

# MD-2 (J-12B): sc-80183

## BACKGROUND

Lipopolysaccharide (LPS) is the principal proinflammatory component of the Gram-negative bacterial envelope. The lipopolysaccharide (LPS) receptor is a multi-protein complex that consists of at least three proteins, CD14, TLR4 and MD-2. Each of these proteins are glycosylated. Specifically, MD-2 contains two N-linked glycosylation sites at positions Asn(26) and Asn(114). MD-2 is indispensable for TLR4-dependent LPS responses because cells expressing TLR4/MD-2, but not TLR4 alone, respond to LPS. Intestinal epithelial cells (IEC) express low levels of TLR4 and MD-2 and are LPS unresponsive. T cell-derived cytokines lead to increased expression of TLR4 and MD-2, and LPS-dependent pro-inflammatory cytokine secretion in IEC. The human LY96 gene maps to chromosome 8q21.11 and encodes a 162 amino acid protein with a predicted 16-amino acid signal peptide.

## REFERENCES

- Young, H.A., et al. 1995. Role of IFN- $\gamma$  in immune cell regulation. *J. Leukoc. Biol.* 58: 373-381.
- Dinarello, C.A., et al. 1998. Overview of interleukin-18: more than an IFN- $\gamma$  inducing factor. *J. Leukoc. Biol.* 63: 658-664.
- Okamura, H., et al. 1998. Regulation of IFN- $\gamma$  production by IL-12 and IL-18. *Curr. Opin. Immunol.* 10: 259-264.
- Costa-Pereira, A.P., et al. 2002. The antiviral response to IFN- $\gamma$ . *J. Virol.* 76: 9060-9068.
- Zika, E., et al. 2003. Histone deacetylase 1/mSin3A disrupts IFN- $\gamma$ -induced CIITA function and major histocompatibility complex class II enhancosome formation. *Mol. Cell. Biol.* 23: 3091-3102.
- Schroder, K., et al. 2004. IFN- $\gamma$ : an overview of signals, mechanisms and functions. *J. Leukoc. Biol.* 75: 163-189.
- Ellis, T.N., et al. 2004. IFN- $\gamma$  activation of polymorphonuclear neutrophil function. *Immunology* 112: 2-12.
- Sizemore, N., et al. 2004. Inhibitor of  $\kappa$ B kinase is required to activate a subset of IFN- $\gamma$ -stimulated genes. *Proc. Natl. Acad. Sci. USA* 101: 7994-7998.
- Halfter, U.M., et al. 2005. IFN- $\gamma$ -dependent tyrosine phosphorylation of MEKK4 via Pyk2 is regulated by Annexin II and SHP2 in keratinocytes. *Biochem. J.* 388: 17-28.

## CHROMOSOMAL LOCATION

Genetic locus: LY96 (human) mapping to 8q21.11.

## SOURCE

MD-2 (J-12B) is a mouse monoclonal antibody raised against full length recombinant MD-2 of human origin.

## PRODUCT

Each vial contains 100  $\mu$ g IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and protein stabilizer.

## APPLICATIONS

MD-2 (J-12B) is recommended for detection of MD-2 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); non cross-reactive with MD-1.

Suitable for use as control antibody for MD-2 siRNA (h): sc-35889, MD-2 shRNA Plasmid (h): sc-35889-SH and MD-2 shRNA (h) Lentiviral Particles: sc-35889-V.

Molecular Weight of MD-2: 20-25 kDa.

## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended:  
 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>™</sup>  
 Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.

## SELECT PRODUCT CITATIONS

- Coope, A., et al. 2012. Chaperone insufficiency links TLR4 protein signaling to endoplasmic reticulum stress. *J. Biol. Chem.* 287: 15580-15589.
- Wang, Y., et al. 2020. MD2 activation by direct AGE interaction drives inflammatory diabetic cardiomyopathy. *Nat. Commun.* 11: 2148.
- Huang, W., et al. 2020. RP105 plays a cardioprotective role in myocardial ischemia reperfusion injury by regulating the Toll-like receptor 2/4 signaling pathways. *Mol. Med. Rep.* 22: 1373-1381.
- Liu, H., et al. 2020. Inhibition of MyD88 by LM8 attenuates obesity-induced cardiac injury. *J. Cardiovasc. Pharmacol.* 76: 63-70.

## STORAGE

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

## RESEARCH USE

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

## PROTOCOLS

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