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# NALP1 / NLRP1 Antibody (C-Terminus)

**Rabbit Polyclonal Antibody**
**Catalog # ALS11479**

## Specification

### NALP1 / NLRP1 Antibody (C-Terminus) - Product Information

| | |
|---|---|
| Application | **ICC, IF, IHC** |
| Primary Accession | Q9C000 |
| Reactivity | **Human** |
| Host | **Rabbit** |
| Clonality | **Polyclonal** |
| Calculated MW | **166kDa KDa** |

### NALP1 / NLRP1 Antibody (C-Terminus) - Additional Information

**Gene ID** 22861

**Other Names**
NACHT, LRR and PYD domains-containing protein 1, Caspase recruitment domain-containing protein 7, Death effector filament-forming ced-4-like apoptosis protein, Nucleotide-binding domain and caspase recruitment domain, NLRP1, CARD7, DEFCAP, KIAA0926, NAC, NALP1

**Target/Specificity**
peptide corresponding to 13 amino acids near the carboxy-terminus of human NALP1

**Reconstitution & Storage**
Short term 4°C, long term aliquot and store at -20°C, avoid freeze thaw cycles. Store undiluted.

**Precautions**
NALP1 / NLRP1 Antibody (C-Terminus) is for research use only and not for use in diagnostic or therapeutic procedures.

### NALP1 / NLRP1 Antibody (C-Terminus) - Protein Information

**Name** NLRP1 {ECO:0000303|PubMed:22665479, ECO:0000312|HGNC:HGNC:14374}

**Function**
Acts as the sensor component of the NLRP1 inflammasome, which mediates inflammasome activation in response to various pathogen- associated signals, leading to subsequent pyroptosis (PubMed:<a href="http://www.uniprot.org/citations/22665479" target="_blank">22665479</a>, PubMed:<a href="http://www.uniprot.org/citations/12191486" target="_blank">12191486</a>, PubMed:<a href="http://www.uniprot.org/citations/17349957" target="_blank">17349957</a>, PubMed:<a href="http://www.uniprot.org/citations/27662089" target="_blank">27662089</a>, PubMed:<a href="http://www.uniprot.org/citations/31484767" target="_blank">31484767</a>, PubMed:<a href="http://www.uniprot.org/citations/33093214" target="_blank">33093214</a>, PubMed:<a href="http://www.uniprot.org/citations/33410748" target="_blank">33410748</a>, PubMed:<a href="http://www.uniprot.org/citations/33731929" target="_blank">33731929</a>, PubMed:<a href="http://www.uniprot.org/citations/33731932" target="_blank">33731932</a>,

