abcam

ab52607

Anti-Apolipoprotein E antibody [EP1374Y]

Anti-Apolipoprotein E antibody [EP1374Y] (ab52607) is a rabbit monoclonal antibody detecting Apolipoprotein E in **Western Blot, Flow Cytometry (Intra), IP, IHC-P, ICC/IF**. Suitable for **Human**.

- KO validated for confirmed specificity
- Biophysical QC for unrivalled batch-batch consistency
- Over 30 publications
- Trusted since 2007

Recombinant | RabMAb | KO Validated | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 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	EP1374Y
Purification technique	Affinity purification Protein A
Concentration	0.103 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	1/800
Notes	Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

ICC/IF

Tested

Species	Human
Dilution info	1/50
Notes	-

IP

Tested

Species	Human
Dilution info	1/20
Notes	-

WB

Tested

Species	Human
Dilution info	1/1000 - 1/10000
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/20
Notes	-

Target data

See full target information APOE

Function

APOE is an apolipoprotein, a protein associating with lipid particles, that mainly functions in lipoprotein-mediated lipid transport between organs via the plasma and interstitial fluids (PubMed:14754908, PubMed:1911868, PubMed:6860692). APOE is a core component of plasma lipoproteins and is involved in their production, conversion and clearance (PubMed:14754908, PubMed:1911868, PubMed:1917954, PubMed:23620513, PubMed:2762297, PubMed:6860692, PubMed:9395455). Apolipoproteins are amphipathic molecules that interact both with lipids of the lipoprotein particle core and the aqueous environment of the plasma (PubMed:2762297, PubMed:6860692, PubMed:9395455). As such, APOE associates with chylomicrons, chylomicron remnants, very low density lipoproteins (VLDL) and intermediate density lipoproteins (IDL) but shows a preferential binding to high-density lipoproteins (HDL) (PubMed:1911868, PubMed:6860692). It also binds a wide range of cellular receptors including the LDL receptor/LDLR, the LDL receptor-related proteins LRP1, LRP2 and LRP8 and the very low-density lipoprotein receptor/VLDLR that mediate the cellular uptake of the APOE-containing lipoprotein particles (PubMed:12950167, PubMed:1530612, PubMed:1917954, PubMed:20030366, PubMed:20303980, PubMed:2063194, PubMed:2762297, PubMed:7635945, PubMed:7768901, PubMed:8756331, PubMed:8939961). Finally, APOE also has a heparin-binding activity and binds heparan-sulfate proteoglycans on the surface of cells, a property that supports the capture and the receptor-mediated uptake of APOE-containing lipoproteins by cells (PubMed:23676495, PubMed:7635945, PubMed:9395455, PubMed:9488694). A main function of APOE is to mediate lipoprotein clearance through the uptake of chylomicrons, VLDLs, and HDLs by hepatocytes (PubMed:1911868, PubMed:1917954, PubMed:23676495, PubMed:29516132, PubMed:9395455). APOE is also involved in the biosynthesis by the liver of VLDLs as well as their uptake by peripheral tissues ensuring the delivery of triglycerides and energy storage in muscle, heart and adipose tissues (PubMed:2762297, PubMed:29516132). By participating in the lipoprotein-mediated distribution of lipids among tissues, APOE plays a critical role in plasma and tissues lipid homeostasis (PubMed:1917954, PubMed:2762297, PubMed:29516132). APOE is also involved in two steps of reverse cholesterol transport, the HDLs-mediated transport of cholesterol from peripheral tissues to the liver, and thereby plays an important role in cholesterol homeostasis (PubMed:14754908, PubMed:23620513, PubMed:9395455). First, it is functionally associated with ABCA1 in the biogenesis of HDLs in tissues (PubMed:14754908, PubMed:23620513). Second, it is enriched in circulating HDLs and mediates their uptake by hepatocytes (PubMed:9395455). APOE also plays an important role in lipid transport in the central nervous system, regulating neuron survival and sprouting (PubMed:25173806, PubMed:8939961). APOE is also involved in innate and adaptive immune responses, controlling for instance the survival of myeloid-derived suppressor cells (By similarity). Binds to the immune cell receptor LILRB4 (PubMed:30333625). APOE may also play a role in transcription regulation through a receptor-dependent and cholesterol-independent mechanism, that activates MAP3K12 and a non-canonical MAPK signal transduction pathway that results in enhanced AP-1-mediated transcription of APP (PubMed:28111074). (Microbial infection) Through its interaction with HCV envelope glycoprotein E2, participates in the attachment of HCV to HSPGs and other receptors (LDLr, VLDLr, and SR-B1) on the cell surface and to the assembly, maturation and infectivity of HCV viral particles (PubMed:25122793,

PubMed:29695434). This interaction is probably promoted via the up-regulation of cellular autophagy by the virus (PubMed:29695434).

