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NLRP6 Antibody (N-term)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP13529a

Product Information

Application	WB, E
Primary Accession	P59044
Other Accession	NP_612202.1
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB33587
Calculated MW	98768
Antigen Region	168-197

Additional Information

Gene ID	171389
Other Names	NACHT, LRR and PYD domains-containing protein 6, Angiotensin II/vasopressin receptor, PYRIN-containing APAF1-like protein 5, NLRP6, NALP6, PYPAF5
Target/Specificity	This NLRP6 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 168-197 amino acids from the N-terminal region of human NLRP6.
Dilution	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	NLRP6 Antibody (N-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	NLRP6 {ECO:0000303|PubMed:21088234, ECO:0000312|HGNC:HGNC:22944}
Function	Acts as the sensor component of the NLRP6 inflammasome, which mediates

	inflammasome activation in response to various pathogen- associated signals, leading to maturation and secretion of IL1B and IL18 (PubMed:30392956, PubMed:34678144). Inflammasomes are supramolecular complexes that assemble in the cytosol in response to pathogens and other damage-associated signals and play critical roles in innate immunity and inflammation (PubMed:30674671). Acts as a recognition receptor (PRR): recognizes and binds specific pathogens and other damage-associated signals, such as lipoteichoic acid (LTA), a cell-wall component of Gram-positive bacteria, or double stranded RNA (dsRNA) (PubMed:30392956, PubMed:33377178, PubMed:34678144). May also recognize and bind lipopolysaccharide (LPS), a major component of the outer membrane of Gram-negative bacteria; however, LPS is probably not a major activator of the NLRP6 inflammasome (PubMed:31932628, PubMed:34678144). Following LTA- or dsRNA-binding, NLRP6 undergoes liquid-liquid phase separation (LLPS), enhancing multivalent interactions, an essential step for the formation of the NLRP6 inflammasome polymeric complex (PubMed:34678144). The NLRP6 inflammasome acts by promoting recruitment of effector pro-inflammatory caspases (CASP1 and/or CASP4) that catalyze maturation and secretion of IL1B and IL18 in the extracellular milieu (PubMed:12387869, PubMed:30392956, PubMed:30674671, PubMed:34678144). The NLRP6 inflammasome plays a central role in the maintenance of epithelial integrity and host defense against microbial infections in the intestine (PubMed:30392956). Required to restrict infection against Gram-positive bacteria by recognizing lipoteichoic acid (LTA), leading to recruitment of CASP4 and CASP1, and subsequent maturation and secretion of IL1B and IL18 (PubMed:30392956, PubMed:33377178). Involved in intestinal antiviral innate immunity together with DHX15: recognizes and binds viral dsRNA to restrict infection by enteric viruses through the interferon pathway and GSDMD-dependent release of IL18 (PubMed:34161762, PubMed:34678144). Required to prevent infection by the apicomplexan parasite Cryptosporidium in enterocytes by promoting GSDMD-dependent release of IL18 (By similarity). The NLRP6 inflammasome may also regulate the gut microbiota composition by acting as a sensor of microbiota-associated metabolites to form a PYCARD/ASC-dependent inflammasome for downstream IL18 release and secretion of antimicrobial peptides (By similarity). Essential for gut mucosal self-renewal and proliferation (By similarity). Regulate mucus secretion in an inflammasome- and autophagy-dependent manner to prevent invasion by enteric bacteria, (By similarity). During systemic bacterial infections, the NLRP6 inflammasome negatively regulates neutrophil recruitment and neutrophil extracellular traps (NETs) formation (By similarity). May promote peripheral nerve recovery following injury via an inflammasome-independent mechanism (By similarity).
Cellular Location	Cytoplasm, cytosol. Inflammasome. Cell membrane {ECO:0000250|UniProtKB:Q63035}. Nucleus membrane {ECO:0000250|UniProtKB:Q63035}
Tissue Location	Expressed in peripheral blood leukocytes, predominantly in granulocytes and, at lower levels, in CD4(+) and CD8(+) T-cells (PubMed:12387869). Expressed in colonic myofibroblasts (at protein level) (PubMed:21593405).

Background

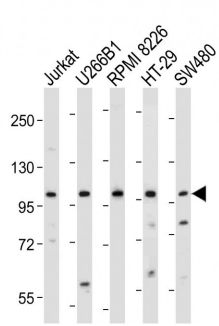
NALPs are cytoplasmic proteins that form a subfamily within the larger CATERPILLER protein family. Most short NALPs, such as NALP6, have an N-terminal pyrin (MEFV; MIM 608107) domain (PYD), followed by a NACHT domain, a NACHT-associated domain (NAD), and a C-terminal leucine-rich repeat (LRR) region. The long NALP, NALP1 (MIM 606636), also has a C-terminal extension containing a function to find domain (FIIND) and a caspase recruitment domain (CARD). NALPs are implicated in the activation of proinflammatory caspases (e.g., CASP1; MIM 147678) via their involvement in multiprotein complexes called

inflammasomes (Tschopp et al., 2003 [PubMed 12563287]).

References

Cummings, J.R., et al. Tissue Antigens 76(1):48-56(2010)
Davila, S., et al. Genes Immun. 11(3):232-238(2010)
Albrecht, M., et al. FEBS Lett. 538 (1-3), 173-177 (2003) :
Tschopp, J., et al. Nat. Rev. Mol. Cell Biol. 4(2):95-104(2003)
Grenier, J.M., et al. FEBS Lett. 530 (1-3), 73-78 (2002) :

Images



All lanes : Anti-NLRP6 Antibody (N-term) at 1:2000 dilution Lane 1: Jurkat whole cell lysate Lane 2: U266B1 whole cell lysate Lane 3: RPMI 8226 whole cell lysate Lane 4: HT-29 whole cell lysate Lane 5: SW480 whole cell lysate Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/10000 dilution. Predicted band size : 99 kDa Blocking/Dilution buffer: 5% NFDM/TBST.

Citations

- Nicotine Causes Nephrotoxicity through the Induction of NLRP6 Inflammasome and Alpha7 Nicotinic Acetylcholine Receptor
- NLRP6 exerts a protective role via NF-kB with involvement of CCL20 in a mouse model of alcoholic hepatitis