abcam

ab18180

Anti-ABCA1 antibody [AB.H10]

Anti-ABCA1 antibody [AB.H10] (ab18180) is a mouse monoclonal antibody detecting ABCA1 in **Western Blot, Flow Cytometry, IHC-P**. Suitable for **Human, Mouse**.

- KO validated for confirmed specificity
- Over 200 publications
- Trusted since 2005

KO Validated

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	pH: 7.2 Preservative: 0.05% Sodium azide Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Recombinant Fragment Protein within Human ABCA1 aa 1800 to C-terminus. The exact immunogen used to generate this antibody is proprietary information. Database link O95477
Clone number	AB.H10
Purification technique	Affinity purification Protein A
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Protein A purified from TCS

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	1-2 µg for 10^6 Cells
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Expected

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

WB

Tested

Species	Mouse
Dilution info	1/200 - 1/500
Notes	Abcam recommends using BSA as the blocking agent and 80-100 ug of lysate.

Species	Human
Dilution info	1/200 - 1/500
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/200
Notes	Perform heat-mediated antigen retrieval before commencing with IHC staining protocol.

Expected

Species	Mouse

Dilution info	Use at an assay dependent concentration.
Notes	-

Target data

See full target information ABCA1

Function	Catalyzes the translocation of specific phospholipids from the cytoplasmic to the extracellular/lumenal leaflet of membrane coupled to the hydrolysis of ATP (PubMed:24097981, PubMed:35974019). Thereby, participates in phospholipid transfer to apolipoproteins to form nascent high density lipoproteins/HDLs (PubMed:14754908). Transports preferentially phosphatidylcholine over phosphatidylserine (PubMed:24097981). May play a similar role in the efflux of intracellular cholesterol to apolipoproteins and the formation of nascent high density lipoproteins/HDLs (PubMed:10533863, PubMed:14754908, PubMed:24097981, PubMed:35974019). Translocates phospholipids from the outer face of the plasma membrane and forces it through its gateway and annulus into an elongated hydrophobic tunnel in its extracellular domain (PubMed:35974019).

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

Notes

What is this antibody validated in?
Anti-ABCA1 antibody [AB.H10] (ab18180) is a mouse monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Flow Cyt), Immunohistochemistry (IHC-P) in Human, Mouse samples.

What is the molecular weight of ABCA1?
Anti-ABCA1 [AB.H10] (ab18180) specifically detects a band for ABCA1 (UniProt: O95477) at a molecular weight of 254kDa.

Trusted by the scientific community
Anti-ABCA1 [AB.H10] (ab18180) was first used in a scientific publication in 2005 and has been cited over 200 times in peer-reviewed journals.

Reviewed by scientists
Anti-ABCA1 [AB.H10] (ab18180) has over 15 independent reviews from customers.

Specificity confirmed
The specificity of Anti-ABCA1 antibody [AB.H10] (ab18180) has been confirmed by Western blot testing in ABCA1 Knockout Mouse liver samples.

Supplementary info

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

Activity summary	The ABCA1 protein also known as ATP-binding cassette transporter A1 plays an important role in lipid transport processes. It helps in the export of cholesterol and phospholipids to apolipoprotein A-I which is essential for high-density lipoprotein (HDL) formation. The ABCA1 molecular weight is approximately 220 kDa. This protein is widely expressed in various tissues including the liver lungs and intestines indicating its systemic role in lipid metabolism. Researchers often study ABCA1 using techniques like ABCA1 ELISA and H10 flow cytometry.
Biological function summary	ABCA1 functions as a cholesterol efflux pump in the cellular membrane. It facilitates the transfer of cholesterol to lipid-poor apolipoproteins such as apoA-I which then forms HDL particles. This active process helps maintain cellular cholesterol homeostasis and reduces cholesterol accumulation. ABCA1 is a critical component of the HDL synthesis pathway and does not form part of a larger protein complex acting more as an individual unit in this function.
Pathways	Many regulatory mechanisms control the activity of ABCA1. It plays a significant role in the reverse cholesterol transport pathway thereby promoting the movement of cholesterol away from peripheral tissues back to the liver for excretion. This pathway helps maintain systemic lipid balance. The LXR/RXR pathway regulates ABCA1 expression aligning it closely with other proteins such as LXR and ABCG1 which also deal with cholesterol metabolism.
Associated diseases and disorders	ABCA1 is intimately connected with atherosclerosis and Tangier disease. Dysfunction or mutations in the ABCA1 gene lead to impaired cholesterol efflux contributing to cholesterol build-up and atherosclerotic plaque formation. Tangier disease a rare genetic disorder arises from severe mutations in ABCA1 resulting in very low levels of HDL cholesterol. This protein's role in disease is often studied alongside proteins such as apoA-I and LDL receptors which influence cholesterol transportation and storage.

