

Polyclonal Antibody to TLR9/CD289



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Polyclonal Antibody to TLR9/CD289

Catalog No : IMG-431
Formulation : 0.1mg in 0.2 ml PBS containing 0.05% BSA, 0.05% sodium azide. Sodium azide is highly toxic.
Isotype : Rabbit IgG
Purification : Protein G Chromatography
Species React : Human, Mouse
Host : Rabbit

Application
Western blot analysis: 0.5-1 ug/ml
Flow (Intracellular): 0.5-1 ug/10⁶ cells
Flow (Cell Surface): see Patole et al (2006) for details.
IHC (frozen): 10 ug/ml, see Patole et al (2006) for details.
IHC (paraffin): 5 ug/ml or see Tran et al. (2007)
IF/ICC: see Merrel et al. (2006) for details

Storage
Store at 4°C, stable for 6 months. For long-term storage, store at -20°C.

Recommended Positive Control: mouse intestine

Background

The Toll-like receptor (TLR) family in mammal comprises a family of transmembrane proteins characterized by multiple copies of leucine rich repeats in the extracellular domain and IL-1 receptor motif in the cytoplasmic domain. Like its counterparts in *Drosophila*, TLRs signal through adaptor molecules (1). The TLR family is a phylogenetically conserved mediator of innate immunity that is essential for microbial recognition (2). Ten human homologs of TLRs (TLR1-10) have been described (3). By using a BLAST search, Hemmi et al., 2000 (4) have identified and subsequently isolated a cDNA coding for TLR9. Gene knockout experiments suggest that TLR9 acts as a receptor for unmethylated CpG dinucleotides in the bacterial DNA (4). Human and mouse TLR9 share an overall amino acid identity of 75.5%. TLR9 is highly expressed in spleen.

Antigen

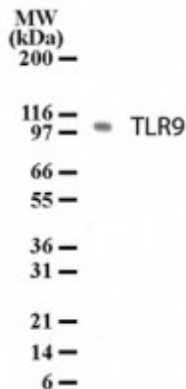
This antibody was developed against a KLH-conjugated synthetic peptide corresponding to part of the extracellular domain of mouse TLR9, between amino acids 200-300.

Application Notes

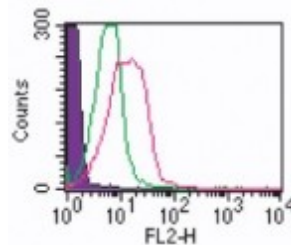
1. In mouse intestine, a 113 kDa band is observed by western blot.
2. TLR9 was upregulated in LnCap prostate carcinoma cells following Estradiol stimulation (Ilvesaro et al, 2007).
3. For FC, use RAW or thioglycolate-elicited mouse macrophage cells.

Genebank Info (Protein)

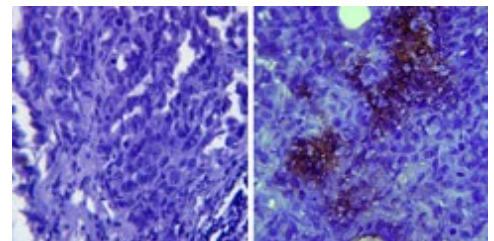
NP_059138



Western blot analysis of mouse TLR9 in cell lysates from mouse intestine using IMG-431 at a dilution of 0.5 µg/ml. The observed size of TLR9 is different in human and mouse samples. IMGENEX's goat anti-rabbit Ig HRP secondary antibody (IMGENEX, 20301) and PicoTect ECL substrate solution (IMGENEX, 10087K) were used for this test.



Intracellular flow analysis of TLR9 in 10⁶ human PBMCs (lymphocyte-gated) using 0.5 ug of antibody. Shaded histogram represents cells without antibody, green represents isotype control (Imgenex, 20304), red represents IMG-431. Imgenex's goat anti-rabbit PE secondary antibody (20303) was used.



Immunohistochemical analysis of TLR9 in paraffin-embedded formalin-fixed human breast tissue using an isotype control (left) and IMG-431 (right) at 5 ug/ml.

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Related Products

1. 20301 [Goat Anti-Rabbit HRP Conjugate]
2. 20302 [Goat Anti-Rabbit IgG (H+L)-FITC Conjugate]
3. 20303 [Goat Anti-Rabbit IgG (H+L) PE conjugated secondary antibody]
4. IMG-5142A [Polyclonal Antibody to beta Actin]
5. IMG-5143A [Polyclonal Antibody to GAPDH]
6. 40103 [Mouse Small intestine Tissue lysate]
7. 10083K [IC-Flow (Intracellular Staining Flow Assay) Kit]
8. IMG-2209H [CpG ODN (2006) with negative control oligo, TLR9 ligand (human)]

Reference

1. Muzio M, Natoli G, Saccani S, Levrero M, and Mantovani A. J. exp. Med. 187: 2097-2101 (1998).
2. Medzhitov R and Janeway CA. Cell 91: 295-298 (1997).
3. Chuang TH and Ulevitch RJ. Biochim. Biophys. Acta 1518 (1-2):157-161 (2001)
4. Takeuchi O, Kawai T, Sanjo H, Copeland NG, Gilbert DJ, Jenkins NA, Takeda K, and Akira S. Gene 231: 59-65 (1999).
5. Hemmi H, Takeuchi O, Kawai T, Kaisho T, Sato S, Sanjo H, Matsumoto M, Hoshino K, Wagner H, Takeda K, and Shizo A. Nature 408: 740-745 (2000).