Storage

Shipped at conditions	Conditional Ambient
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Storage information	Stable for 12 months at -20°C

Notes

What is this antibody validated in?
Anti-Apolipoprotein E antibody [EP1374Y] (ab52607) is a rabbit recombinant monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Intra), Immunoprecipitation (IP), Immunohistochemistry (IHC-P), Immunocytochemistry/immunofluorescence (ICC/IF) in Human samples.

What is the molecular weight of Apolipoprotein E?
Anti-Apolipoprotein E [EP1374Y] (ab52607) specifically detects a band for Apolipoprotein E (UniProt: P02649) at a molecular weight of 36kDa.

Trusted by the scientific community
Anti-Apolipoprotein E [EP1374Y] (ab52607) was first used in a scientific publication in 2007 and has been cited over 30 times in peer-reviewed journals.

Specificity confirmed
The specificity of Anti-Apolipoprotein E antibody [EP1374Y] (ab52607) has been confirmed by Western blot testing in APOE Knockout HEK293T cells.

Other related products
We have a range of other formats of antibody clone [EP1374Y] also available for your convenience: ab52607, Carrier free - ab184845, HRP - ab195855, Alexa Fluor® 647 - ab196194, Alexa Fluor® 488 - ab196463, Carrier free - ab271843

Trial sizes available!
Test your antibody or perform pre-screening before committing to a larger quantity. Sold in 20µl. Discover our selection of trial-size antibodies.

Species reactivity
Mouse, Rat: We have preliminary internal testing data to indicate this antibody may not react with these species. Please contact us for more information.

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	Apolipoprotein E (ApoE) also known as apolipoprotein e or apoE is a major protein involved in lipid metabolism. It has an approximate molecular weight of 34 kDa. This protein is mainly produced in the liver and brain where it plays a critical role in transporting lipoproteins fat-soluble vitamins and cholesterol. ApoE exists in three common isoforms: ApoE2 ApoE3 and ApoE4 each having different impacts on lipid binding and metabolic processes. Scientists often use an ApoE ELISA kit to quantify this protein in various samples providing insights into its expression in health and disease.
Biological function summary	ApoE mediates the binding internalization and catabolism of these lipoprotein particles facilitating their interaction with specific cell-surface receptors such as the LDL receptor. This protein operates as part of a complex that includes various other apolipoproteins and lipid molecules. The study of mouse apoe using tools like a mouse apoe ELISA provides valuable data due to its similar physiological functions in lipid transport and metabolism.
Pathways	In the lipid metabolism pathway ApoE interacts with proteins such as the LDL receptor influencing the clearance of chylomicron remnants and VLDL from the bloodstream. In the cardiovascular disease pathway this protein impacts cholesterol levels and promotes plaques stabilization. ApoE's role in these pathways offers insights into its interaction with related proteins like apolipoprotein B and LDL receptor which are critical for maintaining lipid equilibrium.
Associated diseases and disorders	In Alzheimer's disease ApoE4 isoform has a higher risk factor compared to ApoE3 and ApoE2 contributing to amyloid plaque formation through interactions with amyloid precursor protein. In cardiovascular diseases ApoE abnormalities influence atherosclerosis development with ApoE-deficient models showing increased susceptibility. ApoE's links to these diseases also connect it to other key proteins such as presenilin-1 in Alzheimer's disease and apolipoprotein B in cardiovascular disorders highlighting its extensive biological impact.

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

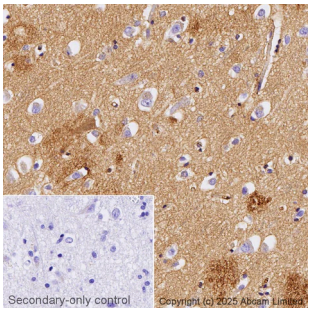
We do not recommend this combination. It is not covered by our product promise.

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.

12 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Apolipoprotein E antibody [EP1374Y] (ab52607)

Apolipoprotein E Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of human Alzheimer's brain tissue using rabbit Anti-Apolipoprotein E antibody

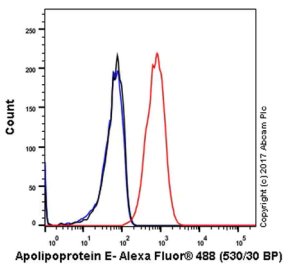
Immunohistochemical analysis of paraffin-embedded human Alzheimer's brain tissue* labelling APOE with ab52607 at 0.1ug/ml followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).
Positive staining in human Alzheimer's brain.