PubMed:<a href="http://www.uniprot.org/citations/35857590" target="_blank">35857590</a>). 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:<a href="http://www.uniprot.org/citations/22665479" target="_blank">22665479</a>, PubMed:<a href="http://www.uniprot.org/citations/12191486" target="_blank">12191486</a>, PubMed:<a href="http://www.uniprot.org/citations/17349957" target="_blank">17349957</a>). Acts as a recognition receptor (PRR): recognizes specific pathogens and other damage-associated signals, such as cleavage by some human enteroviruses and rhinoviruses, double-stranded RNA, UV-B irradiation, or Val-boroPro inhibitor, and mediates the formation of the inflammasome polymeric complex composed of NLRP1, CASP1 and PYCARD/ASC (PubMed:<a href="http://www.uniprot.org/citations/22665479" target="_blank">22665479</a>, PubMed:<a href="http://www.uniprot.org/citations/12191486" target="_blank">12191486</a>, PubMed:<a href="http://www.uniprot.org/citations/17349957" target="_blank">17349957</a>, PubMed:<a href="http://www.uniprot.org/citations/25562666" target="_blank">25562666</a>, PubMed:<a href="http://www.uniprot.org/citations/30291141" target="_blank">30291141</a>, PubMed:<a href="http://www.uniprot.org/citations/30096351" target="_blank">30096351</a>, PubMed:<a href="http://www.uniprot.org/citations/33243852" target="_blank">33243852</a>, PubMed:<a href="http://www.uniprot.org/citations/33093214" target="_blank">33093214</a>, PubMed:<a href="http://www.uniprot.org/citations/33410748" target="_blank">33410748</a>, PubMed:<a href="http://www.uniprot.org/citations/35857590" target="_blank">35857590</a>). In response to pathogen-associated signals, the N-terminal part of NLRP1 is degraded by the proteasome, releasing the cleaved C-terminal part of the protein (NACHT, LRR and PYD domains-containing protein 1, C-terminus), which polymerizes and associates with PYCARD/ASC to initiate the formation of the inflammasome complex: the NLRP1 inflammasome recruits pro-caspase-1 (proCASP1) and promotes caspase-1 (CASP1) activation, which subsequently cleaves and activates inflammatory cytokines IL1B and IL18 and gasdermin-D (GSDMD), leading to pyroptosis (PubMed:<a href="http://www.uniprot.org/citations/22665479" target="_blank">22665479</a>, PubMed:<a href="http://www.uniprot.org/citations/12191486" target="_blank">12191486</a>, PubMed:<a href="http://www.uniprot.org/citations/17349957" target="_blank">17349957</a>, PubMed:<a href="http://www.uniprot.org/citations/32051255" target="_blank">32051255</a>, PubMed:<a href="http://www.uniprot.org/citations/33093214" target="_blank">33093214</a>). In the absence of GSDMD expression, the NLRP1 inflammasome is able to recruit and activate CASP8, leading to activation of gasdermin-E (GSDME) (PubMed:<a href="http://www.uniprot.org/citations/33852854" target="_blank">33852854</a>, PubMed:<a href="http://www.uniprot.org/citations/35594856" target="_blank">35594856</a>). Activation of NLRP1 inflammasome is also required for HMGB1 secretion; the active cytokines and HMGB1 stimulate inflammatory responses (PubMed:<a href="http://www.uniprot.org/citations/22801494" target="_blank">22801494</a>). Binds ATP and shows ATPase activity (PubMed:<a href="http://www.uniprot.org/citations/11113115" target="_blank">11113115</a>, PubMed:<a href="http://www.uniprot.org/citations/15212762" target="_blank">15212762</a>, PubMed:<a href="http://www.uniprot.org/citations/33243852" target="_blank">33243852</a>). Plays an important role in antiviral immunity and inflammation in the human airway epithelium (PubMed:<a href="http://www.uniprot.org/citations/33093214" target="_blank">33093214</a>). Specifically recognizes a number of pathogen-associated signals: upon infection by human rhinoviruses 14 and 16 (HRV-14 and HRV-16), NLRP1 is cleaved and activated which triggers NLRP1-dependent inflammasome activation and IL18 secretion (PubMed:<a href="http://www.uniprot.org/citations/33093214" target="_blank">33093214</a>). Positive-strand RNA viruses, such as Semliki forest virus and long dsRNA activate the NLRP1 inflammasome, triggering IL1B release in a NLRP1-dependent fashion (PubMed:<a href="http://www.uniprot.org/citations/33243852" target="_blank">33243852</a>). Acts as a direct sensor for long dsRNA and thus RNA virus infection (PubMed:<a href="http://www.uniprot.org/citations/33243852" target="_blank">33243852</a>). May also be activated by muramyl dipeptide (MDP), a fragment of bacterial peptidoglycan, in a NOD2-dependent manner (PubMed:<a href="http://www.uniprot.org/citations/18511561" target="_blank">18511561</a>). The NLRP1 inflammasome is also activated in response to UV-B irradiation causing ribosome collisions: ribosome collisions cause phosphorylation and activation of NLRP1 in a MAP3K20-dependent manner, leading to pyroptosis (PubMed:<a

href="http://www.uniprot.org/citations/35857590" target="_blank">35857590</a>).

**Cellular Location**
Cytoplasm, cytosol. Cytoplasm. Nucleus. Note=Nucleocytoplasmic distribution in lymphoid organs (probably in T-cells) and in neurons. In epithelial cells, predominantly cytoplasmic. [NACHT, LRR and PYD domains-containing protein 1, N-terminus]: Nucleus. Note=(Microbial infection) Interaction with human herpes virus 8/HHV-8 proteins ORF45 promotes translocation of the N-terminal part of NLRP1 into the nucleus, relieving autoinhibition of the NLRP1 inflammasome and leading to its activation.

