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NOD1 Antibody
Catalog # ASC11188

Specification

NOD1 Antibody - Product Information

Application	**WB**
Primary Accession	Q9Y239
Other Accession	Q9Y239, 20137579
Reactivity	**Human, Mouse, Rat**
Host	**Rabbit**
Clonality	**Polyclonal**
Isotype	**IgG**
Application Notes	**NOD1 antibody can be used for detection of NOD1 by Western blot at 1 µg/mL.**

NOD1 Antibody - Additional Information

Gene ID	**10392**

Target/Specificity
NOD1;

Reconstitution & Storage
NOD1 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.

Precautions
NOD1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

NOD1 Antibody - Protein Information

Name NOD1 {ECO:0000303|PubMed:10329646, ECO:0000312|HGNC:HGNC:16390}

Function
Pattern recognition receptor (PRR) that detects bacterial peptidoglycan fragments and other danger signals and thus participates in both innate and adaptive immune responses (PubMed:11058605, PubMed:12796777, PubMed:12791997, PubMed:15044951, PubMed:16172124, PubMed:19043560, PubMed:22672233, PubMed:27099311). Specifically recognizes and binds gamma-D-glutamyl-meso-diaminopimelic acid (iE- DAP), a dipeptide present in peptidoglycan of Gram-negative bacteria (PubMed:12871942, PubMed:12796777, PubMed:<a

href="http://www.uniprot.org/citations/12791997" target="_blank">12791997, PubMed:16211083, PubMed:16172124). Preferentially binds iE-DAP in tripeptide-containing muropeptides (MurNAc-TriDAP or TriDAP) (PubMed:16211083). Ligand binding triggers oligomerization that facilitates the binding and subsequent activation of the proximal adapter receptor-interacting RIPK2 (PubMed:12796777, PubMed:12791997, PubMed:17054981). Following recruitment, RIPK2 undergoes 'Met-1'- (linear) and 'Lys-63'-linked polyubiquitination by E3 ubiquitin-protein ligases XIAP, BIRC2, BIRC3 and the LUBAC complex, becoming a scaffolding protein for downstream effectors, triggering activation of the NF-kappa-B and MAP kinases signaling (PubMed:10880512, PubMed:12791997, PubMed:19043560). This in turn leads to the transcriptional activation of hundreds of genes involved in immune response (PubMed:10880512, PubMed:19043560). Also acts as a regulator of antiviral response elicited by dsRNA and the expression of RLR pathway members by targeting IFIH1 and TRAF3 to modulate the formation of IFIH1-MAVS and TRAF3-MAVS complexes leading to increased transcription of type I IFNs (PubMed:32169843). Also acts as a regulator of autophagy via its interaction with ATG16L1, possibly by recruiting ATG16L1 at the site of bacterial entry (By similarity). Besides recognizing pathogens, also involved in the endoplasmic reticulum stress response: acts by sensing and binding to the cytosolic metabolite sphingosine-1-phosphate generated in response to endoplasmic reticulum stress, initiating an inflammation process that leads to activation of the NF-kappa-B and MAP kinases signaling (PubMed:27007849, PubMed:33942347). In addition, plays a role in insulin trafficking in beta cells in a cell-autonomous manner (By similarity). Mechanistically, upon recognizing cognate ligands, NOD1 and RIPK2 localize to insulin vesicles where they recruit RAB1A to direct insulin trafficking through the cytoplasm (By similarity).

Cellular Location
Cell membrane; Lipid-anchor. Apical cell membrane. Basolateral cell membrane. Cytoplasm. Note=Detected in the cytoplasm and at the cell membrane (PubMed:31649195). Following bacterial infection, localizes to bacterial entry sites in the cell membrane (PubMed:31649195). Recruited to the basolateral and apical membranes in polarized epithelial cells (PubMed:19043560)

Tissue Location
Highly expressed in adult heart, skeletal muscle, pancreas, spleen and ovary (PubMed:10224040). Also detected in placenta, lung, liver, kidney, thymus, testis, small intestine and colon (PubMed:10224040).

NOD1 Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Western Blot
- Blocking Peptides
- Dot Blot

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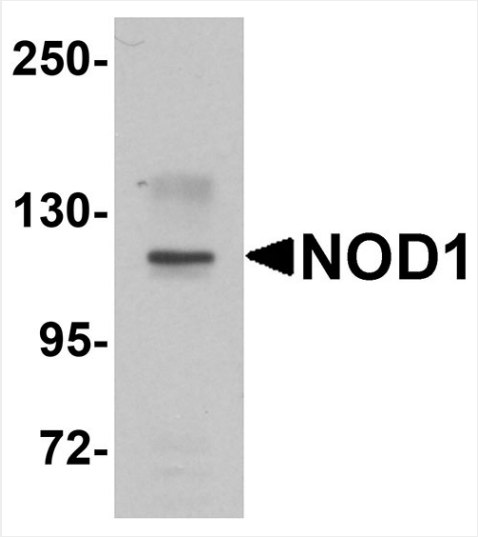
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

NOD1 Antibody - Images



Western blot analysis of NOD1 in EL4 cell lysate with NOD1 antibody at 1 µg/mL.

NOD1 Antibody - Background

NOD1 Antibody: NOD1 is a member of the NOD (nucleotide-binding oligomerization domain) family, a group of proteins that are involved in innate immune defense. NOD1 contains an N-terminal caspase recruitment domain (CARD), a centrally located nucleotide-binding domain (NBD), and ten tandem leucine-rich repeats (LRRs) in its C-terminus. The CARD is involved in apoptotic signaling, and NOD1 activates caspase-9 and NF-κB. LRRs participate in protein-protein interactions, and mutations in the NBD may affect the process of oligomerization and subsequent function of the LRR domain. This protein is an intracellular pattern-recognition receptor (PRR) that initiates inflammation in response to a subset of bacteria through the detection of bacterial diaminopimelic acid.

NOD1 Antibody - References

Kufer TA, Banks DJ, and Philpott DJ. Innate immune sensing of microbes by Nod proteins. Ann. NY Acad. Sci.2006; 1072:19-27.
Inohara N, Koseki T, del Peso L, et al. Nod1, an Apaf-1-like activator of caspase-9 and nuclear factor-kappaB. J. Biol. Chem.1999; 274:14560-7.
Chamaillard M, Hashimoto M, Horie Y, et al. An essential role for NOD1 in host recognition of bacterial peptidoglycan containing diaminopimelic acid. Nat. Immunol.2003; 4:702-7.