The section was incubated with ab52607 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Heat mediated antigen retrieval with sodium citrate buffer (pH 6.0 epitope retrieval solution1) for 20 mins.

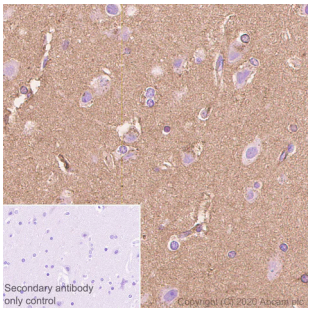
*Tissue obtained from the Human Research Tissue Bank, supported by the NIHR Cambridge Biomedical Research Centre.



Flow Cytometry (Intracellular) - Anti-Apolipoprotein E antibody [EP1374Y] (ab52607)

Apolipoprotein E Flow Cytometry (Intracellular) staining using rabbit Anti-Apolipoprotein E antibody

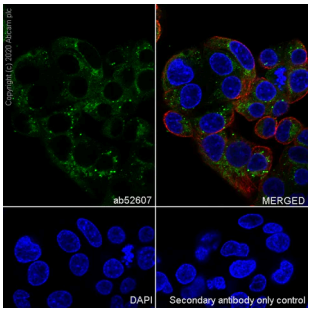
Intracellular Flow Cytometry analysis of HepG2 (Human hepatocellular carcinoma epithelial cell) cells labeling Apolipoprotein E (red) with purified ab52607 (Unpurified) at a 1/250 dilution (10ug/mL). Cells were fixed with 4% paraformaldehyde and permeabilized with 90% methanol. A goat anti rabbit IgG (Alexa Fluorr®488) (ab150077) was used as the secondary antibody at a 1/2000 dilution. Black - Rabbit monoclonal IgG (Black) (ab172730). Blue (unlabeled control) - Cell without incubation with primary antibody and secondary antibody (Blue).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Apolipoprotein E antibody [EP1374Y] (ab52607)

Apolipoprotein E Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Apolipoprotein E antibody

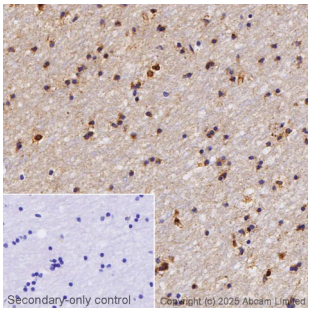
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of Human astrocytoma tissue sections labeling Apolipoprotein E with purified ab52607 at 1/800 dilution (0.13 µg/mL). Heat mediated antigen retrieval using Bond™ Epitope Retrieval Solution 2 (pH 9.0). The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) was used as the secondary antibody. Negative control: PBS instead of the primary antibody. Hematoxylin was used as a counterstain.



Immunocytochemistry/ Immunofluorescence - Anti-Apolipoprotein E antibody [EP1374Y] (ab52607)

Apolipoprotein E Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Apolipoprotein E antibody

Immunocytochemistry analysis of HepG2 (Human hepatocellular carcinoma epithelial cell) cells labeling Apolipoprotein E with Purified ab52607 at 1:50 dilution (2.0 µg/ml). Cells were fixed in 4% Paraformaldehyde and permeabilized with 0.1% tritonX-100. Cells were counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) 1:200 (2.5 µg/ml). Goat anti rabbit IgG (Alexa Fluor® 488,ab150077) was used as the secondary antibody at 1:1000 (2 µg/ml) dilution. DAPI (blue) was used as nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Apolipoprotein E antibody [EP1374Y] (ab52607)

Apolipoprotein E Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of human basal ganglia tissue using rabbit Anti-Apolipoprotein E antibody

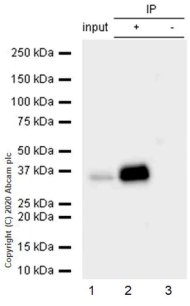
Immunohistochemical analysis of paraffin-embedded human basal ganglia tissue* labelling APOE with ab52607 at 0.1ug/ml followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).
Positive staining in human basal ganglia.

The section was incubated with ab52607 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Heat mediated antigen retrieval with sodium citrate buffer (pH 6.0 epitope retrieval solution1) for 20 mins.

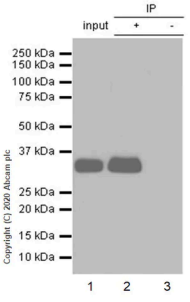
*Tissue obtained from the Human Research Tissue Bank, supported by the NIHR Cambridge Biomedical Research Centre.



