

# TLR4 (MTS510): sc-13591

## BACKGROUND

Six human homologs of the *Drosophila* Toll receptor were initially identified based on their sequence similarities and designated Toll-like receptors (TLR). Toll receptors are involved in mediating dorsoventral polarization in the developing *Drosophila* embryo and also participate in the host immunity. The TLR family of proteins are characterized by a highly conserved Toll homology (TH) domain, which is essential for Toll-induced signal transduction. TLR1, as well as the other TLR family members, are type I transmembrane receptors that characteristically contain an extracellular domain consisting of several leucine-rich regions along with a single cytoplasmic Toll/IL-1R-like domain. TLR2 and TLR4 are activated in response to lipopolysaccharide (LPS) stimulation, which results in the activation and translocation of NFκB and suggests that these receptors are involved in mediating inflammatory responses. Expression of TLR receptors is highest in peripheral blood leukocytes, macrophages, and monocytes. TLR6 is highly homologous to TLR1, sharing greater than 65% sequence identity, and, like other members of TLR family, it induces NFκB signaling upon activation.

## CHROMOSOMAL LOCATION

Genetic locus: TLR4 (human) mapping to 9q33.1, LY96 (human) mapping to 8q21.11; Tlr4 (mouse) mapping to 4 C1, Ly96 (mouse) mapping to 1 A3.

## SOURCE

TLR4 (MTS510) is a rat monoclonal antibody raised against Toll-like receptor 4 (TLR4)/MD-2 complex of mouse origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>2a</sub> in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Also available azide-free for inhibition of LPS-induced cytokine production, sc-13591 L, 200 µg/0.1 ml.

TLR4 (MTS510) is available conjugated to agarose (sc-13591 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-13591 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-13591 PE), fluorescein (sc-13591 FITC), Alexa Fluor® 488 (sc-13591 AF488), Alexa Fluor® 546 (sc-13591 AF546), Alexa Fluor® 594 (sc-13591 AF594) or Alexa Fluor® 647 (sc-13591 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-13591 AF680) or Alexa Fluor® 790 (sc-13591 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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## APPLICATIONS

TLR4 (MTS510) is recommended for detection of TLR4/MD-2 complex of mouse, rat and human origin by immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and flow cytometry (1 µg per 1 x 10<sup>6</sup> cells).

Molecular Weight of glycosylated TLR4: 95/120 kDa.

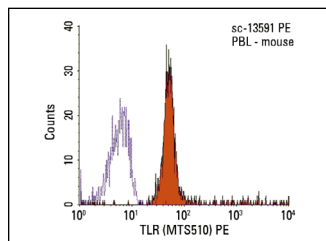
## RESEARCH USE

For research use only, not for use in diagnostic procedures.

## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## DATA



TLR4 (MTS510) PE: sc-13591 PE. FCM analysis of mouse peripheral blood leukocytes. Black line histogram represents the isotype control, normal rat IgG<sub>2a</sub>-PE: sc-2872.

## SELECT PRODUCT CITATIONS

- Bihl, F., et al. 2003. Overexpression of Toll-like receptor 4 amplifies the host response to lipopolysaccharide and provides a survival advantage in transgenic mice. *J. Immunol.* 170: 6141-6150.
- De Batista, P.R., et al. 2014. Toll-like receptor 4 upregulation by Angiotensin II contributes to hypertension and vascular dysfunction through reactive oxygen species production. *PLoS ONE* 9: e104020.
- Bomfim, G.F., et al. 2015. Toll-like receptor 4 inhibition reduces vascular inflammation in spontaneously hypertensive rats. *Life Sci.* 122: 1-7.
- Nunes, K.P., et al. 2017. Toll-like receptor 4 (TLR4) impairs nitric oxide contributing to Angiotensin II-induced cavernosal dysfunction. *Life Sci.* 191: 219-226.
- Wang, H.T., et al. 2018. Characteristics of fucose-containing polysaccharides from submerged fermentation of *Agaricus blazei* Murill. *J. Food Drug Anal.* 26: 678-687.
- Kim, H.W., et al. 2019. Signaling pathways associated with macrophage-activating polysaccharides purified from fermented barley. *Int. J. Biol. Macromol.* 131: 1084-1091.
- de Oliveira, A.A., et al. 2020. Blockade of the TLR4-MD2 complex lowers blood pressure and improves vascular function in a murine model of type 1 diabetes. *Sci. Rep.* 10: 12032.
- Xu, W., et al. 2021. Molecular mechanisms underlying macrophage immunomodulatory activity of *Rubus chingii* Hu polysaccharides. *Int. J. Biol. Macromol.* 185: 907-916.
- Obadia, N., et al. 2022. TLR4 mutation protects neurovascular function and cognitive decline in high-fat diet-fed mice. *J. Neuroinflammation* 19: 104.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.