



# SZABO SCANDIC

Part of Europa Biosite

## Produktinformation



Forschungsprodukte & Biochemikalien



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Diagnostik & molekulare Diagnostik



Laborgeräte & Service

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# PRODUCT INFORMATION



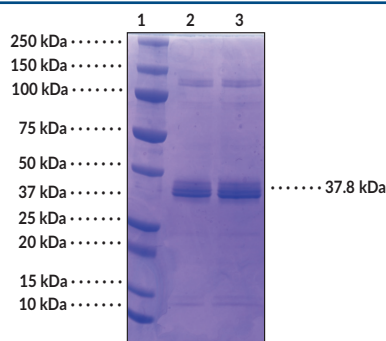
## ApoE4 (human, recombinant) Item No. 37227

### Overview and Properties

**Synonym:** Apolipoprotein E4  
**Source:** Active recombinant human C-terminal His-tagged ApoE4 expressed in HEK293 cells  
**Amino Acids:** 19-317  
**Uniprot No.:** P02649  
**Molecular Weight:** 37.8 kDa  
**Storage:** -80°C (as supplied)  
**Stability:** ≥6 months  
**Purity:** ≥70% estimated by SDS-PAGE  
**Supplied in:** 50 mM HEPES, pH 7.4, with 150 mM sodium chloride and 10% glycerol  
**Protein Concentration:** *batch specific* mg/ml

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

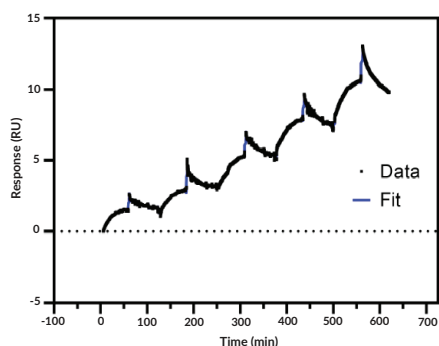
### Images



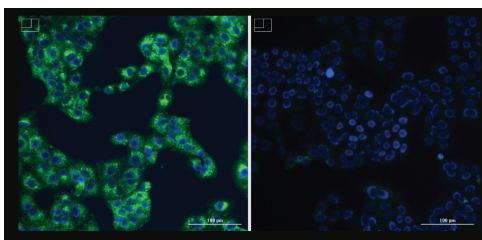
Lane 1: MW Markers  
Lane 2: ApoE4 (2 µg)  
Lane 3: ApoE4 (4 µg)

SDS-PAGE Analysis of ApoE4.

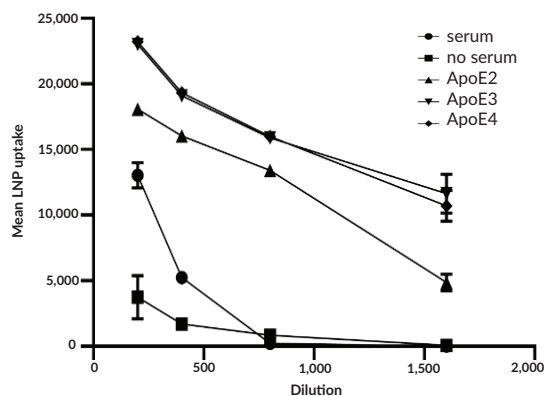
Representative gel image shown; actual purity may vary between each batch.



ApoE4 binds TREM2. ApoE4 binds TREM2 with hundred-nanomolar affinity. TREM2 (Fc-tagged) immobilized on Protein G chip and SPR analysis was used to determine ApoE4 binding affinity on a Biocore™ T200, using single-cycle kinetics with five concentrations of ApoE4.



ApoE4 activity in cell-based assay. ApoE4 (right) increases the uptake of SM-102 (LNP-102; Item No. 33474) compared with no serum (left).



Fluorescent lipid nanoparticles with SM-102 (LNP-102; Item No. 33474) were diluted in media with 10% serum, no serum, or different ApoE proteins (Item Nos. 37225 | 37226 | 37227) at 1 µg/ml. A549 lung epithelial cells were incubated with diluted SM-102 samples, washed, and stained with Hoechst 33342 dye for nuclei. The cells were imaged on a Cytation V imaging plate reader and analyzed for mean per-cell BODIPY fluorescence, as a measure of LNP uptake.

**WARNING**  
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

**SAFETY DATA**  
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

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# PRODUCT INFORMATION



## Description

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ApoE is a member of the superfamily of amphiphilic exchangeable apolipoproteins and a lipid carrier protein with a major role in lipid homeostasis.<sup>1,2</sup> It is expressed in astrocytes, hepatocytes, monocytes, macrophages, and kidney cells and exists as three major polymorphic alleles, ApoE2, ApoE3, and ApoE4, which occur in the United States population with frequencies of approximately 7, 79, and 14%, respectively. ApoE is composed of an N-terminal domain, which contains sequences for binding to members of the LDL receptor family, and a C-terminal domain, containing the major lipid-binding region, linked by an unstructured hinge region, which facilitates domain mobility essential to protein function.<sup>1</sup> Upon lipid binding, ApoE undergoes a conformational change that orients the  $\alpha$ -helices of the C-terminal domain perpendicular to the acyl chains of the bound lipids to stabilize the bound lipids and facilitates recognition and binding to LDL receptors by the N-terminal domain. ApoE isoforms vary at amino acids 130 and 176 (112 and 158, respectively, in the mature protein) with ApoE2 containing cysteine at 130 and 176, ApoE3 containing cysteine at 130 and arginine at 176, and ApoE4 containing arginine at 130 and 176. The lack of cysteine residues in ApoE4 inhibits dimerization and multimerization observed with ApoE3 and ApoE2, respectively. ApoE4 is associated with smaller lipoproteins that promote less cholesterol efflux than ApoE3-containing lipoproteins, and APOE4-expressing astrocytes accumulate smaller lipid droplets than those expressing APOE3.<sup>3,4</sup> It is associated with increased amyloid- $\beta$  production and accumulation, as well as impaired episodic memory and global cognition in adults over the age of 60.<sup>2,5</sup> APOE4 expression is positively correlated with earlier disease onset, faster disease progression, and increased brain atrophy in patients with Alzheimer's disease.<sup>5</sup> Cayman's ApoE4 (human, recombinant) protein can be used for cell-based assays.

## References

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2. Petros, A.M., Korepanova, A., Jakob, C.G., *et al.* Fragment-based discovery of an apolipoprotein E4 (apoE4) stabilizer. *J. Med. Chem.* **62(8)**, 4120-4130 (2019).
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