



Recombinant Human MD-2/LY96

20180823DS



FOR RESEARCH ONLY! NOT FOR HUMAN USE!

Cat.-no.:	100-443
Size:	50 µg
Lot. No.:	According to product label

Sequence

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QKQYWVCNSS DASISYTYCD KMQYPISINV NPCIELKGSK
GLLHIFYIPR RDLKQLYFNL YITVNTMNLK KRKEVICRGS
DDYSFCRAL KGETVNTTIS FSKFKIKFSK GKYKCVVEAI
SGSPEEMLFC LEFVILHQPN SNHHHHHH

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Database References

Protein RefSeq:	NP_056179.3
Uniprot ID:	Q9Y6Y9
mRNA RefSeq:	NM_015364.4

Scientific Background

Gene-ID (NCBI):	23643
Synonyms:	Myeloid differentiation protein-2; Lymphocyte antigen 96; ESPO-1; LY96; MD2; MD-2; ly-96

Myeloid differentiation protein-2 (MD-2), also referred to as LY69, is an accessory glycoprotein secreted in hematopoietic, nervous, and reproductive tissues at various stages of development where it regulates innate immune responses to microbial pathogens through interaction with the extracellular domains of TLR-2 and TLR-4. The association of MD-2 with the extracellular domain of TLR-4, which is constitutively expressed in cells of the immune system, localizes TLR-4 to the cell surface and forms the TLR-4/MD-2 receptor complex necessary for signal transduction in response to inflammatory signals. The activation of TLR-4/MD-2 begins with the detection of LPS by circulating LPS-Binding Protein (LBP), which in turn facilitates an association between LPS and CD14 for the formation of a CD14/LPS complex that transports and presents LPS to the TLR-4/MD-2 signaling complex, and culminates in the activation of downstream signaling events. MD-2's possession of two dedicated functional domains allows for its simultaneous interaction with both TLR-4 and LPS, the major cell wall component of gram-negative bacteria that acts as the key ligand for TLR-4. Response to LPS is an intricate process that involves several co-stimulatory molecules, including myeloid differentiation factor 88 (MyD88), NF-κB, LBP, and CD14, in addition to TLR-4 and MD-2, and results in the secretion of proinflammatory cytokines and chemokines from the NF-κB, Wnt/β-catenin, and mitogen-activated protein kinase (MAPK) pathways. MD-2 interacts with TLR-2 in a similar, albeit far weaker, manner to initiate immune response to cell wall components of both gram-negative and gram-positive bacteria. Once secreted, MD-2 can polymerize into a heterogeneous collection of large, disulfide-linked oligomers that are each able to bind several TLR-4 molecules, resulting in large clusters localized to the cell surface prior to activation. The HEK293 cell-derived Recombinant Human MD-2/LY96 is a disulfide-linked homodimer whose monomer contains 148 amino acid residues, including a C-terminal His tag, and has a calculated molecular weight of 17.2 kDa.

Product Specifications

Expressed in	HEK 293 cells
Purity	≥ 90% by SDS-PAGE gel and HPLC analyses
Tag	His-Tag
Formulation	lyophilized
Length (aa):	148
MW:	17.2 kDa



AVOID REPEATED FREEZE AND THAW CYCLES!

Biological Activity: Determined by its ability to bind rhMD-2 in a functional ELISA.