit IgG (Alexa Fluor® 488) secondary antibody was used at 1/2000 dilution. Isotype control - Rabbit monoclonal IgG (Black). Unlabeled control - Cell without incubation with primary antibody and secondary antibody (Blue).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Aspartate Aminotransferase + FABP-1 antibody [EPR12145] (ab170950)

Aspartate Aminotransferase + FABP-1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Aspartate Aminotransferase + FABP-1 antibody

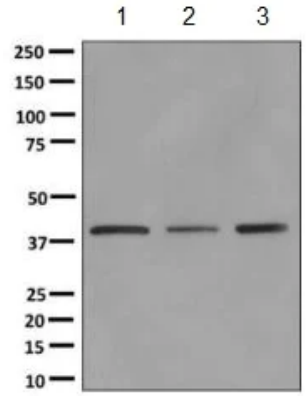
Immunohistochemical analysis of paraffin-embedded Human hepatocellular carcinoma tissue labeling Aspartate Aminotransferase + FABP-1 using unpurified ab170950 at 1/50 dilution. Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Immunocytochemistry/ Immunofluorescence - Anti-Aspartate Aminotransferase + FABP-1 antibody [EPR12145] (ab170950)

Aspartate Aminotransferase + FABP-1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Aspartate Aminotransferase + FABP-1 antibody

Immunofluorescent analysis of HepG2 cells labeling Aspartate Aminotransferase + FABP-1 using unpurified ab170950 at 1/50 dilution (green). DAPI nuclear staining (blue).



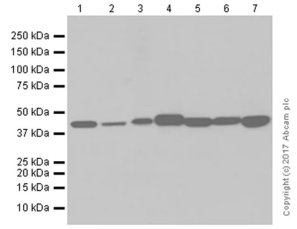
Western blot - Anti-Aspartate Aminotransferase + FABP-1 antibody [EPR12145] (ab170950)

All lanes:
Western blot - Anti-Aspartate Aminotransferase + FABP-1 antibody [EPR12145] (ab170950) at 1/1000 dilution

Lane 1:
HepG2 cell lysate at 10 µg

Lane 2:
MCF-7 cell lysate at 10 µg

Lane 3:
K562 cell lysate at 10 µg



Western blot - Anti-Aspartate Aminotransferase + FABP-1 antibody [EPR12145] (ab170950)

Blocking and diluting buffer: 5% NFDM/TBST.
All lanes:
purified at 1/3000 dilution

Lane 1:
HepG2 (Human hepatocellular carcinoma epithelial cell) whole cell lysates at 20 µg

Lane 2:
MCF7 (Human breast adenocarcinoma epithelial cell) whole cell lysates at 20 µg

Lane 3:
K-562 (Human chronic myelogenous leukemia lymphoblast) whole cell lysates at 20 µg

Lane 4:
Mouse brain lysates at 20 µg

Lane 5:
Mouse heart lysates at 20 µg

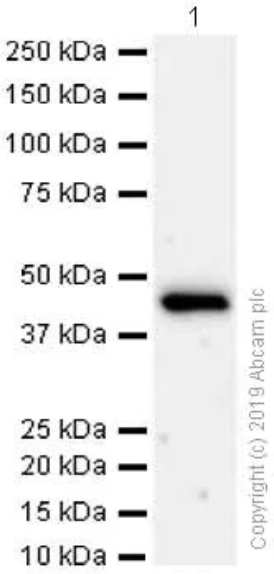
Lane 6:
Rat brain lysates at 20 µg

Lane 7:
Rat heart lysates at 20 µg

Secondary

All lanes:

Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution



Western blot - Anti-Aspartate Aminotransferase + FABP-1 antibody [EPR12145] (ab170950)

Aspartate Aminotransferase + FABP-1 Western blot staining using rabbit Anti-Aspartate Aminotransferase + FABP-1 antibody

All lanes:
Western blot - Anti-Aspartate Aminotransferase + FABP-1 antibody [EPR12145] (ab170950) at 1/1000 dilution

All lanes:
Western blot - Recombinant human FABP-1 protein (His tag N-Terminus) (ab206788) at 0.015 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Observed band size: 47 kDa

Exposure time: 180s

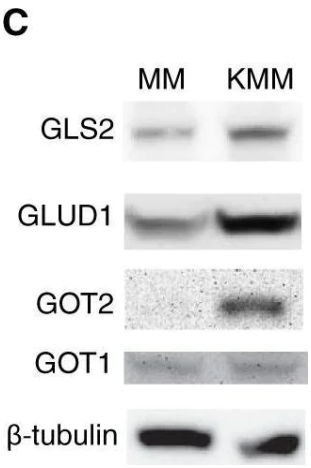


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Western blot - Anti-Aspartate Aminotransferase + FABP-1 antibody [EPR12145] (ab170950)

Aspartate Aminotransferase + FABP-1 western blot using anti-Aspartate Aminotransferase + FABP-1 antibody [EPR12145] ab170950. Publication image and figure legend from Zhu, Y., Li, T., et al., 2017, MBio, PubMed 28811348.

ab170950 was used in this publication in western blot. This may not be the same as the application(s) guaranteed by Abcam. For a full list of applications guaranteed by Abcam for ab170950 please see the product overview.

GLS2, GLUD1, and GOT2 are upregulated and required for cell proliferation of KSHV-transformed cells. (A) Changes of gene expression of key enzymes in the glutamine metabolism pathway following KSHV transformation. Ratios are untransformed (MM) versus transformed (KMM) cells. Genes downregulated and upregulated by KSHV are labeled in green and red, respectively. (B and C) Analysis of GLS2, GLUD1, GOT1, and GOT2 expression in MM and KMM cells by RT-qPCR (B) and Western blot (C). (D) Examination of the efficiencies of shRNAs against GLS2, GLUD1, and GOT2 in untransformed (MM) and KSHV-transformed (KMM) cells by RT-qPCR. MM and KMM cells infected with lentiviruses harboring 2 different shRNAs (sh1 and sh2) for each gene or a scrambled control (Ctl) were lysed at day 3 postinfection and examined by RT-qPCR. β-Actin was used as an internal control. (E) Examination of the efficiencies of shRNAs against GLS2, GLUD1, and GOT2 in MM and KMM cells by Western blot. Cells were infected as described in the legend for panel D. β-Tubulin was used as an internal control for loading. (F) Knockdown of GLS2, GLUD1, or GOT2 impairs the proliferation of KMM cells. MM and KMM cells infected with lentiviruses harboring 2 different shRNAs for GLS2 (shGLS2-1 and shGLS2-2), GLUD1 (shGLUD1-1 and shGLUD1-2), and GOT2 (shGOT2-1 and shGOT2-2) or a scrambled control (shControl) were counted at different time points after infection.

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