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.

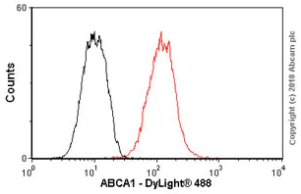
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

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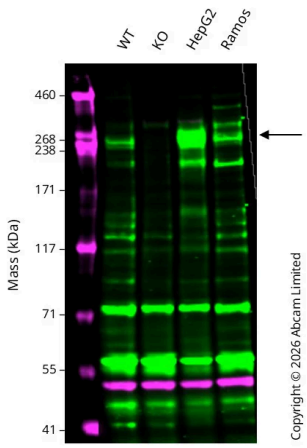
9 product images



Flow Cytometry - Anti-ABCA1 antibody [AB.H10] (ab18180)

ABCA1 Flow Cytometry staining using mouse Anti-ABCA1 antibody

Overlay histogram showing HepG2 cells stained with ab18180 (red line). The cells were fixed with methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab18180, 2µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG1 [ICIGG1] (ab91353, 2µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed. This antibody gave a positive signal in HepG2 cells fixed with 4% paraformaldehyde/permeabilized in 0.1% PBS-Tween used under the same conditions.



Western blot - Anti-ABCA1 antibody [AB.H10] (ab18180)

ABCA1 Western blot staining using mouse Anti-ABCA1 antibody

Western blot: Anti-ABCA1 antibody [AB.H10] ab18180 staining at 1/500 dilution, shown in green; Rabbit anti alpha Tubulin ab52866 loading control staining at 1/20000 dilution, shown in magenta. A band was observed at 254 kDa in Wild-type HAP1 UNBOILED cell lysates with no signal observed at this size in ABCA1 knockout HAP1 UNBOILED cell line. To generate this image, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 3% Milk in TBS-0.1 % Tween® 20 (TBS-T) before incubation with primary antibodies overnight at 4 °C. Blots were washed four times in TBS-T, incubated with secondary antibodies for 1 h at room temperature, washed again four times then imaged. Secondary antibodies used were Goat anti-Mouse 800CW and Goat anti-Rabbit 680RD at 1/20,000 dilution.
All lanes:
Western blot - Anti-ABCA1 antibody [AB.H10] (ab18180) at 1/500 dilution

Lane 1:
Wild-type HAP1 UNBOILED at 20 µg

Lane 2:
ABCA1 knockout HAP1 UNBOILED at 20 µg

Lane 3:
HepG2 UNBOILED at 20 µg

Lane 4:
Ramos UNBOILED at 20 µg

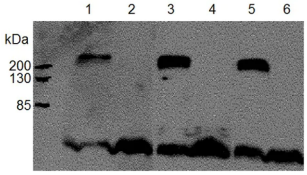
Secondary

All lanes:
Goat anti-Mouse 800CW & Goat anti-Rabbit 680RD at 1/20000 dilution

Performed under reducing conditions.

