abcam

ab8376

Anti-TLR4 antibody [HTA125]

Key facts

Isotype	IgG2a
Host species	Mouse
Storage buffer	Preservative: 0.09% Sodium azide Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Cell preparation containing TLR4 protein. The exact immunogen used to generate this antibody is proprietary information. Database link O00206
Clone number	HTA125
Purification technique	Affinity purification Protein G
Specificity	This antibody recognises the human Toll like receptor 4 (TLR4) cell surface antigen. TLR4 has been demonstrated to act as alpha receptor for LPS on human monocytes and macrophages. TLR4 signalling of LPS stimulation requires the presence of the MD-2 molecule.TLR4 is weakly expressed by resting cells, but is upregulated following stimulation with LPS. We do not guarantee WB since we receive variable results from our customers and cannot make this antibody work in our hands in WB in denaturing and reducing conditions. The immunogen is a full-length immunogen so we suspect that to get the product to work in WB, non-reducing or native WB could be a better option. THP1 monocytes or macrophage are good positive controls and HeLa/Hek293 should be suitable negative/low expression controls. Membrane preparation may be better that whole cell as expression levels may not be that high in some samples. We welcome any further feedback in WB by participating to our AbTrial program.
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Expected

Species	Rat, Guinea pig, Pig, Rhesus monkey, Human
Dilution info	Use at an assay dependent concentration.
Notes	-

Flow Cyt

Tested

Species	Human
Dilution info	1/10 - 1/25
Notes	Use 10µl of the suggested working dilution to label 106 cells or 100ul whole blood. Method sheets are available on request. ab170191 - Mouse monoclonal IgG2a, is suitable for use as an isotype control with this antibody.

Predicted

Species	Rat, Rhesus monkey, Pig, Guinea pig
Dilution info	-
Notes	-

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:10835634, PubMed:15809303, PubMed:16622205, PubMed:17292937, PubMed:17478729, PubMed:20037584, PubMed:20711192, PubMed:23880187, PubMed:27022195, PubMed:29038465, PubMed:17803912, PubMed:15852007). At the plasma membrane, cooperates with LY96 to mediate the innate immune response to bacterial lipopolysaccharide (LPS) (PubMed:27022195). Also involved in LPS-independent inflammatory responses triggered by free fatty acids, such as palmitate, and Ni(2+) (PubMed:20711192). Mechanistically, acts via MYD88, TIRAP and TRAF6, leading to NF-kappa-B activation, cytokine secretion and the inflammatory response (PubMed:10835634, PubMed:21393102, PubMed:27022195, PubMed:36945827, PubMed:9237759). 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 (PubMed:14517278). 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 (PubMed:32894580). In complex with TLR6, promotes inflammation in monocytes/macrophages by associating with TLR6 and the receptor CD86 (PubMed:23880187). 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 (PubMed:23880187). 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 (PubMed:15265881, PubMed:23880187). Required for the migration-promoting effects of ZG16B/PAUF on pancreatic cancer cells.

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

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

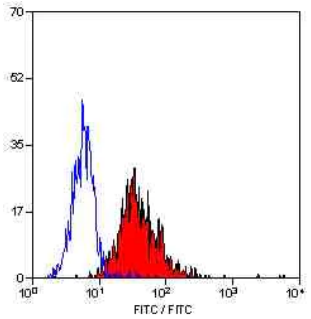
We do not recommend this combination. It is not covered by our product promise.

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In the unlikely event of one of our products not working as expected, you are covered by our product promise.

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1 product image



Flow Cytometry - Anti-TLR4 antibody [HTA125] (ab8376)

TLR4 Flow Cytometry staining using mouse Anti-TLR4 antibody

Staining of human peripheral blood monocytes with ab8376.

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