Recombinant Human TLR4

Catalog Number: 1478-TR

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 MD-2 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:

1. Miyake, K. (2004) Semin. Immunol. **16**:11.
2. Verstrepen, L. *et al.* (2008) Cell. Mol. Life Sci. **65**:2964.
3. Erridge, C. (2010) J. Leukoc. Biol. **87**:989.
4. Medzhitov, R. *et al.* (1997) Nature **388**:394.
5. Shimazu, R. *et al.* (1999) J. Exp. Med. **189**:1777.
6. Visintin, A. *et al.* (2001) Proc. Natl. Acad. Sci. **98**:12156.
7. Akashi, S. *et al.* (2000) J. Immunol. **164**:3471.
8. Nagai, Y. *et al.* (2002) Nat. Immunol. **3**:667.
9. Re, F. and J.L. Strominger (2003) J. Immunol. **171**:5272.
10. Kennedy, M.N. *et al.* (2004) J. Biol. Chem. **279**:34698.
11. Gioannini, T.L. *et al.* (2004) Proc. Natl. Acad. Sci. **101**:4186.
12. Saitoh, S. *et al.* (2004) J. Endotoxin Res. **10**:257.
13. Pugin, J. *et al.* (2004) Blood **104**:4071.

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