

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived			
	Human MD-1 (Gly21 - Ser162) Accession # O95711	IEGR	GGSGGSGGS	10-His tag
	N-terminus		C-terminus	

N-terminal Sequence Gly21

Analysis

Predicted Molecular Mass 32.5 kDa

SPECIFICATIONS

SDS-PAGE	28 kDa, reducing conditions
Activity	Measured by its ability to bind rmRP105/Fc Chimera in a functional ELISA.
Endotoxin Level	<1.0 EU per 1 µg of the protein by the LAL method.
Purity	>90%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100 µg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	<p>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</p> <ul style="list-style-type: none"> • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 3 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

MD-1 is a secreted glycoprotein that was originally identified as a *v-myb*-regulated gene from avian myeloleukemia virus-transformed chicken myeloblasts. MD-1 homologues were subsequently cloned from human and mouse. MD-1 was found to be a molecule that is associated with RP105, a type I transmembrane glycoprotein with extracellular leucine-rich repeats (LRR) typically found in Toll-like receptor (TLR) family members. However, RP105 has a short cytoplasmic tail and lacks the Toll-IL-1 R (TIR) domain that defines the IL-1 R/TLR superfamily (1 - 3). RP105 plays an important role in B-cell activation by bacterial lipopolysaccharide (LPS). It is expressed primarily on mature B cells, dendritic cells and macrophages (3).

Human MD-1 cDNA encodes a 162 amino acid (aa) residue precursor protein with a putative 19 aa signal peptide and two potential N-linked glycosylation sites. It shares 38% and 66% amino acid sequence identity with chicken and mouse MD-1 respectively (1, 2). MD-1 is mainly expressed in spleen, and also detectable in liver, brain, thymus, and kidney. MD-1 is required for efficient RP105 cell surface expression and function (1 - 4). Cell surface RP105/MD-1 complex, in conjunction with TLR4, mediates the innate immune response to LPS in B cells. Activation of the RP105 complex has been shown to protect against apoptosis, induce B-cell proliferation and upregulate B7.2, a co-stimulatory molecule (4, 5). Since MD-1 is also expressed in liver and brain where RP105 is absent, it has been speculated that MD-1 can also be associated with other LRR-containing molecules, or have additional functions outside the immune system (5).

References:

1. Miyake, K. *et al.* (1998) J. Immun. **161**:1348.
2. Miura, Y. *et al.* (1998) Blood **92**:2815.
3. Miyake, K. *et al.* (1995) J. Immunol. **154**:3333.
4. Nagai, Y. *et al.* (2002) Blood **99**:1699.
5. Ogata, H. *et al.* (2000) J. Exp. Med. **192**:23.