abcam

ab95563

PE Anti-TLR4 antibody [MTS510]

Anti-TLR4 antibody [MTS510] conjugated to PE - suitable for flow cytometry, and reacts with mouse samples. Clone [MTS510] is a rat monoclonal antibody cited in 42 publications.

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Key facts

Isotype	IgG2a
Host species	Rat
Conjugation	PE
Excitation/Emission	Ex: 480;565nm, Em: 578nm
Storage buffer	pH: 7.2 Preservative: 0.09% Sodium azide Constituents: PBS, 0.87% Sodium chloride
Form	Liquid
Clonality	Monoclonal
Immunogen	Native Full Length Protein corresponding to Mouse Tlr4. Database link Q9QUK6
Clone number	MTS510
Purification technique	Affinity purification Protein G
Specificity	The MTS510 monoclonal antibody co-immunoprecipitates MD-2 (~30 kDa) and TLR4 (~100 kDa), and preferentially reacts with TLR4 that is associated with MD-2.
Light chain type	kappa
Concentration	0.2 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Flow Cyt

Tested

Species	Mouse
Dilution info	0.5 µg for 10^5-10^8 Cells
Notes	Staining the cell sample in a final volume of 100 µL is recommended. ab134674 - Rat monoclonal IgG2a, is suitable for use as an isotype control with this antibody.

Target data

See full target information Tlr4

Function

Transmembrane receptor that functions as a pattern recognition receptor recognizing pathogen- and damage-associated molecular patterns (PAMPs and DAMPs) to induce innate immune responses via downstream signaling pathways (PubMed:20133493, PubMed:9851930, PubMed:9989976). At the plasma membrane, cooperates with LY96 to mediate the innate immune response to bacterial lipopolysaccharide (LPS) (PubMed:20133493, PubMed:9851930, PubMed:9989976). Also involved in LPS-independent inflammatory responses triggered by free fatty acids, such as palmitate, and Ni(2+). Mechanistically, acts via MYD88, TIRAP and TRAF6, leading to NF-kappa-B activation, cytokine secretion and the inflammatory response (PubMed:24380872). Alternatively, CD14-mediated TLR4 internalization via endocytosis is associated with the initiation of a MYD88-independent signaling via the TICAM1-TBK1-IRF3 axis leading to type I interferon production. In addition to the secretion of proinflammatory cytokines, initiates the activation of NLRP3 inflammasome and formation of a positive feedback loop between autophagy and NF-kappa-B signaling cascade. In complex with TLR6, promotes inflammation in monocytes/macrophages by associating with TLR6 and the receptor CD86. Upon ligand binding, such as oxLDL or amyloid-beta 42, the TLR4:TLR6 complex is internalized and triggers inflammatory response, leading to NF-kappa-B-dependent production of CXCL1, CXCL2 and CCL9 cytokines, via MYD88 signaling pathway, and CCL5 cytokine, via TICAM1 signaling pathway. In myeloid dendritic cells, vesicular stomatitis virus glycoprotein G but not LPS promotes the activation of IRF7, leading to type I IFN production in a CD14-dependent manner (By similarity). (Microbial infection) Required for the virulence of fungus C.neoformans var. grubii serotype A (strain KN99) CPL1 (PubMed:35896747). Independently of Ly96/Md2, activated by CPL1 which results in a type 2 inflammation response characterized by Arg1/arginase-1 induction in interstitial macrophages (PubMed:35896747). (Microbial infection) Mediates activation of bone marrow-derived dendritic cells and macrophages, and production of pro-inflammatory cytokines, such as IL12 (IL12B/IL12A), triggered by Toxoplasma gondii micronemal protein 4 (MIC4) and micronemal protein 1 (MIC1) (PubMed:31226171). Mediates production of anti-inflammatory cytokine IL10 triggered by Toxoplasma gondii micronemal protein 4 (MIC4) and micronemal protein 1 (MIC1) in murine bone marrow-derived macrophages (PubMed:33912181).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	Toll-like receptor 4 (TLR4) is a membrane protein involved in the innate immune response. It serves as a receptor that recognizes pathogen-associated molecular patterns such as lipopolysaccharides from bacterial cell walls. Often referred to by its alternate names TLR-2 and CD284 this protein has a molecular weight of approximately 95 kDa. TLR4 is mainly expressed on the surface of immune cells like macrophages and dendritic cells enabling these cells to detect and respond to microbial invaders effectively.
Biological function summary	TLR4 plays an important role in activating the immune system. It forms a complex with myeloid differentiation factor 2 (MD-2) to facilitate binding to its ligands. Upon activation TLR4 triggers a signaling cascade that leads to the release of pro-inflammatory cytokines and interferons which are important for initiating the immune response. This early detection mechanism alerts the immune system to the presence of pathogens allowing the body to mount a defense.
Pathways	TLR4 participates in the nuclear factor kappa-light-chain-enhancer of activated B cells (NF-κB) and mitogen-activated protein kinase (MAPK) signaling pathways. These pathways are central to the inflammatory response with TLR4 acting as a sensor that activates downstream components like the MyD88 and TRIF proteins. These interactions result in the expression of genes that produce cytokines and enzymes involved in inflammation and immunity.
Associated diseases and disorders	TLR4 has been implicated in the development of sepsis and atherosclerosis. In sepsis TLR4 recognizes lipopolysaccharides from bacterial infections which can cause excessive inflammation if uncontrolled. In atherosclerosis TLR4 receptors on vascular cells respond to endogenous ligands such as oxidized low-density lipoproteins contributing to plaque formation. The TLR4 interaction with proteins like CD14 and MD-2 is significant as it influences the inflammatory pathways that exacerbate these conditions.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

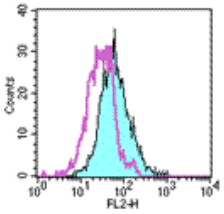
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1 product image



Flow Cytometry - PE Anti-TLR4 antibody [MTS510] (ab95563)

TLR4 Flow Cytometry staining using rat Anti-TLR4 antibody

Staining of 3-day thioglycolate-induced BALB/c macrophages with 0.25 µg of Rat IgG2a Isotype Control PE (open histogram) or 0.25 µg of ab95563 (filled histogram). Cells were pre-incubated with Anti-Mouse CD16/CD32. Total viable cells were used for analysis.

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