

Datasheet for ABIN7564661
NOD2 Protein (AA 1-1020) (His tag)



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Overview

Quantity:	1 mg
Target:	NOD2
Protein Characteristics:	AA 1-1020
Origin:	Mouse
Source:	HEK-293 Cells
Protein Type:	Recombinant
Purification tag / Conjugate:	This NOD2 protein is labelled with His tag.

Product Details

Purpose:	Custom-made recombinant Nod2 Protein expressed in mammalian cells.
Sequence:	MRSSCCDMCS QEEFQAQRSQ LVALLISGSL EGFESILDWL LSWDVLSRED YEGLSLPGQP LSHSARRLLD TVWNKGVWGC QKLLLEAVQEA QANSHTFELY GSWDTHSLHP TRDLQSHRPA IVRRLYNHVE AMLELAREGG FLSQYECEEI RLPIFTSSQR ARRLDLAAV KANGLAFL QHVRELPAPL PLPYEAAECQ KFISKLRTMV LTQSRFLSTY DGSENLCLD IYTENILELQ TEVGTAGALQ KSPAILGLED LFDTHGHLNR DADTILVGE AGSGKSTLLQ RLHLLWATGR SFQEFLFIFP FSCRQLQCVA KPLSLRLLF EHCCWPDVAQ DDVFQFLLDH PDRVLLTFDG LDEFKFRFTD RERHCSPIDP TSVQTLFNL LQGNLLKNAC KVLTSRPDAV SALLRKVVRT ELQLKGFSEE GIQLYLRKHH REPGVADRLI QLIQATSALH GLCHLPVFSW MVSRCHELL LQNRGFPTTS TDMYLLILQH FLLHASPPDS SPLGLGPGLL QSRLSTLLHL GHLALRGLAM SCYVFSAAQL QAAQVSDDI SLGFLVRAQS SVPGSKAPLE FLHITFQCFF AAFYLAVSAD TSVASLKHLF SCGRLGSSLL GRLLPNLCIQ GSRVKKGSEA ALLQKAEPHN LQITAAFLAG LLSQQHRDLL AACQVSERVL LQRQARARSC LAHSLREHFH SIPPVPGET KSMHAMPGFI

Product Details

WLIRSLYEMQ EEQLAQEAVR RLDIGHLKLK FCRVGP AECA ALAFVLQHLQ RPVALQLDYN
SVGDVGVEQL RPCLGVCTAL YLRDNNISDR GARTLVECAL RCEQLQKLAL FNNKLT DACA
CSMAKLLAHK QNFLSLRVGN NHITAAGAEV LAQGLKSNTS LKFLGFWGNS VGDKGTQALA
EVDADHQNLIK WLSLVGNNIG SMGAEALALM LEKNKSLEEL CLEENHICDE GVYSLAEGLK
RNSTLKFLKL SNNGITYRGA EALLQALSRN SAILEVWLRG NTFSLEEIQ T LSSRDARLLL **Sequence
without tag. The proposed Purification-Tag is based on experiences with the expression
system, a different complexity of the protein could make another tag necessary. In case you
have a special request, please contact us.**

Specificity: If you are looking for a specific domain and are interested in a partial protein or a different isoform, please contact us regarding an individual offer.

Characteristics: Key Benefits:

- Made to order protein - from design to production - by highly experienced protein experts.
- Protein expressed in mammalian cells and purified in one-step affinity chromatography
- The optimized expression system ensures reliability for intracellular, secreted and transmembrane proteins.
- State-of-the-art algorithm used for plasmid design (Gene synthesis).

This protein is a made-to-order protein and will be made for the first time for your order. Our experts in the lab try to ensure that you receive soluble protein.

If you are not interested in a full length protein, please contact us for individual protein fragments.

The big advantage of ordering our made-to-order proteins in comparison to ordering custom made proteins from other companies is that there is no financial obligation in case the protein cannot be expressed or purified.

Purity: > 90 % as determined by Bis-Tris PAGE, anti-tag ELISA, Western Blot and analytical SEC (HPLC)

Grade: custom-made

Target Details

Target: NOD2

Alternative Name: Nod2 ([NOD2 Products](#))

Background: Nucleotide-binding oligomerization domain-containing protein 2 (Caspase recruitment domain-containing protein 15),FUNCTION: Pattern recognition receptor (PRR) that detects bacterial peptidoglycan fragments and other danger signals and plays an important role in

