Datasheet for ABIN7554737

NOD2 Protein (AA 1-1040) (His tag)

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Overview

Quantity:	1 mg
Target:	NOD2
Protein Characteristics:	AA 1-1040
Origin:	Human
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:	MGEEGGSASH DEEERASVLL GHSPGCEMCS QEAFQAQRSQ LVELLVSGSL EGFESVLDWL LSWEVLSWED YEGFHLLGQP LSHLARRLLD TVWNKGTWAC QKLIAAAQEA QADSQSPKLH GCWDPHSLHP ARDLQSHRPA IVRRLHSHVE NMLDLAWERG FVSQYECDEI RLPIFTPSQR ARRLLDLATV KANGLAAFLL QHVQELPVPL ALPLEAATCK KYMAKLRTTV SAQSRFLSTY DGAETLCLED IYTENVLEVW ADVGMAGPPQ KSPATLGLEE LFSTPGHLND DADTVLVVGE AGSGKSTLLQ RLHLLWAAGQ DFQEFLFVFP FSCRQLQCMA KPLSVRTLLF EHCCWPDVGQ EDIFQLLLDH PDRVLLTFDG FDEFKFRFTD RERHCSPTDP TSVQTLLFNL LQGNLLKNAR KVVTSRPAAV SAFLRKYIRT EFNLKGFSEQ GIELYLRKRH HEPGVADRLI RLLQETSALH GLCHLPVFSW MVSKCHQELL LQEGGSPKTT TDMYLLILQH FLLHATPPDS ASQGLGPSLL RGRLPTLLHL GRLALWGLGM CCYVFSAQQL QAAQVSPDDI SLGFLVRAKG VVPGSTAPLE FLHITFQCFF AAFYLALSAD VPPALLRHLF NCGRPGNSPM ARLLPTMCIQ ASEGKDSSVA ALLQKAEPHN LQITAAFLAG LLSREHWGLL AECQTSEKAL LRRQACARWC LARSLRKHFH

Product Details

	SIPPAAPGEA KSVHAMPGFI WLIRSLYEMQ EERLARKAAR GLNVGHLKLT FCSVGPTECA ALAFVLQHLR RPVALQLDYN SVGDIGVEQL LPCLGVCKAL YLRDNNISDR GICKLIECAL HCEQLQKLAL FNNKLTDGCA HSMAKLLACR QNFLALRLGN NYITAAGAQV LAEGLRGNTS LQFLGFWGNR VGDEGAQALA EALGDHQSLR WLSLVGNNIG SVGAQALALM LAKNVMLEEL CLEENHLQDE GVCSLAEGLK KNSSLKILKL SNNCITYLGA EALLQALERN DTILEVWLRG NTFSLEEVDK LGCRDTRLLL **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) (Inflammatory bowel disease protein 1),FUNCTION: Pattern recognition receptor (PRR) that detects bacterial peptidoglycan fragments and other danger signals and

plays an important role in gastrointestinal immunity (PubMed:12514169, PubMed:12527755, PubMed:12626759, PubMed:15044951, PubMed:15998797, PubMed:27283905, PubMed:27748583, PubMed:31649195). Specifically activated by muramyl dipeptide (MDP), a fragment of bacterial peptidoglycan found in every bacterial peptidoglycan type (PubMed:12514169, PubMed:12871942, PubMed:12527755, PubMed:12626759, PubMed:15044951, PubMed:15998797, PubMed:22857257, PubMed:23322906, PubMed:27748583, PubMed:36002575, PubMed:15198989). 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:11087742, PubMed:17355968, PubMed:21887730, PubMed:23806334, PubMed:28436939). 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:11087742, PubMed:12514169, PubMed:12626759, PubMed:21887730, PubMed:23806334, PubMed:23322906, PubMed:28436939, PubMed:15198989). This in turn leads to the transcriptional activation of hundreds of genes involved in immune response (PubMed:15198989). Its ability to detect bacterial MDP plays a central role in maintaining the equilibrium between intestinal microbiota and host immune responses to control inflammation (By similarity). 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 (By similarity). 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 (By similarity). NOD2-dependent MDP-sensing of bacterial cell walls in the intestinal epithelial compartment contributes to sustained postnatal growth upon undernutrition (By similarity). 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 (PubMed:19701189). 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:20637199). 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 (By similarity). 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) (By

Target Details

	similarity). 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 endoplasmic reticulum stress, initiating an inflammation process that leads to activation of the NF-kappa-B and MAP kinases signaling (PubMed:27007849, PubMed:33942347). 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:Q8K3Z0, ECO:0000269|PubMed:11087742, ECO:0000269|PubMed:12514169, ECO:0000269|PubMed:12527755, ECO:0000269|PubMed:12626759, ECO:0000269|PubMed:12871942, ECO:0000269|PubMed:15044951, ECO:0000269|PubMed:15198989, ECO:0000269|PubMed:15998797, ECO:0000269|PubMed:17355968, ECO:0000269|PubMed:18511561, ECO:0000269|PubMed:19701189, ECO:0000269|PubMed:20637199, ECO:0000269|PubMed:21887730, ECO:0000269|PubMed:22857257, ECO:0000269|PubMed:23322906, ECO:0000269|PubMed:23806334, ECO:0000269|PubMed:27007849, ECO:0000269|PubMed:27283905, ECO:0000269|PubMed:27748583, ECO:0000269|PubMed:28436939, ECO:0000269|PubMed:31649195, ECO:0000269|PubMed:33942347, ECO:0000269|PubMed:36002575}., FUNCTION: [Isoform 2]: Acts as a pattern recognition receptor (PRR), able to activate NF-kappa-B. {ECO:0000269|PubMed:11087742}., FUNCTION: [Isoform 3]: Can activate NF-kappa-B in a muramyl dipeptide (MDP)-independent manner. {ECO:0000269|PubMed:20698950}.
Molecular Weight:	115.3 kDa
UniProt:	Q9HC29
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.
Storage:	-80 °C
Storage Comment:	Store at -80°C.
Expiry Date:	12 months