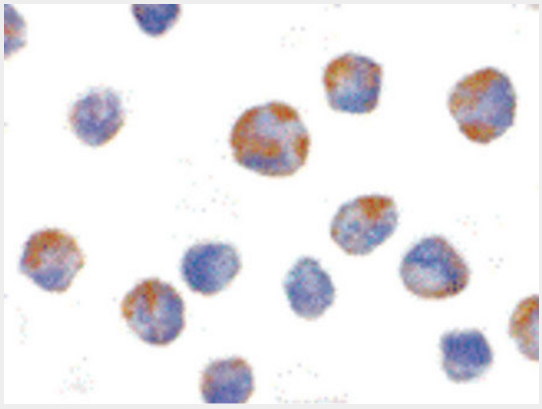
**Tissue Location**
Widely expressed (PubMed:11113115, PubMed:17164409). Abundantly expressed in primary immune cells (isoform 1 and isoform 2), including in neutrophils, monocytes/macrophages, dendritic cells (mostly Langerhans cells), and B- and T-lymphocytes (at protein level) (PubMed:15285719, PubMed:17164409). Strongly expressed in epithelial cells lining the glandular epithelium, such as that of the gastrointestinal tract (stomach, small intestine, colon), the respiratory tract (trachea and bronchi), and the endometrial and endocervical glands, gallbladder, prostate, and breast (at protein level). In testis, expressed in spermatogonia and primary spermatocytes, but not in Sertoli cells (at protein level). In the brain, expressed in neurons, in particular in pyramidal ones and in oligodendrocytes, but not detected in microglia (at protein level) (PubMed:17164409). Expressed in adult and fetal ocular tissues, including in adult and 24-week old fetal choroid, sclera, cornea, and optic nerve, as well as in adult retina and fetal retina/retinal pigment epithelium (PubMed:23349227). Highly expressed in the skin throughout the epidermis and in dermal fibroblasts, in both glabrous skin and plantar skin. It is detected in keratinocytes, but not in melanocytes. Expressed in epidermal appendages such as hair follicles (PubMed:27662089).

## NALP1 / NLRP1 Antibody (C-Terminus) - Protocols

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

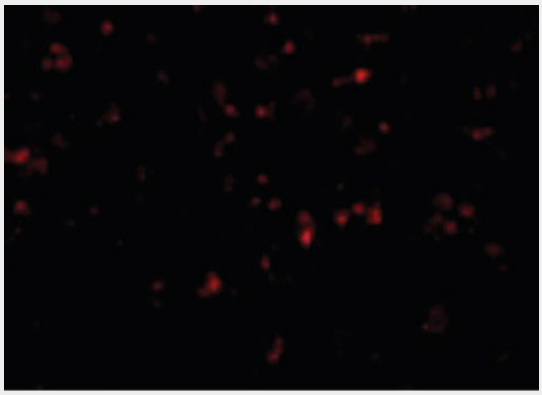
- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

## NALP1 / NLRP1 Antibody (C-Terminus) - Images

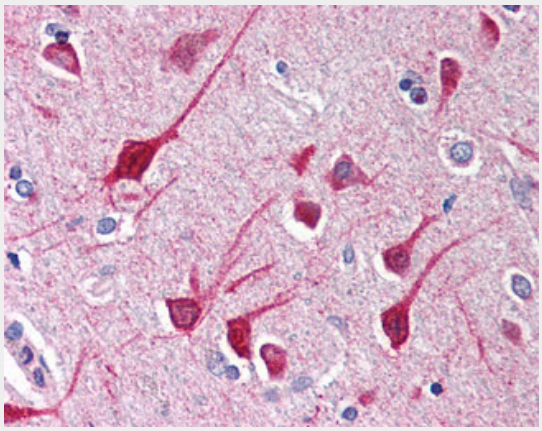


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Immunocytochemistry of NALP1 in K562 cells with NALP1 antibody at 10 ug/ml.



Immunofluorescence of NALP1 in K562 cells with NALP1 antibody at 20 ug/ml.



Anti-NLRP1 / NALP1 antibody IHC of human brain, cortex.

**NALP1 / NLRP1 Antibody (C-Terminus) - Background**

Able to form cytoplasmic structures termed death effector filaments. Enhances APAF1 and cytochrome c-dependent activation of pro-caspase-9 and consecutive apoptosis. Stimulates apoptosis through activation of caspase-3. Involved in activation of caspase-1 and caspase-5 as part of the NALP1 inflammasome complex which leads to processing and release of IL1B and IL18. Binds ATP.

**NALP1 / NLRP1 Antibody (C-Terminus) - References**

Bertin J.,et al.Cell Death Differ. 7:1273-1274(2000).
Martinon F.,et al.Curr. Biol. 11:R118-R120(2001).
Hlaing T.,et al.J. Biol. Chem. 276:9230-9238(2001).
Chu Z.-L.,et al.J. Biol. Chem. 276:9239-9245(2001).
Nagase T.,et al.DNA Res. 6:63-70(1999).