

# Recombinant Human NLRP6 Protein

**For Research Use Only**

## 1. Basic Product Information

Catalog No.: REP50725

Size: 10ug, 100ug

Protein Name: NACHT, LRR and PYD domains-containing protein 6 (Angiotensin II/vasopressin receptor) (PYRIN-containing APAF1-like protein 5)

Synonym: NLRP6, NALP6, PYPAF5

UniProt ID: P59044

UniProt Link: [www.uniprot.org/uniprotkb/P59044/entry](http://www.uniprot.org/uniprotkb/P59044/entry)

Species Source: Human

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 892 AA

Molecular Weight: 99 KD

Protein Tag: C-terminal His6

## 2. Amino Acid Sequence

MDQPEAPCSSTGPRLAVARELLLAALAEELSQEQLKRFRHKL RDVGP DGRSIPWGRLERADAVDLAE  
QLAQFYGPEPALEVARKTLKRADARDVAAQLQERRLQRLGLSGTLLSVSEYKKKYREHVLQLHAR  
VKERNARSVKITKRFTKLLIAPESAAPEEAMGPAAEEPEPGRARRSDTHTFNRLFRRDEEGRRPLTVV  
LQGPAGIGKTMAAKKILYDWAAGKLYQGQVDFAFFMPCGELLERPGTRSLADLILDQCPDRGAPVP  
QMLAQPPRLLFILDGADELPA LGGPEAAPCTDPFEAASGARVLGGLLSKALLPTALLVTTRAAAPGR  
LQGRLCSPQCAEVRGFSDDKDKKKYFYKYFRDERRAERAYRFVKENETL FALCFVPFVCWIVCTVLR  
QQLELGRDLSRTSKTTTSVYLLFITSVLSSAPVADGPRLQGDRLNLCRLAREGV LGRRAQFAEKELE  
QLELRGSKVQTLFLSKKELPGVLETEVTYQFIDQS FQEFLAALSYLLEDGGVPRTAAGGVGTLLRGD  
AQPHSHLVLTTRFLFGLLSAERMRDIERHFGCMVSERVKQEALRWVQGGQGGCPGVAPEVTEGAK  
GLEDTEEP EEEEEEGEEP NYPLELLYCLYETQEDAFVRQALCRFPELALQVRVFCRMDVAVLSYCVR  
CCPAGQALRLISCR LVAAQEKKKSLGKRLQASLGGGSSSQGTTKQLPASLLHPLFQAMTDPLCHLS  
SLTLSHCKLPDAVCRDLSEALRAAPALTELGLLHNRLSEAGLRMLSEGLAWPQCRVQTVRVQLPDP  
QRGLQYLVGMLRQSPALTTLDLSGCQLPAPMVTYLC AVLQH QGCGLQTL SLASVELSEQSLQELQA  
VKRAKPD LVITHPALDGHPQPPKELISTF

## 3. Buffer Composition



Liquid format: PBS-based buffer containing 50% glycerol. Glycerol concentration can be customized upon customer request; please state special requirements when placing your order.

Lyophilized format: Buffer before lyophilization is PBS supplemented with 6% trehalose.

## 4. Storage Conditions

Upon receipt, store the product at -20 °C or -80 °C. Aliquot the product for on-demand use to preserve protein activity and prevent denaturation and inactivation caused by repeated freeze-thaw cycles.

## 5. Product Description

This product is recombinant NACHT, LRR and PYD domains-containing protein 6 (Angiotensin II/vasopressin receptor) (PYRIN-containing APAF1-like protein 5) produced using the HEK293T eukaryotic cell expression system. It is suitable for in-vitro functional assays, protein-protein interaction studies, antibody preparation and other biomedical research applications.

**Protein 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).

**Subcellular Localization:** Cytoplasm, cytosol . Inflammasome . Cell membrane . Nucleus membrane .

## 6. Notes

- Avoid repeated freeze-thaw cycles to maintain protein stability and biological activity.
- Please specify special buffer- composition requirements at the time of order placement.
- For research use only. Not intended for clinical diagnosis, therapeutic use or commercial manufacturing.