Product Citations

1. **Toll-like receptor 9 regulates TNF- α expression by different mechanisms: Implications for osteoclastogenesis.** Alla Amcheslavsky, Wei Zou, and Zvi Bar-Shavit. *J. Biol. Chem.*, Oct 2004; 10.1074/jbc.M409138200. **Imgenex antibodies cited: 1. TLR9 (IMG-431) [WB, Fig.5A (BALB/c and C57BL/6-derived cells)].**
2. **IFN- γ overcomes low responsiveness of myeloid dendritic cells to CpG DNA.** Masato Uchijima, Toshi Nagata, Taiki Aoshi and Yukio Koide. *Immunology and Cell Biology*. 83 (1):92-95 (2005). **Imgenex antibodies cited: 1. TLR9 (IMG-431) [WB, Fig.1C, (myeloid and plasmacytoid dendritic cells)].**
3. **Synergistic Activation of Macrophages via CD40 and TLR9 Results in T Cell Independent Antitumor Effects.** Iliia N. Buhtoiarov, Hillary D. Lum, Gideon Berke, Paul M. Sondel, and Alexander L. Rakhmilevich. *J. Immunol.*, Jan 2006; 176: 309-318. **Imgenex antibodies cited: TLR9 (IMG-431) [(Flow)]**
4. **Toll-Like Receptor 9 Agonists Promote Cellular Invasion by Increasing Matrix Metalloproteinase Activity.** Melinda A. Merrell, Joanna M. Ilvesaro, Niko Lehtonen, Timo Sorsa, Bradley Gehrs, Eben Rosenthal, Dongquan Chen, Brit Shackley, Kevin W. Harris, and Katri S. Selander. *Mol. Cancer Res.*, Jul 2006; 10.1158/1541-7786.MCR-06-0007. **Imgenex antibodies cited: 1. TLR9 (IMG-431) [Flow (intracellular) Fig.1B (MDA-MB-231 cells)]. [IF/ICC, Fig.1C (MDA-MB-231 cells)]. [WB, Fig.2A and 2B (human breast cancer tissues), Fig.3E (U373 astrocytoma and D54MG glioblastoma cells)].**
5. **Distinct Responses of Lung and Spleen Dendritic Cells to the TLR9 Agonist CpG Oligodeoxynucleotide.** Li Chen, Meenakshi Arora, Manohar Yarlagadda, Timothy B. Oriss, Nandini Krishnamoorthy, Anuradha Ray, and Prabir Ray. *J. Immunol.*, 177: 2373-2383 (2006). **Imgenex antibodies cited: 1. TLR9 (IMG-431) [Flow (intracellular), Fig.2C (lung dendritic cells)].**
6. **Toll like receptor-9 agonists stimulate prostate cancer invasion in vitro.** Ilvesaro JM, MA Merrell, TM Swiain, J Davidson, M Zayzafoon, KW Harris and KS Selander. *The Prostate* 67:774-781 (2007). **Imgenex products cited: TLR9 antibody(IMG-431) WB (prostate cancer cell lines, Figs 1a, 6); Prostate tissue array (IMH-303) (prostate cancer tissues, Fig 2).**
7. **Toll-like receptor 9 expression in murine and human adrenal glands and possible implications during inflammation.** Tran N, A Koch, R Berkels, O Boehm, PA Zacharowski, G Baumgarten, P Knuefermann, M Schott, W Kanczkowski, SR Bornstein, SL Lightman, and K Zacharowski. *J Clin Endocrin Metab*. Doi:10.1210/jc.2006-2697 In press (2007). **Imgenex antibodies cited (mouse spleen and adrenal tissue, mouse RAW264.7 macrophage cell line, human adrenal tissue: TLR9 [(IMG-305A) IHC (paraffin): Figs 1C-D, F and 6; IF/ICC: Figs 1E and 5]; TLR9 [(IMG-431) WB: Figs 1B, 3C, and 5G]. The TLR9 IMG-431 antibody was validated by WB using adrenal gland tissue from TLR9-/- and wt mice (Fig 1B).**
8. **Expression and Regulation of Toll-like Receptors in Lupus-like Immune Complex Glomerulonephritis of MRL-Fas(lpr) Mice.** Patole PS, RD Pawar, M Lech, D Zecher, H Schmidt, S Segerer, A Ellwart, A Henger, M Kretzler, and H-J Anders. *Nephrol Dial Transplant*, 21:3062-3073 (2006). **Imgenex antibodies cited: For IHC (frozen) on mouse kidney sections (Fig. 5): TLR3 (IMG-516), TLR7 (IMG-581A), TLR9 (IMG-431) and Rabbit IgG isotype control antibody (20304). For Flow (Intracellular) and Flow (Cell surface) on J774 mouse macrophage-like cell line (Fig 6B): TLR7 (IMG-581A), TLR9 (IMG-431) and Rabbit IG isotype control antibody (20304).**
9. **Bacterial DNA induces myocardial inflammation and reduces cardiomyocytes contractility: role of Toll-like receptor 9.** Knuefermann P, M Schwederski, Velten M, Krings P, Ehrentauf H, Rudiger M, Boehm O, Fink K, Dreiner U, Grohe C, Hoef A, Baumgarten G, Koch A, Zacharowski K, Meyer R. *Cardiovascular Research* 78: 26-35 (2008). **WB (mouse heart tissue), Fig. 1F.**
10. **Morphine induces defects in early response of alveolar macrophages to *Streptococcus pneumoniae* by modulating TLR9-NF- κ B signalling.** Wang J, R Barke, R Charboneu, R Schendener, S Roy. *J Immunol* 180: 3594-3600. **WB (primary mouse alveolar macrophage cultures treated with pneumococci and transfected with TLR9 shRNA), Fig. 4B; The IMG-431 antibody is TLR9 shRNA transfected validated in this figure.**

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