

Apolipoprotein E/APOE3 Protein, Human, Recombinant (His & Trx)

General Information

Synonyms:	LPG; apolipoprotein E; ApoE4; APO-E; LDLCQ5; AD2
Protein Construction:	A DNA sequence encoding the human APOE (P02649) (Lys 19-His 317) was fused with a Trx tag at the N-terminus. Predicted N terminal: Met
Species:	Human
Expression Host:	E. coli
Accession:	P02649
Molecular Weight:	51.3 kDa (predicted); 46 kDa (reducing conditions)

QC Testing

Biological Activity:	Loaded Recombinant Human TREM-2 Protein, hFc Tag (Cat#TMPY-06566) on proA Biosensor, can bind Recombinant Human Apolipoprotein E/APOE Protein, isoform E3, His & Trx Tag (Cat#TMPY-05297) with an affinity constant of 33.6 nM as determined in BLI assay (Sartorius Octet RED384) (Routinely tested).
Purity:	> 75 % as determined by SDS-PAGE
Endotoxin:	Please contact us for more information.
Formulation:	Supplied as sterile PBS, 40% glycerol, pH 7.4.

Preparation and Storage

Reconstitution:	A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.
Stability & Storage:	It is recommended to store the product under sterile conditions at -20°C to -80°C. Samples are stable for up to 12 months. Please avoid multiple freeze-thaw cycles and store products in aliquots. <small>Actual storage temperature shall be subject to the COA.</small>
Shipping:	Proteins are shipped with blue ice.

Protein Background

Apolipoprotein E (ApoE) is a 34.2 kDa glycosylated protein with 299 amino acid residues. There are three isoforms in human (apoE2, apoE3, and apoE4) due to different amino acid residues at positions 112 and 158. ApoE is synthesized predominantly in the liver, but also by cells in the spleen, brain, lung, kidney, ovary, adrenal, and muscle tissues. Hepatic parenchyma cells are the main apoE producing cells in mammalian body, probably accounting for two thirds to three fourths of the plasma apoE. In the nervous system, apoE mRNA is present in neurons, astrocytes, ependymal cells, nonmyelinating Schwann cells, but not in microglia, oligodendroglia,

choroidal cells, or myelinating Schwann cells. ApoE produced by mammalian cells exists in different forms, monomers, dimers, modified, unmodified, lipid-rich, and lipid-poor, and so forth. ApoE plays a double-role in immune responses. Both apoE containing lipoproteins and multimers of synthetic apoE peptides inhibited proliferation of cultured lymphocytes by inhibiting DNA synthesis and reducing phospholipid turnover in T cells. ApoE can also affect innate and acquired immune responses in vitro by its ability to suppress stimulation of cultured neutrophils. ApoE can bind lipopolysaccharide (LPS), attenuate the inflammatory response, and thus reduce LPS induced lethality. Injection of LPS stimulated higher expression of inflammatory cytokines like interleukin (IL)-1 β , IL-12, and interferon- γ (IFN- γ), as well as IL-6.

Reference

- Mahley RW. (1988) Apolipoprotein E: cholesterol transport protein with expanding role in cell biology. *Science*. 240 (4852): 622-30.
- Aleshkov S, et al. (1989) Interaction of nascent apoE2, apoE3, and apoE4 isoforms expressed in mammalian cells with amyloid peptide. Relevance to Alzheimer's disease. *Biochemistry*. 36(34): 10571-80.
- Hussain MM, et al. (1997) Synthesis, modification, and flotation properties of rat hepatocyte apolipoproteins. *Biochimica et Biophysica Acta*. 101(1): 90-101.

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