

## NLRP3 Protein, Human, Recombinant (His)

## General Information

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|-----------------------|---|
| Synonyms:             | CIAS1;Caterpillar protein 1.1 (CLR1.1);NLRP3;Angiotensin/vasopressin receptor AII/AVP-like; NACHT, LRR and PYD domains-containing protein 3;NALP3;LRR and PYD domains-containing protein 3;PYRIN-containing APAF1-like protein 1;PYPAF1;Cold-induced autoinflammatory syndrome 1 protein;Cryopyrin;C1orf7 |
| Protein Construction: | 29-231 aa   |
| Species:              | Human   |
| Expression Host:      | E. coli   |
| Accession:            | Q96P20  |
| Molecular Weight:     | 27.7 kDa (predicted)  |
| AA Sequence:          | LEDYPPQKGCIPRGRQTEKADHVLDLTLMLDFNGEEKAWAMAVWIFAAINRRDLYEKAKRDEPKWGSDNA<br>RVSNTPTVICQEDSIEEEMGLLEYSRISICKMKKDYRKKYRKYVRSRFQCIEDRNARLGESVSLNKRYTRLRLI<br>KEHRSQQEREQELLAIGKTKTCESPVSPIKMELLFDPDDEHSEPVHTTVVFQGAAGIG  |

## QC Testing

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|----------------------|--|
| Biological Activity: | Activity has not been tested. It is theoretically active, but we cannot guarantee it. If you require protein activity, we recommend choosing the eukaryotic expression version first.  |
| Purity:              | > 90% as determined by SDS-PAGE.   |
| Endotoxin:           | < 1.0 EU/ $\mu$ g of the protein as determined by the LAL method.  |
| Formulation:         | If the delivery form is liquid, the default storage buffer is Tris/PBS-based buffer, 5%-50% glycerol. If the delivery form is lyophilized powder, the buffer before lyophilization is Tris/PBS-based buffer, 6% Trehalose, pH 8.0. |

## Preparation and Storage

## Reconstitution:

Reconstitute the lyophilized protein in sterile deionized water. The product concentration should not be less than 100  $\mu$ g/mL. Before opening, centrifuge the tube to collect powder at the bottom. After adding the reconstitution buffer, avoid vortexing or pipetting for mixing.

## Stability &amp; Storage:

Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

## Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

## Protein Background

As the sensor component of the NLRP3 inflammasome, plays a crucial role in innate immunity and inflammation. In response to pathogens and other damage-associated signals, initiates the formation of the inflammasome polymeric complex, made of NLRP3, PYCARD and CASP1 (and possibly CASP4 and CASP5). Recruitment of proCASP1 to the inflammasome promotes its activation and CASP1-catalyzed IL1B and IL18 maturation and secretion in the extracellular milieu. Activation of NLRP3 inflammasome is also required for HMGB1 secretion. The active cytokines and HMGB1 stimulate inflammatory responses. Inflammasomes can also induce pyroptosis, an inflammatory form of programmed cell death. Under resting conditions, NLRP3 is autoinhibited. NLRP3 activation stimuli include extracellular ATP, reactive oxygen species, K(+) efflux, crystals of monosodium urate or cholesterol, amyloid-beta fibers, environmental or industrial particles and nanoparticles, cytosolic dsRNA, etc. However, it is unclear what constitutes the direct NLRP3 activator. Activation in presence of cytosolic dsRNA is mediated by DHX33. Independently of inflammasome activation, regulates the differentiation of T helper 2 (Th2) cells and has a role in Th2 cell-dependent asthma and tumor growth. During Th2 differentiation, required for optimal IRF4 binding to IL4 promoter and for IRF4-dependent IL4 transcription. Binds to the consensus DNA sequence 5'-GRRGGNRGAG-3'. May also participate in the transcription of IL5, IL13, GATA3, CCR3, CCR4 and MAF.

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