Recombinant Human ZBP1 Protein (P103-R166), Flag tagged

Cat. No. ZBP1-0619H **Lot. No.** (See product label)

SPECIFICATION

Product Overview	Recombinant Human GG-ZBP1(P103-R166)-Flag Protein was expressed in E. coli.
Species	Human
Source	E.coli
ProteinLength	P103-R166
Description	Key innate sensor that recognizes and binds Z-RNA structures, which are produced by a number of viruses, such as herpesvirus, orthomyxovirus or flavivirus, and triggers different forms of cell death. ZBP1 acts as an essential mediator of pyroptosis, necroptosis and apoptosis (PANoptosis), an integral part of host defense against pathogens, by activating RIPK3, caspase-8 (CASP8), and the NLRP3 inflammasome. Key activator of necroptosis, a programmed cell death process in response to death-inducing TNF-alpha family members, via its ability to bind Z-RNA: once activated upon Z-RNA-binding, ZBP1 interacts and stimulates RIPK3 kinase, which phosphorylates and activates MLKL, triggering execution of programmed necrosis. In addition to TNF-induced necroptosis, necroptosis can also take place in the nucleus in response to orthomyxoviruses infection: ZBP1 recognizes and binds Z-RNA structures that are produced in infected nuclei by orthomyxoviruses, such as the influenza A virus (IAV), leading to ZBP1 activation, RIPK3 stimulation and subsequent MLKL phosphorylation, triggering disruption of the nuclear envelope and leakage of cellular DNA into the cytosol. ZBP1-dependent cell death in response to IAV infection promotes interleukin-1 alpha (IL1A) induction in an NLRP3-inflammasome-

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	independent manner: IL1A expression is required for the optimal interleukin-1 beta (IL1B) production, and together, these cytokines promote infiltration of inflammatory neutrophils to the lung, leading to the formation of neutrophil extracellular traps. In addition to its direct role in driving necroptosis via its ability to sense Z-RNAs, also involved in PANoptosis triggered in response to bacterial infection: component of the AIM2 PANoptosome complex, a multiprotein complex that triggers PANoptosis. Also acts as the apical sensor of fungal infection responsible for activating PANoptosis. Involved in CASP8-mediated cell death via its interaction with RIPK1 but independently of its ability to sense Z-RNAs. In some cell types, also able to restrict viral replication by promoting cell death-independent responses. In response to Zika virus infection in neurons, promotes a cell death-independent pathway that restricts viral replication: together with RIPK3, promotes a death-independent transcriptional program that modifies the cellular metabolism via up-regulation expression of the enzyme ACOD1/IRG1 and production of the metabolite itaconate. Itaconate inhibits the activity of succinate dehydrogenase, generating a metabolic state in neurons that suppresses replication of viral genomes.
Form	Liquid
Endotoxin	< 0.01 EU per μg of the protein
Purity	90%
Stability	Samples are stable for up to twelve months from date of receipt at -20 to -80 centigrade.
Storage	Store it under sterile conditions at -20 to -80 centigrade. It is recommended that the protein be aliquoted for optimal storage. Avoid repeated freeze-thaw cycles.
Storage Buffer	Supplied as sterile 50 mM Tris-HCl (pH7.5), 200 mM NaCl, 20% glycerol

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Shipping	It is shipped out with blue ice.

GENE INFORMATION

Gene Name	ZBP1 Z-DNA binding protein 1 [Homo sapiens (human)]
Official Symbol	ZBP1
Synonyms	ZBP1; Z-DNA binding protein 1; C20orf183, chromosome 20 open reading frame 183; Z-DNA-binding protein 1; DAI; dJ718J7.3; DLM 1; DLM1; DNA dependent activator of IRFs; DNA-dependent activator of IRFs; DNA-dependent activator of IFN-regulatory factors; tumor stroma and activated macrophage protein DLM-1; DNA-dependent activator of interferon regulatory factors; DLM-1; C20orf183;
Gene ID	81030
mRNA Refseq	NM_001160417
Protein Refseq	NP_001153889
MIM	606750
UniProt ID	Q9H171

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