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NOD1 Antibody
Rabbit Polyclonal Antibody
Catalog # ALS15702

Specification

NOD1 Antibody - Product Information

Application	**WB, IHC-P, IF, ICC**
Primary Accession	Q9Y239
Reactivity	**Human**
Host	**Rabbit**
Clonality	**Polyclonal**
Calculated MW	**108kDa KDa**
Dilution	**WB~~1:1000** **IHC-P~~N/A** **IF~~1:50~200** **ICC~~N/A**

NOD1 Antibody - Additional Information

Gene ID 10392

Other Names
Nucleotide-binding oligomerization domain-containing protein 1, Caspase recruitment domain-containing protein 4, NOD1, CARD4

Target/Specificity
Human NOD1. Predicted cross-reactivity based on amino acid sequence homology: mouse (81%), rat (82%), pig (87%).

Reconstitution & Storage
Aliquot and store at -20°C. Minimize freezing and thawing.

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:12791997, PubMed:12796777, PubMed:15044951, PubMed:16172124, PubMed:19043560, PubMed:<a

href="http://www.uniprot.org/citations/22672233" target="_blank">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:12791997, PubMed:12796777, PubMed:12871942, PubMed:16172124, PubMed:16211083). 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:12791997, PubMed:12796777, 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).

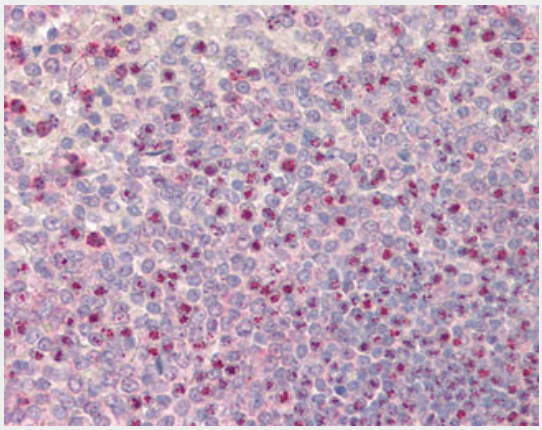
Volume
50 µl

NOD1 Antibody - Protocols

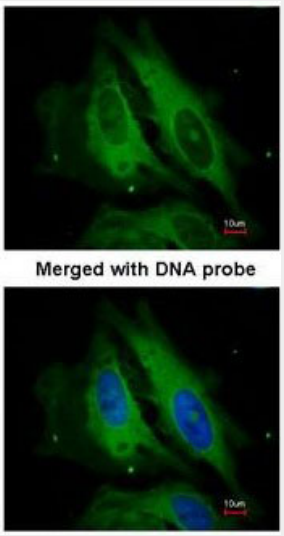
Provided below are standard protocols that you may find useful for product applications.

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

NOD1 Antibody - Images



Anti-NOD1 antibody IHC staining of human spleen.



Immunofluorescence of paraformaldehyde-fixed HeLa, using NOD1 antibody at 1:200 dilution.

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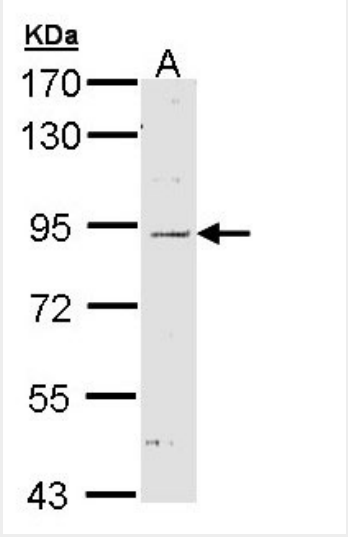

Sample (30 ug of whole cell lysate). A: H1299. 7.5% SDS PAGE. NOD1 antibody diluted at 1:1000.

NOD1 Antibody - Background

Enhances caspase-9-mediated apoptosis. Induces NF-kappa- B activity via RIPK2 and IKK-gamma. Confers responsiveness to intracellular bacterial lipopolysaccharides (LPS). Forms an intracellular sensing system along with ARHGEF2 for the detection of microbial effectors during cell invasion by pathogens. Required for RHOA and RIPK2 dependent NF-kappa-B signaling pathway activation upon S.flexneri cell invasion. Involved not only in sensing peptidoglycan (PGN)-derived muropeptides but also in the activation of NF-kappa-B by Shigella effector proteins IpgB2 and OspB. Recruits NLRP10 to the cell membrane following bacterial infection.

NOD1 Antibody - References

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Ota T.,et al.Nat. Genet. 36:40-45(2004).
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