Predicted band size: 254 kDa

Observed band size: 254 kDa



Western blot - Anti-ABCA1 antibody [AB.H10] (ab18180)

ABCA1 Western blot staining using mouse Anti-ABCA1 antibody

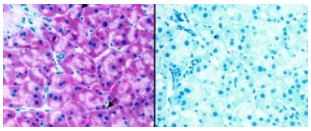
The lower bands are from the secondary anti-mouse antibody reacting to the endogenous mouse antibodies from the tissue.
All lanes:
Western blot - Anti-ABCA1 antibody [AB.H10] (ab18180) at 1/1000 dilution

Lanes 1, 3 and 5:
Wild type mouse liver tissue lysate at 100 µg

Lanes 2, 4 and 6:
Knockout mouse liver tissue lysate at 100 µg

Predicted band size: 254 kDa

Observed band size: 254 kDa



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ABCA1 antibody [AB.H10] (ab18180)

Immunoreactivity of pancreas tissue for ABCA1 protein. Left panel: strong immunopositivity of exocrine glandular cells of the pancreas, especially in the basal region (arrows). Interstitial microvascular cells are apparently negative. Cells within the islet were weakly positive (data not shown). Right panel: the negative control. Hematoxylin counterstain.

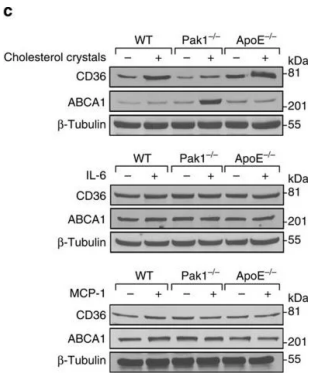


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Western Blotting using Anti-ABCA1 antibody [AB.H10]Anti-ABCA1 antibody [AB.H10], ab18180. Publication image from Rao, G. N. et al., 2015, Nat Commun, 26104863. Legend direct from paper.

The lack of Pak1 diminishes monocyte adhesion to the aorta.(a) Aortas from 24-week-old ApoE−/− mice were incubated with BCECF-labelled monocytes from C57BL/6 and Pak1−/− mice, and the adherent monocytes were observed under a fluorescent microscope and counted. (b) Aortas from ApoE−/− and ApoE−/−:Pak1−/− mice fed with WD for 16 weeks were incubated with BCECF-labelled monocytes from C57BL/6 mice and the adherent cells were observed under a fluorescent microscope and counted. (c) Peritoneal macrophages from WT, ApoE−/− and Pak1−/− mice were treated with and without cholesterol (40 μg ml−1), IL-6 (20 ng ml−1) or MCP-1 (50 ng ml−1) for 6 h and cell extracts were prepared. Equal amounts of protein from control and each treatment were analysed by western blotting for CD36 and ABCA1 levels using their specific antibodies and normalized for β-tubulin. Bar graphs in a and b represent three independent experiments with three mice per group per experiment. Data were presented as mean±s.d. and assessed by Student's t-test. *P<0.01 versus WT or ApoE−/− mice. Scale bars, 20 μm (a,b).

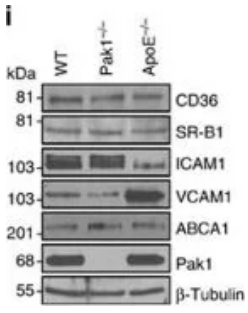


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Pak1 regulates SMC migration and lesion formation.Aortic SMCs from ApoE−/− and ApoE−/−:Pak1−/− mice fed with WD for 16 weeks were isolated, cultured and tested for their purity using anti-SMCα-actin antibodies (a), analysed for IL-6 expression by FACS (b) and subjected to wound-healing migration assay (c). (d) Aortic SMC extracts from ApoE−/− and ApoE−/−:Pak1−/− mice were analysed by western blotting for the indicated proteins using their specific antibodies. FACS analysis of CD36 expression (e) and Dil-OxLDL uptake (f) are shown. SMCs isolated from ApoE−/− and ApoE−/−:Pak1−/− mice fed with WD for 16 weeks were either incubated with OxLDL or Dil-OxLDL for 6 h and stained with Oil red O (g, left panel) or observed under fluorescent microscope (g, right panel), or subjected to cholesterol efflux (h) as described in Methods. (i) Extracts of SMCs isolated from WT, Pak1−/− and ApoE−/− mice fed with CD were analysed by western blotting for the indicated proteins using their specific antibodies. (j) SMCs from WT and Pak1−/− mice fed with CD were treated with OxLDL (10 μg ml−1) for the indicated time periods and RNA was isolated and analysed by qRT–PCR for IL-6 and MCP-1 levels. Bar graph in c represents quantification of three independent experiments. Bar graph in d represents the quantification of three western blottings each from a group of two pooled arteries. Data were presented as mean±s.d. and assessed by Student's t-test. *P<0.01 versus ApoE−/− mice; †P<0.01 versus WT vehicle control; #P<0.01 versus WT mice+OxLDL. Scale bars, 50 μm (a) and 100 and 50 μm (g, left and right panels, respectively).

