abcam

ab51015

Anti-Apolipoprotein E antibody [EP1373Y]

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	EP1373Y
Purification technique	Affinity purification Protein A
Concentration	0.149 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	1/30
Notes	**For unpurified use at 1/70.**

WB

Tested

Species	Human
Dilution info	1/1000
Notes	**For unpurified use at 1/20000.**

ICC/IF

Tested

Species	Human
Dilution info	1/50
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/20
Notes	For unpurified use at 1/30. ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

IHC-P

Tested

Species	Human
Dilution info	1/100 - 1/250
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

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 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	Stable for 12 months at -20°C

Notes

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

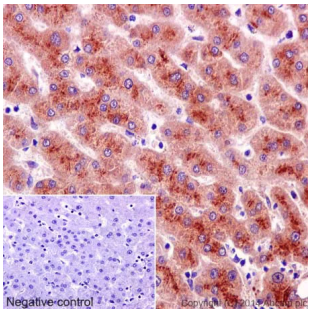
We do not recommend this combination. It is not covered by our product promise.

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.

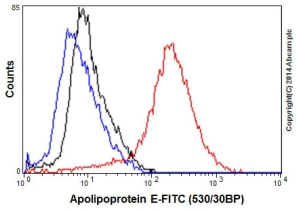
9 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Apolipoprotein E antibody [EP1373Y] (ab51015)

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

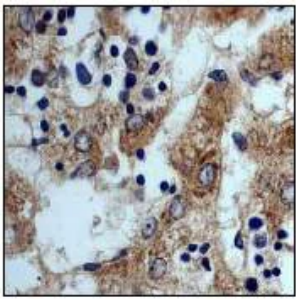
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human liver tissue labelling Apolipoprotein E with purified ab51015 at 1/100. Heat mediated antigen retrieval was performed using Tris/EDTA buffer pH 9. ab97051 a HRP-conjugated goat anti-rabbit IgG (H+L) was used as the secondary antibody. Negative control using PBS instead of primary antibody. Counterstained with hematoxylin.



Flow Cytometry (Intracellular) - Anti-Apolipoprotein E antibody [EP1373Y] (ab51015)

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

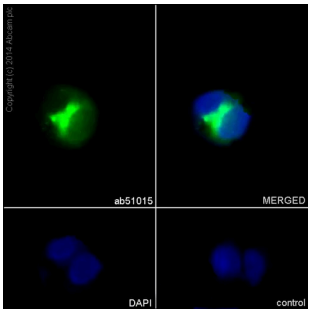
Intracellular Flow Cytometry analysis of 293T cells labelling Apolipoprotein E with purified ab51015 at 1/20 (red). Cells were fixed with 2% paraformaldehyde. A FITC-conjugated goat anti-rabbit IgG (1/150) was used as the secondary antibody. Black - Isotype control, rabbit monoclonal IgG. Blue - Unlabelled control, cells without incubation with primary and secondary antibodies.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Apolipoprotein E antibody [EP1373Y] (ab51015)

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

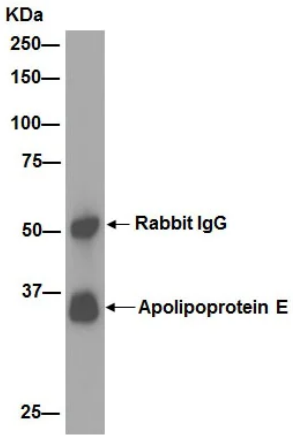
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human fetal liver tissue labelling Apolipoprotein with unpurified ab51015 at 1/100.
Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Immunocytochemistry/ Immunofluorescence - Anti-Apolipoprotein E antibody [EP1373Y] (ab51015)

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

Immunocytochemistry/Immunofluorescence analysis of HepG2 cells labelling Apolipoprotein E with purified ab51015 at 1/50. Cells were fixed with 4% paraformaldehyde and permeabilized with 0.1% Triton X-100. An Alexa Fluor® 488-conjugated goat anti-rabbit IgG (1/500) was used as the secondary antibody. DAPI (blue) was used as the nuclear counterstain.
Control: primary antibody (1/100) and secondary antibody ab150120 an Alexa Fluor® 594-conjugated goat anti-mouse IgG (1/500).



