

**Goat Anti-APOE Antibody**  
Peptide-affinity purified goat antibody  
Catalog # AF1082a

## Specification

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### Goat Anti-APOE Antibody - Product Information

Application	IHC, WB
Primary Accession	<a href="#">P02649</a>
Other Accession	<a href="#">NP_000032</a> , <a href="#">348</a>
Reactivity	Human
Host	Goat
Clonality	Polyclonal
Concentration	100ug/200ul
Isotype	IgG
Calculated MW	36154

### Goat Anti-APOE Antibody - Additional Information

**Gene ID** 348

#### Other Names

Apolipoprotein E, Apo-E, APOE

#### Format

0.5 mg IgG/ml in Tris saline (20mM Tris pH7.3, 150mM NaCl), 0.02% sodium azide, with 0.5% bovine serum albumin

#### Storage

Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.

#### Precautions

Goat Anti-APOE Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

### Goat Anti-APOE Antibody - Protein Information

**Name** APOE ([HGNC:613](#))

#### 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](http://www.uniprot.org/citations/14754908), PubMed: [1911868](http://www.uniprot.org/citations/1911868), PubMed: [6860692](http://www.uniprot.org/citations/6860692)). APOE is a core component of plasma lipoproteins and is involved in their production, conversion and clearance (PubMed: [14754908](http://www.uniprot.org/citations/14754908))

target="\_blank">14754908</a>, PubMed:<a href="http://www.uniprot.org/citations/1911868" target="\_blank">1911868</a>, PubMed:<a href="http://www.uniprot.org/citations/1917954" target="\_blank">1917954</a>, PubMed:<a href="http://www.uniprot.org/citations/23620513" target="\_blank">23620513</a>, PubMed:<a href="http://www.uniprot.org/citations/2762297" target="\_blank">2762297</a>, PubMed:<a href="http://www.uniprot.org/citations/6860692" target="\_blank">6860692</a>, PubMed:<a href="http://www.uniprot.org/citations/9395455" target="\_blank">9395455</a>). Apolipoproteins are amphipathic molecules that interact both with lipids of the lipoprotein particle core and the aqueous environment of the plasma (PubMed:<a href="http://www.uniprot.org/citations/2762297" target="\_blank">2762297</a>, PubMed:<a href="http://www.uniprot.org/citations/6860692" target="\_blank">6860692</a>, PubMed:<a href="http://www.uniprot.org/citations/9395455" target="\_blank">9395455</a>). 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:<a href="http://www.uniprot.org/citations/1911868" target="\_blank">1911868</a>, PubMed:<a href="http://www.uniprot.org/citations/6860692" target="\_blank">6860692</a>). 