Human TLR4 Antibody

Monoclonal Mouse IgG_{2B} Clone # 285227

Catalog Number: MAB1478

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human TLR4 in direct ELISAs and Western blots. Shows approximately 25% cross-reactivity with recombinant mouse (rm) TLR4 and no cross-reactivity with recombinant human TLR1, 2, 3, or rmTLR6.
Source	Monoclonal Mouse IgG_{2B} Clone # 285227
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Mouse myeloma cell line NS0-derived recombinant human TLR4 Glu24-Lys631 Accession # O00206
Formulation	Lyophilized from a 0.2 μm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied either lyophilized or as a 0.2 μm filtered solution in PBS.

APPLICATIONS

Please Note: *Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.*

	Recommended Concentration	Sample
Western Blot	1 µg/mL	Recombinant Human TLR4/MD-2 Complex (Catalog # 3146-TM)

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.5 mg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
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. ● 6 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. MD-2, also known as ESOP-1, is a 25 kDa secreted protein that is required for TLR4-mediated responses to bacterial lipopolysaccharide (LPS) (1-3). The human TLR4 cDNA encodes an 839 amino acid (aa) precursor that contains a 23 aa signal sequence, a 608 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 TLRs and 60-74% aa sequence identity with bovine, equine, feline, mouse, rat, and porcine TLR4. The human MD-2 cDNA encodes a 160 aa precursor with an 18 aa signal sequence (5). Human MD-2 shares 20% aa sequence identity with MD-1 and 62-64% aa sequence identity with bovine, mouse, and rat MD-2. MD-2 associates with TLR4 on monocytes, macrophages, dendritic cells, and B cells (5-7). MD-2 expression is required for cell surface localization of TLR4 and for optimal LPS-induced TLR4 signaling (7, 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 (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. Gangloff, M. and N.J. Gay (2004) Trends Biochem. Sci. **29**:294.
2. Palsson-McDermott, E.M. and L.A. O'Neill (2004) Immunology **113**:153.
3. Miyake, K. (2004) Semin. Immunol. **16**:11.
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. USA **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. USA **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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