Immunoprecipitation - Anti-Apolipoprotein E antibody [EP1374Y] (ab52607)

Purified ab52607 at 1/20 dilution (0.5µg) immunoprecipitating Apolipoprotein E in HepG2 whole cell lysate.
Lane 1 (input): HepG2 (Human hepatocellular carcinoma epithelial cell) whole cell lysate 10µg
Lane 2 (+): ab52607 + HepG2 whole cell lysate.
Lane 3 (-): Rabbit monoclonal IgG (ab172730) instead of ab52607 in HepG2 whole cell lysate.
VeriBlot for IP Detection Reagent (HRP) (ab131366) (1/5000 dilution) was used for Western blotting.
Blocking Buffer and concentration: 5% NFDM/TBST.
Diluting buffer and concentration: 5% NFDM/TBST.
Observed band size: 36 kDa
All lanes:
Immunoprecipitation - Anti-Apolipoprotein E antibody [EP1374Y] (ab52607)

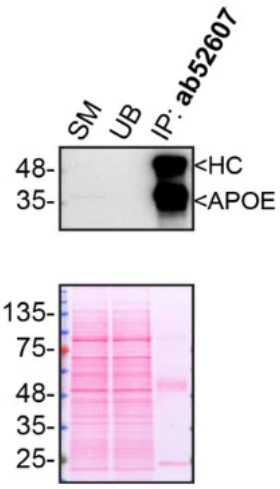
Predicted band size: 36 kDa



Immunoprecipitation - Anti-Apolipoprotein E antibody [EP1374Y] (ab52607)

Purified ab52607 at 1/20 dilution (0.5µg) immunoprecipitating Apolipoprotein E in Human serum.
Lane 1 (input): Human serum 10µg
Lane 2 (+): ab52607 + Human serum.
Lane 3 (-): Rabbit monoclonal IgG (ab172730) instead of ab52607 in Human serum.
VeriBlot for IP Detection Reagent (HRP) (ab131366) (1/1000 dilution) was used for Western blotting.
Blocking Buffer and concentration: 5% NFDM/TBST.
Diluting buffer and concentration: 5% NFDM/TBST.
Observed band size: 36 kDa
All lanes:
Immunoprecipitation - Anti-Apolipoprotein E antibody [EP1374Y] (ab52607)

Predicted band size: 36 kDa



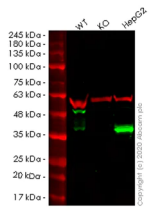
Immunoprecipitation - Anti-Apolipoprotein E antibody [EP1374Y] (ab52607)

Immunoprecipitation of APOE in HAP1 cells. Lysates were prepared and immunoprecipitation was performed using 2.0 µg of ab52607 pre-coupled to Protein A beads. Samples were then washed and processed for western blot

These data were provided by YCharOS Inc., an open science company with the mission of characterizing commercially available antibody reagents for all human proteins. Abcam and YCharOS are working together to help address the reproducibility crisis by enabling the life science community to better evaluate commercially available antibodies.

All lanes:
Immunoprecipitation - Anti-Apolipoprotein E antibody [EP1374Y] (ab52607) at 2 µg

All lanes:
HAP1 cells



Western blot - Anti-Apolipoprotein E antibody [EP1374Y] (ab52607)

Apolipoprotein E Western blot staining using rabbit Anti-Apolipoprotein E antibody

Lanes 1-3: Merged signal (red and green). Green - ab52607 observed at 36 kDa. Red - loading control ab7291 observed at 50 kDa.
ab52607 Anti-Apolipoprotein E antibody [EP1374Y] was shown to specifically react with Apolipoprotein E in wild-type HEK293T cells. Loss of signal was observed when knockout cell line ab266546 (knockout cell lysate ab256838) was used. Wild-type and Apolipoprotein E knockout samples were subjected to SDS-PAGE. ab52607 and Anti-alpha Tubulin antibody [DM1A] - Loading Control (ab7291) were incubated at room temperature for 2.5 hours at 1 in 1000 dilution and 1 in 20000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preadsorbed (ab216776) secondary antibodies at 1 in 20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-Apolipoprotein E antibody [EP1374Y] (ab52607) at 1/1000 dilution

Lane 1:
Wild-type HEK293T cell lysate at 20 µg

Lane 2:
APOE knockout HEK293T cell lysate at 20 µg

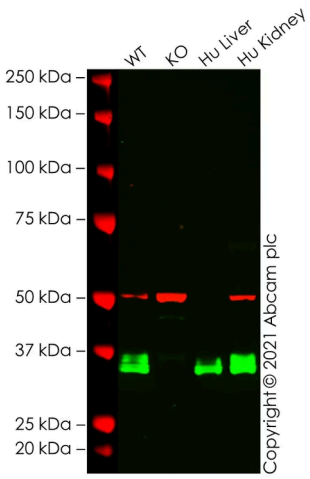
Lane 3:
HepG2 cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) at 1/10000 dilution