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:<a href="http://www.uniprot.org/citations/12950167" target="\_blank">12950167</a>, PubMed:<a href="http://www.uniprot.org/citations/1530612" target="\_blank">1530612</a>, PubMed:<a href="http://www.uniprot.org/citations/1917954" target="\_blank">1917954</a>, PubMed:<a href="http://www.uniprot.org/citations/20030366" target="\_blank">20030366</a>, PubMed:<a href="http://www.uniprot.org/citations/20303980" target="\_blank">20303980</a>, PubMed:<a href="http://www.uniprot.org/citations/2063194" target="\_blank">2063194</a>, PubMed:<a href="http://www.uniprot.org/citations/2762297" target="\_blank">2762297</a>, PubMed:<a href="http://www.uniprot.org/citations/7635945" target="\_blank">7635945</a>, PubMed:<a href="http://www.uniprot.org/citations/7768901" target="\_blank">7768901</a>, PubMed:<a href="http://www.uniprot.org/citations/8756331" target="\_blank">8756331</a>, PubMed:<a href="http://www.uniprot.org/citations/8939961" target="\_blank">8939961</a>). Finally, APOE has also 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:<a href="http://www.uniprot.org/citations/23676495" target="\_blank">23676495</a>, PubMed:<a href="http://www.uniprot.org/citations/7635945" target="\_blank">7635945</a>, PubMed:<a href="http://www.uniprot.org/citations/9395455" target="\_blank">9395455</a>, PubMed:<a href="http://www.uniprot.org/citations/9488694" target="\_blank">9488694</a>). A main function of APOE is to mediate lipoprotein clearance through the uptake of chylomicrons, VLDLs, and HDLs by hepatocytes (PubMed:<a href="http://www.uniprot.org/citations/1911868" target="\_blank">1911868</a>, PubMed:<a href="http://www.uniprot.org/citations/1917954" target="\_blank">1917954</a>, PubMed:<a href="http://www.uniprot.org/citations/23676495" target="\_blank">23676495</a>, PubMed:<a href="http://www.uniprot.org/citations/29516132" target="\_blank">29516132</a>, PubMed:<a href="http://www.uniprot.org/citations/9395455" target="\_blank">9395455</a>). 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:<a href="http://www.uniprot.org/citations/2762297" target="\_blank">2762297</a>, PubMed:<a href="http://www.uniprot.org/citations/29516132" target="\_blank">29516132</a>). By participating in the lipoprotein-mediated distribution of lipids among tissues, APOE plays a critical role in plasma and tissues lipid homeostasis (PubMed:<a href="http://www.uniprot.org/citations/1917954" target="\_blank">1917954</a>, PubMed:<a href="http://www.uniprot.org/citations/2762297" target="\_blank">2762297</a>, PubMed:<a href="http://www.uniprot.org/citations/29516132" target="\_blank">29516132</a>). 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:<a href="http://www.uniprot.org/citations/14754908" target="\_blank">14754908</a>, PubMed:<a href="http://www.uniprot.org/citations/23620513" target="\_blank">23620513</a>, PubMed:<a href="http://www.uniprot.org/citations/9395455" target="\_blank">9395455</a>). First, it is functionally associated with ABCA1 in the biogenesis of HDLs in tissues (PubMed:<a