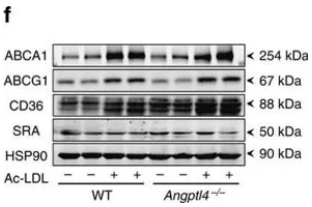


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ANGPTL4 deficiency promotes macrophage foam cell formation and apoptosis.(a) Representative pictures from WT and Angptl4−/− mouse peritoneal macrophages incubated with or without Ac-LDL (120 μg ml−1) for 24 h and stained with BODIPY 493/503 (1 μg ml−1) and DAPI (Green and blue, respectively). Scale bar, 5 μm. Quantification of the mean average intensity is in the right panel. (b) Total cholesterol content in peritoneal macrophages isolated from WT and Angptl4−/− mice incubated with or without Ac-LDL (120 μg ml−1) for 24 h. (c) Flow cytometry analysis of DiI-Ox-LDL binding in peritoneal macrophages incubated with DiI-Ox-LDL (30 μg cholesterol per ml) for 30 min at 4 °C. At the end of the incubation period, cells were washed and incubated in RPMI 10% FBS media for 15 min at 37 °C to allow the internalization. (d) Flow cytometry analysis of DiI-Ox-LDL uptake in peritoneal macrophages incubated with DiI-Ox-LDL (30 μg cholesterol per ml) for 2 h at 37 °C. The results are expressed in terms of specific MFI after subtracting auto-fluorescence of cells incubated in the absence of DiI-Ox-LDL. (e) Cholesterol efflux to apolipoprotein A1 (ApoA1) in peritoneal macrophages isolated from WT and Angptl4−/− mice stimulated with or without T0901317 (T090). (f) Western blot analysis of indicated proteins in peritoneal macrophages from WT and Angptl4−/− mice incubated with or without Ac-LDL (120 μg ml−1) for 24 h. (g) Western blot analysis (representative of three blots) of ABCA1 expression in WT and Angptl4−/− peritoneal macrophages incubated with Ac-LDL for 24 h. Surface ABCA1 was isolated using biotinylation followed by incubation with neutravidin. HSP90 is used as loading control (f and g). Full scans of westerns blots are provided in Supplementary Fig. 8. (h) Representative confocal images of mouse peritoneal macrophages from WT and Angptl4−/− mice incubated with Ac-LDL for 24 h and stained with cholera toxin B (CTxB), ABCA1 and DAPI. Quantification of co-localization of CTxB and ABCA1 is on the right panel. Scale bar, 10 μm. (i) Representative images of WT and Angptl4−/− macrophages cultured on coverslips and treated with or without Ac-LDL (120 μg ml−1) in combination with ACAT inhibitor (58035) for 24 h to induce lipid-loading-induced apoptosis (scale bars, 200 μm). Apoptosis was detected using Annexin-V staining. Right panel shows the quantification of percentage of apoptotic cells from four random fields from each cover slip. All data represent the mean±s.e.m. from at least three experiments in duplicate; *P<0.05 compared with WT macrophages by unpaired t-test. MFI, median intensity of fluorescence.

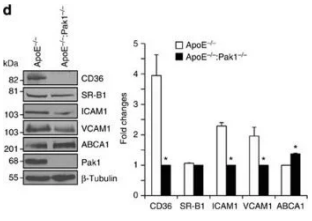


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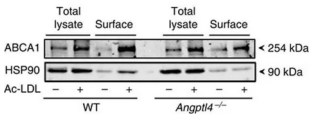


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