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NOD1 Antibody (C-term)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP11805b

Product Information

Application	IHC-P-Leica, WB, E
Primary Accession	Q9Y239
Other Accession	NP_006083.1
Reactivity	Human, Mouse
Predicted	Rat, Bovine, Canine
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB29527
Calculated MW	107691
Antigen Region	923-951

Additional Information

Gene ID	10392
Other Names	Nucleotide-binding oligomerization domain-containing protein 1, Caspase recruitment domain-containing protein 4, NOD1, CARD4
Target/Specificity	This NOD1 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 923-951 amino acids from the C-terminal region of human NOD1.
Dilution	IHC-P-Leica~~1:500 WB~~1:1000 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	NOD1 Antibody (C-term) is for research use only and not for use in diagnostic or therapeutic procedures.

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: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).

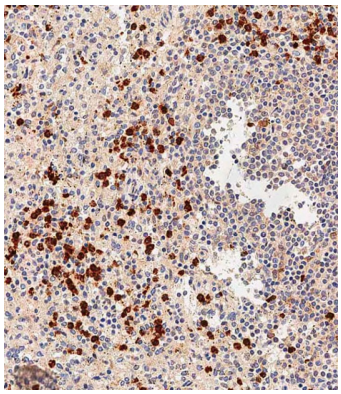
Background

This gene encodes a member of the NOD (nucleotide-binding oligomerization domain) family. This member is a cytosolic protein. It contains an N-terminal caspase recruitment domain (CARD), a centrally located nucleotide-binding domain (NBD), and 10 tandem leucine-rich repeats (LRRs) in its C terminus. The CARD is involved in apoptotic signaling, 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. Multiple alternatively spliced transcript variants differring in the 5' UTR have been described, but the full-length nature of these variants has not been determined.

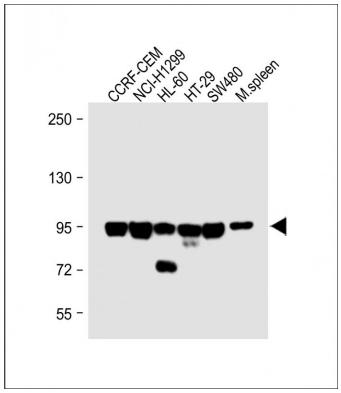
References

Hutton, M.L., et al. Infect. Immun. 78(11):4523-4531(2010)
Bailey, S.D., et al. Diabetes Care 33(10):2250-2253(2010)
Lu, W.G., et al. World J. Gastroenterol. 16(34):4348-4356(2010)
Enevold, C., et al. Mult. Scler. 16(8):942-949(2010)
Ashton, K.A., et al. BMC Cancer 10, 382 (2010) :

Images



Immunohistochemical analysis of paraffin-embedded human spleen tissue using AP11805b performed on the Leica® BOND RXm. Tissue was fixed with formaldehyde at room temperature, antigen retrieval was by heat mediation with a EDTA buffer (pH9. 0). Samples were incubated with primary antibody(1:500) for 1 hours at room temperature. A undiluted biotinylated CRF Anti-Polyvalent HRP Polymer antibody was used as the secondary antibody.



All lanes : Anti-NOD1 Antibody (C-term) at 1:1000 dilution Lane 1: CCRF-CEM whole cell lysate Lane 2: NCI-H1299 whole cell lysate Lane 3: HL-60 whole cell lysate Lane 4: HT-29 whole cell lysate Lane 5: SW480 whole cell lysate Lane 6: Mouse spleen lysate Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/10000 dilution. Predicted band size : 108 kDa Blocking/Dilution buffer: 5% NFDM/TBST.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.