Active Recombinant Human ApoE R2, CF

Cat. No. LRP8-64H **Lot. No.** (See product label)

SPECIFICATION

Product Overview	A DNA sequence encoding the signal peptide from human CD33 joined with the extracellular domain of human ApoE R2 sequence (Ala 32 - Lys 818) (Accession # Q14114, with one variant Val 262 replacing Ala 262) was fused with a 10X histidine tag at the carboxyl-terminus. The chimeric protein was expressed in a Chinese hamster ovary cell line.
Species	Human
Source	CHO
ProteinLength	32-818 a.a.
Description	ApoE R2, also known as LRP8, is an LDL receptor family protein that is involved in nervous system development and function.1, 2 Human ApoE R2 has a 794 aa extracellular domain (ECD) and a 116 aa cytoplasmic region. The ECD contains seven LDLR class A repeats followed by two EGF-like repeats, five LDLR class B repeats, and a region rich in O-linked glycosylation. Alternatively spliced variants of human ApoE R2 have deletions of LDLR-A repeats # 4 - 7, the O-linked glycosylation region, or approximately half of the cytoplasmic domain.3 Cleavage of ApoE R2 by γ-secretase, metalloproteases, and furin-like enzymes results in the liberation of the cytoplasmic, extracellular, and ligand binding domains.4 - 6 The cytoplasmic NPxY motif binds to PTB domain-containing adaptor proteins.7 - 10 Among these, FE65 and PSD95 couple ApoE R2 with APP or the NMDA receptor, respectively.9, 10 ApoE R2 and NMDA receptor ligands modulate adaptor interactions, NMDA-mediated

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	ion currents, and the proteolytic processing of both ApoE R2 and APP.9 - 12 ApoE R2 and the NMDA receptor also associate extracellularly.10 ApoE R2 binds ApoE-containing lipoproteins and the large modular protein, reelin.13 Reelin signaling through ApoE R2 is critical for neuronal migration and positioning in the developing brain.13 In the adult brain, ApoE R2 functions in hippocampal synapse maturation, synaptic plasticity, and memory formation.7, 11, 14, 15 ApoE R2 is also expressed at the neuromuscular junction but does not appear to participate in the development or function of that structure.16 Deficits in ApoE R2, reelin, and ApoE function have been linked to several cognitive and mood disorders.1 Within the ECD, human ApoE R2 shares 89% aa sequence identity with mouse and rat ApoE R2. It shares 46% and 48% aa sequence identity with human LDL R and VLDL R, respectively
Bio-activity	Measured by its ability to compete with biotinylated rhApoE R2 for binding to rmReelin in a functional ELISA type binding assay. Optimal dilutions should be determined by each laboratory for each application.
Molecular Mass	Based on N-terminal amino acid sequencing, the recombinant human ApoE R2/His protein starts at Asp 35 and has a predicted molecular mass of approximately 87.5 kDa. As a result of glycosylation, the recombinant monomer migrates as a 140 - 150 kDa protein o
Endotoxin	< 1.0 eu per 1 μg of the enzyme as determined by the lal
Purity	>90%, as determined by SDS-PAGE and visualized by silver stain.
Storage	Samples are stable for up to six months at -70° C in a manual defrost freezer after the date of receipt. After receiving, this protein can be aliquoted and stored at above temperature for up to six months without a significant loss of activity.

GENE INFORMATION

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Gene Name	LRP8 low density lipoprotein receptor-related protein 8, apolipoprotein e receptor [Homo sapiens]
Official Symbol	LRP8
Synonyms	LRP8; low density lipoprotein receptor-related protein 8, apolipoprotein e receptor; low-density lipoprotein receptor-related protein 8; APOER2; ApoE receptor 2; MCI1; LRP-8; HSZ75190;
Gene ID	7804
mRNA Refseq	NM_001018054
Protein Refseq	NP_001018064
MIM	602600
UniProt ID	Q14114
Chromosome Location	1p32.3
Pathway	Hemostasis, organism-specific biosystem; Lissencephaly gene (LIS1) in neuronal migration and development, organism-specific biosystem; Platelet homeostasis, organism-specific biosystem; Platelet sensitization by LDL, organism-specific biosystem; Reelin signaling pathway, organism-specific biosystem;
Function	apolipoprotein E binding; calcium ion binding; protein binding; receptor activity; transmembrane signaling receptor activity; very-low-density lipoprotein particle receptor activity;

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