

Recombinant Mouse TLR4 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP51949

Size: 10ug, 100ug

Protein Name: Toll-like receptor 4 (CD antigen CD284)

Synonym: Tlr4, Lps

UniProt ID: Q9QUK6

UniProt Link: www.uniprot.org/uniprotkb/Q9QUK6/entry

Species Source: Mouse

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 835 AA

Molecular Weight: 96 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MMPPWLLARTLIMALFFSCLTPGSLNPCIEVVPNITYQCMDQKLSKVPDDIPSSTKNIDLSFNPLKILKS
YSFSNFSELQWLDLSRCEIETIEDKAWHGLHHLSNLILTGNPIQSFSFGSGLTSLENLVAVETKLAS
LESFPIGQLITLKKLNVAHNFIHSCKLPAFYFNLTLNVHVDLSYNYIQTITVNDLQFLRENQVNLSDM
SLNPIDFIQDQAFQGIGLHELTLRGNFNSSNIMKTCLQNLAGLHVHRLILGEFKDERNLEIFEPSIMEGL
CDVTIDEFRLTYTNDFSDDIVKFHCLANVSAMSLAGVSIKYLEDPKHFQWQSLSIIRCQLKQFPTLDL
PFLKSLTLMNKGSIKVALPSLSYLDLSRNALSFSGCCSYSDLGTNSLRHLDLSFNNGAIIMSANFM
GLEELQHLDLDFQHSTLKRVTESAFSLSEKLLYLDISYNTNTKIDFDGIFLGLTSLNLTLMAGNSFKDNTLS
NVFANTTNLTFLDLSKCQLEQISWGVFDTLHRLQLLNMSHNNLLFLDSSHYNQLYSLSTLDCSFNRIE
TSKGILQHFPKSLAFFNLTNNSVACICEHQKFLQWVKEQKQFLVNVEQMTCATPVEMNTSLVLDENN
STCYMYKTIISVSVSVVSVVSTVAFLIYHFYFHLILIAAGCKKYSRGESIYDAFVIYSSQNEDWVRNELVKN
LEEGVPRFHLCLHYRDFIPGVAIAANIIQEGFHKSARKVIVVSRHFIQSRWCIFEYEAQTWQFLSSRS
GIIFIVLEKVEKSLLRQQVELYRLLSRNTYLEWEDNPLGRHIFWRRLKNALLDGKASNPEQTAEQQE
TATWT

3. Buffer Composition



Liquid format: PBS-based buffer containing 50% glycerol. Glycerol concentration can be customized upon customer request; please state special requirements when placing your order.

Lyophilized format: Buffer before lyophilization is PBS supplemented with 6% trehalose.

4. Storage Conditions

Upon receipt, store the product at -20 °C or -80 °C. Aliquot the product for on-demand use to preserve protein activity and prevent denaturation and inactivation caused by repeated freeze-thaw cycles.

5. Product Description

This product is recombinant Toll-like receptor 4 (CD antigen CD284) produced using the HEK293T eukaryotic cell expression system. It is suitable for in-vitro functional assays, protein-protein interaction studies, antibody preparation and other biomedical research applications.

Protein Function: Transmembrane receptor that functions as a pattern recognition receptor recognizing pathogen- and damage-associated molecular patterns (PAMPs and DAMPs) to induce innate immune responses via downstream signaling pathways (PubMed:20133493, PubMed:9851930, PubMed:9989976). At the plasma membrane, cooperates with LY96 to mediate the innate immune response to bacterial lipopolysaccharide (LPS) (PubMed:20133493, PubMed:9851930, PubMed:9989976). Also involved in LPS-independent inflammatory responses triggered by free fatty acids, such as palmitate, and Ni(2+). Mechanistically, acts via MYD88, TIRAP and TRAF6, leading to NF-kappa-B activation, cytokine secretion and the inflammatory response (PubMed:24380872). Alternatively, CD14-mediated TLR4 internalization via endocytosis is associated with the initiation of a MYD88-independent signaling via the TICAM1-TBK1-IRF3 axis leading to type I interferon production. In addition to the secretion of proinflammatory cytokines, initiates the activation of NLRP3 inflammasome and formation of a positive feedback loop between autophagy and NF-kappa-B signaling cascade. In complex with TLR6, promotes inflammation in monocytes/macrophages by associating with TLR6 and the receptor CD86. Upon ligand binding, such as oxLDL or amyloid-beta 42, the TLR4:TLR6 complex is internalized and triggers inflammatory response, leading to NF-kappa-B-dependent production of CXCL1, CXCL2 and CCL9 cytokines, via MYD88 signaling pathway, and CCL5 cytokine, via TICAM1 signaling pathway. In myeloid dendritic cells, vesicular stomatitis virus glycoprotein G but not LPS promotes the activation of IRF7, leading to type I IFN production in a CD14-dependent manner (By similarity).; (Microbial infection) Required for the virulence of fungus *C.neoformans* var. *grubii* serotype A (strain KN99) CPL1 (PubMed:35896747). Independently of Ly96/Md2, activated by CPL1 which results in a type 2 inflammation response characterized by Arg1/arginase-1 induction in interstitial macrophages (PubMed:35896747).; (Microbial infection) Mediates activation of bone marrow-derived dendritic cells and macrophages, and production of pro-inflammatory cytokines, such as IL12 (IL12B/IL12A), triggered by *Toxoplasma gondii* micronemal protein 4 (MIC4) and micronemal protein 1 (MIC1) (PubMed:31226171). Mediates production of anti-inflammatory cytokine IL10 triggered by *Toxoplasma gondii* micronemal protein 4 (MIC4) and micronemal protein 1 (MIC1) in murine bone marrow-derived macrophages (PubMed:33912181).

Subcellular Localization: Cell membrane ; Single-pass type I membrane protein . Early endosome . Cell projection, ruffle . Note=Upon complex formation with CD36 and TLR6, internalized through dynamin-dependent endocytosis. Colocalizes with RFTN1 at cell membrane and then together with RFTN1 moves to endosomes, upon lipopolysaccharide stimulation.; Note=(Microbial infection) Endocytosed upon interaction with fungus *C.neoformans* var. *grubii* serotype A (strain KN99) CPL1 at the macrophage cell surface.

6. Notes

- Avoid repeated freeze-thaw cycles to maintain protein stability and biological activity.
- Please specify special buffer- composition requirements at the time of order placement.
- For research use only. Not intended for clinical diagnosis, therapeutic use or commercial manufacturing.