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TLR11 Control Peptide

Alternate names: Gm287, Toll-like receptor 11

Catalog No.: AP10349CP-N

Quantity: 0.1 mg

Background: The Toll-like receptor (TLR) multigene family encodes important recognition receptors of the innate immune system that have been conserved in both the invertebrate and vertebrate lineages . The mammalian host defense system is essentially regulated by these conserved Toll-like receptors. At least 13 TLRs have been identified and cloned in mammalian cells which recognize molecular products/signals from all the major classes of pathogens and activation of innate immunity. TLRs were identified as genes coding for both an N-terminal leucine-rich repeat (LRR) domain and a C-terminal Toll-IL-resistance (TIR) domain. The Toll signaling to NF-Kb starts form conserved Toll-IL-1-resistance (TIR) domain, which mediated the coupling of TIR adaptor molecules (MyD88, Mal, TICAM and TRAM) and caused production of inflammatory cytokines such as IL-1, IL-6, IL-8 , TNFa, and IL-12, chemokines and co-stimulatory molecules such as CD40, CD80 and CD86. In the presence of inflammatory cytokines and binding of adaptor molecule, MyD88 that binds FADD and triggers apoptosis through the caspase cascade. TLR induced apoptosis pathway appears to be a repertoire of defense mechanism utilized by innate defense mechanism. The constitutive expression of many human TLRs (1, 2, 3) have been shown on the surface of myeloid lineage cells by RT-PCR and use of specific monoclonal antibodies. Upon activation of these receptors by their respective chemokines and ligands have been shown in literature on various cell lines including endothelial, epithelial and other cells. The expression of TLR 3, 7, 8 and 9 are mainly found on endosomal lysosomal compartments. Human TLR3 is expressed in human fibroblasts cells and TLR 9 in in-vitro derived DC cells. There is significant evidence of TLR involvement is many systemic disorders following bacterial infection including sepsis, peridontitis, cardiac ischemia, cerebral palsy and others, understanding the TLRs involvement in these conditions will allow therapeutic interventions at the receptor level for treatment of these disorders.
The TLR are highly conserved protein and share structural and functional domains across species. These receptors recognize pathogen associated molecular patters (PAMPs) that are expressed on infectious agents, and mediate the production of cytokines needed for production of immediate immunity. The cell-surface TLRs, including TLR1, TLR2, TLR4, and TLR6, recognize microbial membrane lipids, whereas TLR3, TLR7, TLR8, and TLR9 recognize pathogen-derived nucleotides in intracellular compartments. TLR7 and TLR9 respond to host-derived nucleotides as well, and they have been implicated in a variety of autoimmune diseases. Toll-like receptor 9 (TLR9) is a receptor for unmethylated CpG dinucleotides found in bacterial and viral DNA. TLR11-13 and TLR21-23 ubfamilies are represented by pseudogenes in humans. TLR11 is an ancient gene and is found in lower animnal. The TLR11 receptors recognize uropathogenic bacteria antigens (4). TLR7 is a membrane bound protein with two TMD. The first human toll like receptor to be identified,

TLR4, senses lipopolysaccharide (LPS) while TLR2 on the other hand senses diacylated or triacylated lipopeptides after heterodimerizing with either TLR6 or TLR1, respectively. The conserved cytoplasmic TIR (Toll/IL-1 receptor) domains of the IL-1 and Toll-like receptors are the critical focal point for the generation of ligand-induced cytoplasmic signaling cascades. For signaling all the TLRs utilize one or more of the four known TIR-containing adaptor molecules: MyD88, TIRAP/MAL, TRIF, and TRAM. Human TLR9 receptor is expressed as A and B isoforms with apparent MW 125kDa (1032 aa) and 120kDa (975) with several splice variants.

Format: **State:** Liquid synthetic peptide

Description: Antigenic blocking peptide for AP10349PU-N

Storage: Store (in aliquots) at -20 °C. Avoid repeated freezing and thawing.
Shelf life: one year from despatch.

General Readings:

1. Oshiumi H., Matsummoto M., Funami K., AkazawaT., Seya T. TICAM 1, an adapter molecule that participates in the Toll Like receptor 3-mediated interferon-beta induction. Nat. Immunol. 4: 161-167; 2003.
2. LPS-TLR4 signals to IRF-3/7 and NF-kB involves the Toll Adapters TRAM and TRIF. J. Exptl. Med. 198 (7) 1043-1055, 2003.
3. Oshiumi H, Sasai M, Shida K, Fujita T, Matsumoto M, Seya T. TIR-containing adapter molecule (TICAM)-2, a bridging adapter recruiting to toll-like receptor 4 TICAM-1 that induces interferon-beta. J Biol Chem. 2003 Dec 12;278(50):49751-62. Epub 2003 Sep 30. PubMed PMID: 14519765.
4. Roach J.C et. al., the elvolution of vertebrate Toll like receptors. PNAS USA July 102 (27) 2005.