gastrointestinal immunity (PubMed:15692051, PubMed:15692052, PubMed:19805227, PubMed:21715553). Specifically activated by muramyl dipeptide (MDP), a fragment of bacterial peptidoglycan found in every bacterial peptidoglycan type (PubMed:15692051, PubMed:15692052, PubMed:25429073). NOD2 specifically recognizes and binds 6-O-phospho-MDP, the phosphorylated form of MDP, which is generated by NAGK (PubMed:36002575). 6-O-phospho-MDP-binding triggers oligomerization that facilitates the binding and subsequent activation of the proximal adapter receptor-interacting RIPK2 (PubMed:15692051, PubMed:15692052, PubMed:22607974). Following recruitment, RIPK2 undergoes 'Met-1' (linear) and 'Lys-63'-linked polyubiquitination by E3 ubiquitin-protein ligases XIAP, BIRC2, BIRC3 and the LUBAC complex, becoming a scaffolding protein for downstream effectors, triggering activation of the NF-kappa-B and MAP kinases signaling (PubMed:15692051, PubMed:15692052, PubMed:22607974). This in turn leads to the transcriptional activation of hundreds of genes involved in immune response (PubMed:22607974). Its ability to detect bacterial MDP plays a central role in maintaining the equilibrium between intestinal microbiota and host immune responses to control inflammation (PubMed:19805227, PubMed:21421666, PubMed:25088769, PubMed:23281400, PubMed:24062413, PubMed:24882705, PubMed:25666722, PubMed:28127403). An imbalance in this relationship results in dysbiosis, whereby pathogenic bacteria prevail on commensals, causing damage in the intestinal epithelial barrier as well as allowing bacterial invasion and inflammation (PubMed:25088769, PubMed:23281400). Acts as a regulator of appetite by sensing MDP in a subset of brain neurons: microbiota-derived MDP reach the brain, where they bind and activate NOD2 in inhibitory hypothalamic neurons, decreasing neuronal activity, thereby regulating satiety and body temperature (PubMed:35420957). NOD2-dependent MDP-sensing of bacterial cell walls in the intestinal epithelial compartment contributes to sustained postnatal growth upon undernutrition (PubMed:36821686). Also plays a role in antiviral response by acting as a sensor of single-stranded RNA (ssRNA) from viruses: upon ssRNA-binding, interacts with MAVS, leading to activation of interferon regulatory factor-3/IRF3 and expression of type I interferon (By similarity). Also acts as a regulator of autophagy in dendritic cells via its interaction with ATG16L1, possibly by recruiting ATG16L1 at the site of bacterial entry (PubMed:19898471, PubMed:19966812, PubMed:27230380). NOD2 activation in the small intestine crypt also contributes to intestinal stem cells survival and function: acts by promoting mitophagy via its association with ATG16L1 (PubMed:31919280). In addition to its main role in innate immunity, also regulates the adaptive immune system by acting as regulator of helper T-cell and regulatory T-cells (Tregs) (PubMed:21856952, PubMed:27230380). Besides recognizing pathogens, also involved in the endoplasmic reticulum stress response: acts by sensing and binding to the cytosolic metabolite sphingosine-1-phosphate generated in response to

Target Details

endoplasmic reticulum stress, initiating an inflammation process that leads to activation of the NF-kappa-B and MAP kinases signaling (PubMed:27007849). May also be involved in NLRP1 activation following activation by MDP, leading to CASP1 activation and IL1B release in macrophages (PubMed:18511561). {ECO:0000250|UniProtKB:G1T469, ECO:0000269|PubMed:15692051, ECO:0000269|PubMed:15692052, ECO:0000269|PubMed:18511561, ECO:0000269|PubMed:19805227, ECO:0000269|PubMed:19898471, ECO:0000269|PubMed:19966812, ECO:0000269|PubMed:21421666, ECO:0000269|PubMed:21715553, ECO:0000269|PubMed:21856952, ECO:0000269|PubMed:22607974, ECO:0000269|PubMed:23281400, ECO:0000269|PubMed:24062413, ECO:0000269|PubMed:24882705, ECO:0000269|PubMed:25088769, ECO:0000269|PubMed:25429073, ECO:0000269|PubMed:25666722, ECO:0000269|PubMed:27007849, ECO:0000269|PubMed:27230380, ECO:0000269|PubMed:28127403, ECO:0000269|PubMed:31919280, ECO:0000269|PubMed:35420957, ECO:0000269|PubMed:36002575, ECO:0000269|PubMed:36821686}.

Molecular Weight: 113.6 kDa

UniProt: [Q8K3Z0](#)

Pathways: [Activation of Innate immune Response](#), [Cellular Response to Molecule of Bacterial Origin](#), [Regulation of Leukocyte Mediated Immunity](#), [Positive Regulation of Immune Effector Process](#), [Production of Molecular Mediator of Immune Response](#), [Toll-Like Receptors Cascades](#), [Inflammasome](#)

Application Details

Application Notes: We expect the protein to work for functional studies. As the protein has not been tested for functional studies yet we cannot offer a guarantee though.

Restrictions: For Research Use only

Handling

Format: Liquid

Buffer: The buffer composition is at the discretion of the manufacturer.

Handling Advice: Avoid repeated freeze-thaw cycles.

Handling

Storage: -80 °C

Storage Comment: Store at -80°C.

Expiry Date: 12 months