Predicted band size: 36 kDa

Observed band size: 36 kDa



Western blot - Anti-Apolipoprotein E antibody [EP1374Y] (ab52607)

Apolipoprotein E Western blot staining using rabbit Anti-Apolipoprotein E antibody

False colour image of Western blot: Anti-Apolipoprotein E antibody [EP1374Y] staining at 1/1000 dilution, shown in green; Mouse anti-Alpha Tubulin [DM1A] (ab7291) loading control staining at 1/20000 dilution, shown in red. In Western blot, ab52607 was shown to bind specifically to Apolipoprotein E. A band was observed at 34-37 kDa in wild-type HepG2 cell lysates with no signal observed at this size in APOE knockout cell line. To generate this image, wild-type and APOE knockout HepG2 cell lysates were analysed. First, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 5 % 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-Rabbit IgG H&L (IRDye® 800CW) preabsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preabsorbed (ab216776) at 1/20000 dilution.
All lanes:
Western blot - Anti-Apolipoprotein E antibody [EP1374Y] (ab52607) at 1/1000 dilution

Lane 1:
Wild-type HepG2 cell lysate at 20 µg

Lane 2:
APOE knockout HepG2 cell lysate at 20 µg

Lane 2:
Western blot - Human APOE knockout Hep G2 cell line (ab280875)

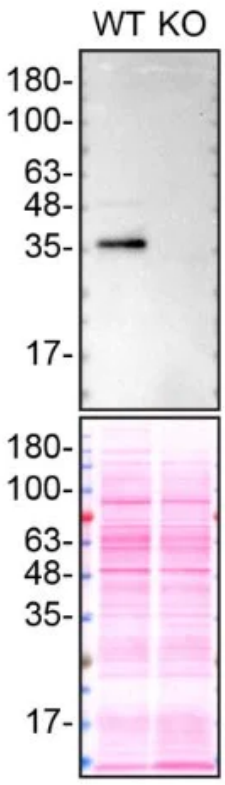
Lane 3:
Human Liver cell lysate at 20 µg

Lane 4:
Human Kidney cell lysate at 20 µg

Performed under reducing conditions.

Predicted band size: 36 kDa

Observed band size: 34 kDa, 34-37 kDa



Western blot - Anti-Apolipoprotein E antibody [EP1374Y] (ab52607)

Apolipoprotein E Western blot staining using rabbit Anti-Apolipoprotein E antibody

ab52607 was shown to react with APOE in wild-type HAP1 cells in Western blot with loss of signal observed in a APOE knockout cell line. Wild-type HAP1 and APOE knockout cell lysates were subjected to SDS-PAGE. Membranes were blocked in 5% milk in TBST for 1 hr before incubation with ab52607 overnight at 4 °C at a 1/1000 dilution. Blots were incubated with secondary antibodies at 0.2ug/mL before imaging.

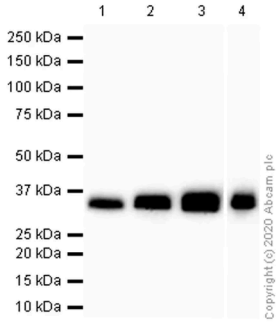
These data were provided by YCharOS Inc., an open science company with the mission of characterizing commercially available antibody reagents for all human proteins. Abcam and YCharOS are working together to help address the reproducibility crisis by enabling the life science community to better evaluate commercially available antibodies.

All lanes:
Western blot - Anti-Apolipoprotein E antibody [EP1374Y] (ab52607) at 1/1000 dilution

Lane 1:
Wild-type HAP1 lysate at 20 µg

Lane 2:
APOE Knockout HAP1 lysate at 20 µg

Observed band size: 36 kDa



Western blot - Anti-Apolipoprotein E antibody [EP1374Y] (ab52607)

All lanes:
Western blot - Anti-Apolipoprotein E antibody [EP1374Y] (ab52607) at 1/10000 dilution

Lane 1:
Human liver lysate at 20 µg

Lane 2:
Human cerebellum lysate at 20 µg

Lane 3:
HepG2 (Human hepatocellular carcinoma epithelial cell) whole cell lysate at 20 µg

Lane 4:
Human serum lysate at 15 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG (HRP) with minimal cross-reactivity with human IgG at 1/2000 dilution

Predicted band size: 36 kDa

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