Immunoprecipitation - Anti-Apolipoprotein E antibody [EP1373Y] (ab51015)

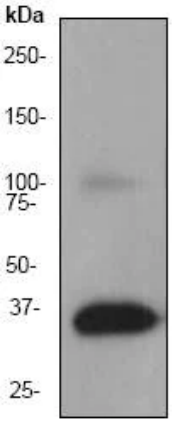
ab51015 (purified) at 1/30 immunoprecipitating Apolipoprotein in human fetal liver tissue lysate. For western blotting, a peroxidase-conjugated goat anti-rabbit IgG (H+L) was used as the secondary antibody (1/1000).
Blocking buffer and concentration: 5% NFDM/TBST.

Diluting buffer and concentration: 5% NFDM /TBST.

All lanes:
Immunoprecipitation - Anti-Apolipoprotein E antibody [EP1373Y] (ab51015)

Predicted band size: 36 kDa

Observed band size: 36 kDa



Western blot - Anti-Apolipoprotein E antibody [EP1373Y] (ab51015)

All lanes:
Western blot - Anti-Apolipoprotein E antibody [EP1373Y] (ab51015) at 1/10000 dilution

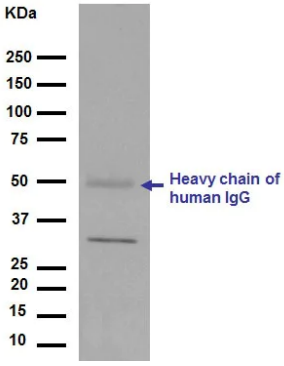
All lanes:
Human serum at 10 µg

Secondary

All lanes:
Goat anti-rabbit HRP labelled at 1/2000 dilution

Predicted band size: 36 kDa

Observed band size: 36 kDa



Western blot - Anti-Apolipoprotein E antibody [EP1373Y] (ab51015)

Blocking buffer and concentration: 5% NFDM/TBST.
Diluting buffer and concentration: 5% NFDM /TBST.

All lanes:
Western blot - Anti-Apolipoprotein E antibody [EP1373Y] (ab51015) at 1/1000 dilution

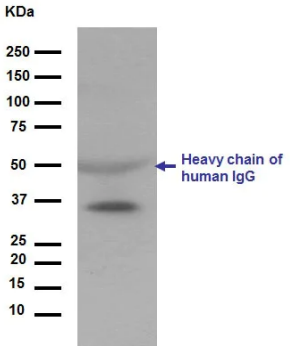
All lanes:
Human fetal liver tissue lysate at 20 µg

Secondary

All lanes:
Peroxidase-conjugated goat anti-rabbit IgG (H+L) at 1/1000 dilution

Predicted band size: 36 kDa

Observed band size: 36 kDa



Western blot - Anti-Apolipoprotein E antibody [EP1373Y] (ab51015)

Blocking buffer and concentration: 5% NFDM/TBST.
Diluting buffer and concentration: 5% NFDM /TBST.

All lanes:
Western blot - Anti-Apolipoprotein E antibody [EP1373Y] (ab51015) at 1/10000 dilution

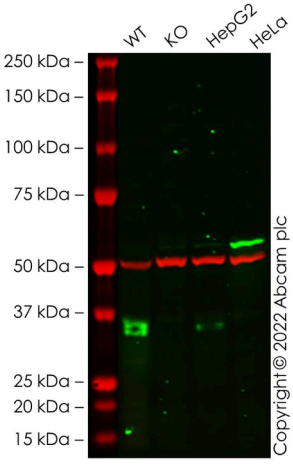
All lanes:
Human serum at 20 µg

Secondary

All lanes:
Peroxidase-conjugated goat anti-rabbit IgG (H+L) at 1/1000 dilution

Predicted band size: 36 kDa

Observed band size: 36 kDa



Western blot - Anti-Apolipoprotein E antibody [EP1373Y] (ab51015)

False colour image of Western blot: Anti-Apolipoprotein E antibody [EP1373Y] 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, ab51015 was shown to bind specifically to Apolipoprotein E. A band was observed at 32-35 kDa in wild-type HepG2 cell lysates with no signal observed at this size in APOE knockout cell line ab280758 (knockout cell lysate ab282991). 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 800CW and Goat anti-Mouse IgG H&L 680RD at 1/20000 dilution.
All lanes:
Western blot - Anti-Apolipoprotein E antibody [EP1373Y] (ab51015) 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 3:
HepG2 cell lysate at 20 µg

Lane 4:
HeLa cell lysate at 20 µg

Secondary

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

Performed under reducing conditions.

Predicted band size: 36 kDa

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