### DESCRIPTION

**Source**
Mouse myeloma cell line, NS0-derived
Glu24-Lys631, with a C-terminal Ser and 10-His tag
Accession # O00206

**N-terminal Sequence Analysis**
Glu24

**Predicted Molecular Mass**
70.6 kDa

### SPECIFICATIONS

**SDS-PAGE**
90-95 kDa, reducing conditions

**Activity**
Measured by its binding ability in a functional ELISA.
When Recombinant Human (rh) TLR4 is Immobilized at 2 μg/mL (100 μL/well), the concentration of rhMD2 that produces 50% optimal binding response is found to be approximately 0.03-0.15 μg/mL.

**Endotoxin Level**
<0.10 EU per 1 μg of the protein by the LAL method.

**Purity**
>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.

**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 PBS.

**Shipping**
The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

**Stability & Storage**
- Use a manual defrost freezer and avoid repeated freeze-thaw cycles.
  - 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

TLR4 is a 100 kDa type I transmembrane glycoprotein that belongs to the mammalian Toll-Like Receptor family of pathogen pattern recognition molecules. The complex of TLR4 with MD2 functions as a critical receptor for bacterial endotoxin/lipopolysaccharide (LPS) (1-3). Mature human TLR4 consists of a 608 amino acid (aa) extracellular domain (ECD), a 21 aa transmembrane segment, and a 187 aa cytoplasmic domain. TLR4 contains 21 leucine rich repeats in its ECD and one cytoplasmic Toll/IL-1 receptor (TIR) domain (4). The ECD of human TLR4 shares approximately 25% aa sequence identity with other human TLRs and 60%-74% aa sequence identity with bovine, equine, feline, mouse, rat, and porcine TLR4. On monocytes, macrophages, dendritic cells, and B cells, MD-2 expression is required for cell surface localization of TLR4 and for optimal LPS-induced TLR4 signaling (5-8). MD-2 also forms soluble disulfide-linked homo-oligomers which can interact with TLR4 (6). Through a domain separate from its TLR4-binding domain, MD-2 extracts LPS from circulating CD14-LPS complexes and carries the LPS into a ternary complex with TLR4 (9-11). The interaction of MD-2-LPS with TLR4 induces receptor oligomerization and the triggering of an inflammatory response (2, 12). Increased levels of plasma MD-2 in septic shock patients sensitizes MD-2 non-expressing epithelial cells to LPS and promotes widespread tissue inflammation (13).

**References:**