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CARD15/NOD2 Rabbit pAb

Catalog # AP96860

Product Information

Application	WB
Primary Accession	Q9HC29
Other Accession	Q9HC29
Reactivity	Human
Predicted	Rat, Pig, Mouse, Rabbit, Dog, Horse
Host	Rabbit
Clonality	Polyclonal
Calculated MW	115283
Physical State	Liquid
Immunogen	KLH conjugated synthetic peptide derived from human CARD15
Epitope Specificity	251-350/1040
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SIMILARITY	Contains 2 CARD domains. Contains 9 LRR (leucine-rich) repeats. Contains 1 NACHT domain.
SUBUNIT	Binds to RIPK2/RICK by CARD-CARD interaction.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	Defects in NOD2 are the cause of sarcoidosis early-onset (EOS) . EOS is a form of sarcoidosis manifesting in children younger than 4 years of age. Sarcoidosis is an idiopathic, systemic, inflammatory disease characterized by the formation of immune granulomas in involved organs. Granulomas predominantly invade the lungs and the lymphatic system, but also skin, liver, spleen, eyes and other organs may be involved. Early-onset sarcoidosis is quite rare and has a distinct triad of skin, joint and eye disorders, without apparent pulmonary involvement. Compared with an asymptomatic and sometimes naturally disappearing course of the disease in older children, early-onset sarcoidosis is progressive and in many cases causes severe complications, such as blindness, joint destruction and visceral involvement.

Additional Information

Gene ID	64127
Other Names	ACUG; BLAU; BLAUS; CARD15; CD; CLR16.3; IBD1; NLRC2; NOD2B; PSORAS1; YAOS; F830032C23Rik; NOD2_HUMAN; NOD2; Caspase recruitment domain-containing protein 15; Inflammatory bowel disease protein 1; NOD2_MOUSE; nucleotide binding oligomerization domain containing 2; caspase recruitment domain family, member 15; nucleotide-binding oligomerization domain, leucine rich repeat and CARD domain containing 2; NOD-like receptor C2; NLR family, CARD domain containing 2

Dilution	WB=1:500-2000
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

Protein Information

Name	NOD2 {ECO:0000303|PubMed:11087742, ECO:0000312|HGNC:HGNC:5331}
Function	Pattern recognition receptor (PRR) that detects bacterial peptidoglycan fragments and other danger signals and plays an important role in gastrointestinal immunity (PubMed:12514169, PubMed:12527755, PubMed:12626759, PubMed:15044951, PubMed:15998797, PubMed:27283905, PubMed:27748583, PubMed:31649195). Specifically activated by muramyl dipeptide (MDP), a fragment of bacterial peptidoglycan found in every bacterial peptidoglycan type (PubMed:12514169, PubMed:12527755, PubMed:12626759, PubMed:12871942, PubMed:15044951, PubMed:15198989, PubMed:15998797, PubMed:22857257, PubMed:23322906, PubMed:27748583, PubMed:36002575). NOD2 specifically recognizes and binds 6-O-phospho-MDP, the phosphorylated form of MDP, which is generated by NAGK (PubMed:36002575). 6-O-phospho-MDP-binding triggers oligomerization that facilitates the binding and subsequent activation of the proximal adapter receptor-interacting RIPK2 (PubMed:11087742, PubMed:17355968, PubMed:21887730, PubMed:23806334, PubMed:28436939). 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:11087742, PubMed:12514169, PubMed:12626759, PubMed:15198989, PubMed:21887730, PubMed:23322906, PubMed:23806334, PubMed:28436939). This in turn leads to the transcriptional activation of hundreds of genes involved in immune response (PubMed:15198989). Its ability to detect bacterial MDP plays a central role in maintaining the equilibrium between intestinal microbiota and host immune responses to control inflammation (By similarity). An imbalance in this relationship results in dysbiosis, whereby pathogenic bacteria prevail on commensals, causing damage in the intestinal epithelial barrier as well as allowing bacterial invasion and inflammation (By similarity). Acts as a regulator of appetite by sensing MDP in a subset of brain neurons: microbiota-derived MDP reach the brain, where they bind and activate NOD2 in inhibitory hypothalamic neurons, decreasing neuronal activity, thereby regulating satiety and body temperature (By similarity). NOD2- dependent MDP-sensing of bacterial cell walls in the intestinal epithelial compartment contributes to sustained postnatal growth upon undernutrition (By similarity). Also plays a role in antiviral response by acting as a sensor of single-stranded RNA (ssRNA) from viruses: upon ssRNA-binding, interacts with MAVS, leading to activation of interferon regulatory factor-3/IRF3 and expression of type I interferon (PubMed:19701189). Also acts as a regulator of autophagy in dendritic cells via its interaction with ATG16L1, possibly by recruiting ATG16L1 at the site of bacterial entry (PubMed:20637199). NOD2 activation in the small intestine crypt also contributes to intestinal stem cells survival and function: acts by promoting mitophagy via its association with ATG16L1 (By similarity). In addition to its main role in innate immunity, also regulates the adaptive immune system by acting as regulator of helper T-cell and regulatory T-cells (Tregs) (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). May also be involved in NLRP1 activation following activation by MDP, leading to CASP1 activation and IL1B release in macrophages (PubMed:18511561).
Cellular Location	Cell membrane; Lipid-anchor. Basolateral cell membrane. Cytoplasm Mitochondrion. Note=Palmitoylation promotes localization to the cell membrane, where it detects bacterial invasion at the point of entry.
Tissue Location	Expressed in monocytes, macrophages, dendritic cells, hepatocytes, preadipocytes, epithelial cells of oral cavity, lung and intestine, with higher expression in ileal Paneth cells and in intestinal stem cells.

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