[14754908](http://www.uniprot.org/citations/14754908), PubMed: [23620513](http://www.uniprot.org/citations/23620513)). Second, it is enriched in circulating HDLs and mediates their uptake by hepatocytes (PubMed: [9395455](http://www.uniprot.org/citations/9395455)). APOE also plays an important role in lipid transport in the central nervous system, regulating neuron survival and sprouting (PubMed: [25173806](http://www.uniprot.org/citations/25173806)), PubMed: [8939961](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/28111074)).

### Cellular Location

Secreted. Secreted, extracellular space. Secreted, extracellular space, extracellular matrix. Extracellular vesicle. Endosome, multivesicular body. Note=In the plasma, APOE is associated with chylomicrons, chylomicrons remnants, VLDL, LDL and HDL lipoproteins (PubMed:1911868, PubMed:8340399). Lipid poor oligomeric APOE is associated with the extracellular matrix in a calcium- and heparan-sulfate proteoglycans-dependent manner (PubMed:9488694) Lipidation induces the release from the extracellular matrix (PubMed:9488694). Colocalizes with CD63 and PMEL at exosomes and in intraluminal vesicles within multivesicular endosomes

### Tissue Location

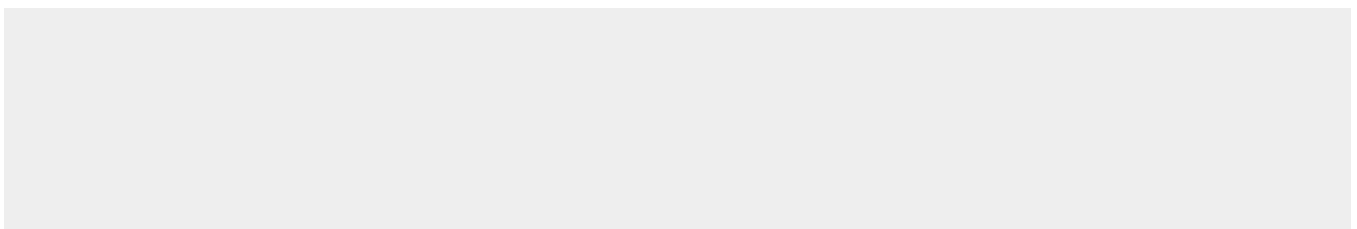
Produced by several tissues and cell types and mainly found associated with lipid particles in the plasma, the interstitial fluid and lymph (PubMed:25173806). Mainly synthesized by liver hepatocytes (PubMed:25173806). Significant quantities are also produced in brain, mainly by astrocytes and glial cells in the cerebral cortex, but also by neurons in frontal cortex and hippocampus (PubMed:10027417, PubMed:3115992). It is also expressed by cells of the peripheral nervous system (PubMed:10027417, PubMed:25173806). Also expressed by adrenal gland, testis, ovary, skin, kidney, spleen and adipose tissue and macrophages in various tissues (PubMed:25173806)

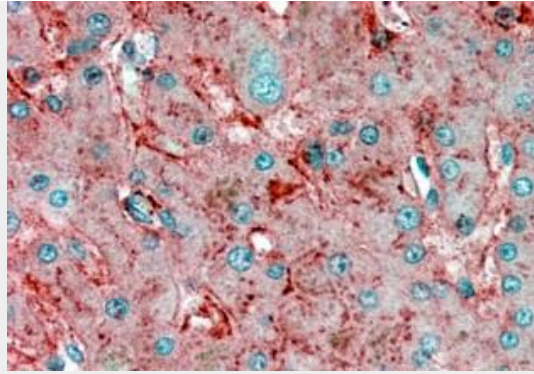
### Goat Anti-APOE Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

### Goat Anti-APOE Antibody - Images





AF1082a (2.5 µg/ml) staining of paraffin embedded Human Liver. Steamed antigen retrieval with citrate buffer pH 6, AP-staining.



AF1082a (0.1 µg/ml) staining of Human Brain lysate (35 µg protein in RIPA buffer). Primary incubation was 1 hour. Detected by chemiluminescence.

### Goat Anti-APOE Antibody - Background

Chylomicron remnants and very low density lipoprotein (VLDL) remnants are rapidly removed from the circulation by receptor-mediated endocytosis in the liver. Apolipoprotein E, a main apoprotein of the chylomicron, binds to a specific receptor on liver cells and peripheral cells. ApoE is essential for the normal catabolism of triglyceride-rich lipoprotein constituents. The APOE gene is mapped to chromosome 19 in a cluster with APOC1 and APOC2. Defects in apolipoprotein E result in familial dysbetalipoproteinemia, or type III hyperlipoproteinemia (HLP III), in which increased plasma cholesterol and triglycerides are the consequence of impaired clearance of chylomicron and VLDL remnants.

### Goat Anti-APOE Antibody - References

- Isoform of APOE with retained intron 3; quantitation and identification of an associated single nucleotide polymorphism. Dieter LS, et al. *Mol Neurodegener*, 2010 Sep 7. PMID 20822524.
- The APOE varepsilon4 allele modulates brain white matter integrity in healthy adults. Heise V, et al. *Mol Psychiatry*, 2010 Sep 7. PMID 20820167.
- Prevalence of mild cognitive impairment is higher in men. The Mayo Clinic Study of Aging. Petersen RC, et al. *Neurology*, 2010 Sep 7. PMID 20820000.
- Testosterone modifies the effect of APOE genotype on hippocampal volume in middle-aged men. Panizzon MS, et al. *Neurology*, 2010 Sep 7. PMID 20819998.
- Polymorphisms in Glutathione S-Transferase Omega-1 Gene and Increased Risk of Sporadic Alzheimer Disease. Capurso C, et al. *Rejuvenation Res*, 2010 Sep 6. PMID 20818931.