

MAb hTLR1

Purified monoclonal antibody to human TLR1

Catalog # mab-htrl1

For research use only, not for diagnostic or therapeutic use

Version # 06E22-MT

PRODUCT INFORMATION

Content

100 µg purified monoclonal anti-hTLR1 antibody (MAb-hTLR1), provided lyophilized

Clone: GD2.F4

Isotype: Mouse IgG1

Formulation: PBS pH 7.4, 0.05% sodium azide

Antibody resuspension

Add 1 ml of sterile water to obtain a concentration of 0.1 mg/ml.

Storage

- Product is shipped at room temperature. Store lyophilized MAb-hTLR1 at -20°C. Product is stable for 1 year.

- Resuspended MAb-hTLR1 is stable up to 1 year when stored at -20°C.

Description

MAb hTLR1 (GD2.F4) is a monoclonal antibody specific for human Toll-like receptor 1 (TLR1, CD281). MAb hTLR1 has been tested by flow cytometric analysis of human peripheral blood leukocytes.

BACKGROUND

Toll-Like receptors (TLRs) play a critical role in early innate immunity to invading pathogens by sensing microorganisms. These evolutionary conserved receptors recognize highly conserved structural motifs only expressed by microbial pathogens, called pathogen-associated microbial patterns (PAMPs). Stimulation of TLRs by PAMPs initiates a signaling cascade leading to the secretion of proinflammatory cytokines following NF-κB activation. To date ten human and twelve murine TLRs have been characterized, TLR1 to TLR10 in humans, and TLR1 to TLR9, TLR11, TLR12 (aka TLR11) and TLR13 in mice, the homolog of TLR10 being a pseudogene.

TLR1 is predominantly expressed in the spleen and peripheral blood cells. No direct ligands have been identified so far for TLR1, and its function remains unclear. TLR1 seems to act as a coreceptor for TLR2. TLR1 and TLR2 form heterodimeric complexes on the cell surface and in the cytosol¹. TLR1 and TLR2 were shown to cooperate in recognizing *Borrelia burgdorferi* outer-surface protein A lipoprotein OspA². They also interact to recognize the 19-kD mycobacterial lipopeptide and several synthetic triacylated lipopeptides³, but not diacylated lipopeptides. This suggests that TLR1 is able to discriminate among lipoproteins by recognizing the lipid configuration⁴.

APPLICATIONS

MAb hTLR1 (GD2.F4) can be used for flow cytometry. Furthermore, MAb TLR1 is useful for neutralization of TLR1, it blocks cellular activation induced by agonists that are recognized by TLR1 and TLR1, such as Pam3CSK4 .

Applications tested

MAb hTLR1 has been tested in neutralizing experiments.

Neutralization experiments were performed in cells that naturally express or were transfected to express human TLR1 and TLR2, such as HEK293 or THP1 cells. These cells were further transfected with pNiFty-SEAP, a plasmid that expresses a secreted embryonic alkaline phosphatase (SEAP) gene under the control of an NF-κB-inducible ELAM-1 (E-selectin) promoter⁵. Transfected cells were incubated with 10-100 ng/ml MAb hTLR1 (GD2.F4) and a control MAb TLR for 10 min prior to the addition of 5 ng/ml Pam3CSK4. Neutralization of TLR1 signaling by MAb hTLR1 was determined after 24 hour incubation by assessing NF-κB-induced SEAP production using HEK-Blue™ Detection. HEK-Blue™ Detection is a SEAP detection cell culture medium that turns blue following TLR stimulation but remains pink if neutralization occurs. SEAP levels can be assessed by the naked eye or spectrophotometrically by reading the OD at 655 nm.

References

1. Sandor F. *et al.*, 2003. Importance of extra- and intracellular domains of TLR1 and TLR2 in NFκappa B signaling. *J Cell Biol.* 2003 Sep 15;162(6):1099-110.
2. Alexopoulou L. *et al.*, 2002. Hyporesponsiveness to vaccination with *Borrelia burgdorferi* OspA in humans and in TLR1- and TLR2-deficient mice. *Nat Med.* 8(8):878-84.
3. Takeuchi O. *et al.*, 2002. Cutting edge: role of toll-like receptor 1 in mediating immune response to microbial lipoproteins. *J Immunol.* 169(1):10-4.
4. Takeuchi O. *et al.*, 2001. Discrimination of bacterial lipoproteins by Toll-like receptor 6. *Int Immunol.* 13(7):933-40.
5. Schindler U. & Baichwal VR., 1994. Three NF-κB binding sites in the human E-selectin gene required for maximal tumor necrosis factor alpha-induced expression. *Mol Cell Biol.* 14(9):5820-5831.

RELATED PRODUCTS

Product	Catalog Code
MAb hTLR2 (polyclonal)	mab-htrl2
PAb hTLR1 (polyclonal)	pab-htrl1
293/hTLR2	293-htrl2
pDUO-hTLR1/2	pduo-htrl2
pNiFty-SEAP	pnifty-seap
HEK-Blue™ Detection	hb-det-1
Pam3CSK4	trl1-pms

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