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NALP6 Antibody

Catalog # ASC11195

Product Information

Application	WB, IF, E
Primary Accession	P59044
Other Accession	NP_612202, 21264320
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	98768
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	NALP6 antibody can be used for detection of NALP6 by Western blot at 1 g/mL. Antibody can also be used for immunoflourenscence starting at 20 g/mL. For immunofluorescence start at 20 g/mL.

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	NLRP6;
Reconstitution & Storage	NALP6 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	NALP6 Antibody 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

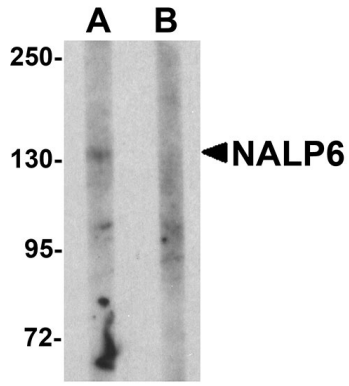
NALP6 Antibody: NALP proteins include the apoptosis regulator APAF1 (apoptotic protease activating factor 1) and mammalian NOD-LRR proteins and are thought to be involved in inflammation and reproduction. NALP6, also known as PYPAF5, is highly expressed in granulocytes and T cells and co-localizes with the PYRIN-CARD protein ASC. Co-expression of NALP6 with ASC results in a synergistic activation of NF-κB and activated caspase-1-dependent cytokine processing, suggesting that NALP6 functions in immune cells to coordinate the transduction of pro-inflammatory signals.

References

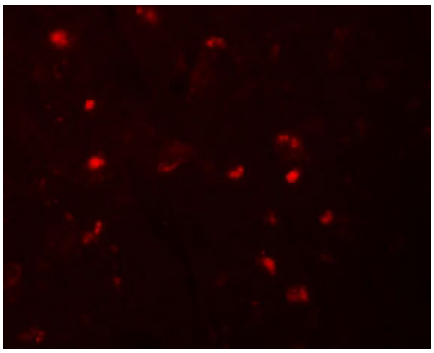
Tschopp J, Martinon F, and Burns K. NALPs: a novel protein family involved in inflammation. Nat. Rev. Mol. Cell Biol.2003; 4:95-104.

Tian X, Pascal G, and Monget P. Evolution and functional divergence of NLRP genes in mammalian reproductive system. BMC Evol. Biol.2009; 9:202.
Grenier JM, Wang L, Manji GA, et al. Functional screening of five PYPAF family members identifies PYPAF5 as a novel regulator of NF-kappaB and caspase-1. FEBS Lett.2002; 530:73-8.

Images



Western blot analysis of NALP5 in mouse brain tissue lysate with NALP5 antibody at 1 µg/mL in (A) the absence and (B) the presence of blocking peptide.



Immunofluorescence of NALP6 in human brain tissue with NALP6 antibody at 20 µg/mL.

Citations

- NLRP6 negatively regulates pulmonary host defense in Gram-positive bacterial infection through modulating neutrophil recruitment and function.
- NLRP6 modulates neutrophil homeostasis in bacterial pneumonia-derived sepsis

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