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Anti-GBP1 Antibody

Catalog # ABO10867

Product Information

Application	WB
Primary Accession	P32455
Host	Rabbit
Reactivity	Human
Clonality	Polyclonal
Format	Lyophilized
Description	Rabbit IgG polyclonal antibody for Guanylate-binding protein 1(GBP1) detection. Tested with WB in Human.
Reconstitution	Add 0.2ml of distilled water will yield a concentration of 500ug/ml.

Additional Information

Gene ID	2633
Other Names	Guanylate-binding protein 1, 3.6.5.-, GTP-binding protein 1, GBP-1, HuGBP-1, Guanine nucleotide-binding protein 1, Interferon-induced guanylate-binding protein 1, GBP1
Calculated MW	67931
Application Details	Western blot, 0.1-0.5 □g/ml, Human
Subcellular Localization	Cytoplasm. Golgi apparatus membrane; Lipid- anchor; Cytoplasmic side. Secreted. Secreted from endothelial cells in the cerebrospinal fluid, upon bacterial challenge and independently of interferon-gamma induction. Golgi membrane localization requires isoprenylation and the presence of another IFN-gamma-induced factor.
Source	Eukaryota
Protein Name	Guanylate-binding protein 1
Contents	Each vial contains 5mg BSA, 0.9mg NaCl, 0.2mg Na2HPO4, 0.05mg Thimerosal, 0.05mg NaN3.
Immunogen	A synthetic peptide corresponding to a sequence at the C-terminus of human GBP1(566-589aa QKESRIMKNEIQDLQTKMRRRKAC).
Purification	Immunogen affinity purified.
Cross Reactivity	No cross reactivity with other proteins

Storage	At -20˚C for one year. After r˚Constitution, at 4˚C for one month. It˚Can also be aliquotted and stored frozen at -20˚C for a longer time.Avoid repeated freezing and thawing.
Sequence Similarities	Belongs to the TRAFAC class dynamin-like GTPase superfamily. GB1/RHD3-type GTPase family. GB1 subfamily.

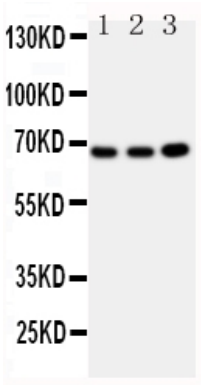
Protein Information

Name	GBP1 {ECO:0000303|PubMed:7512561, ECO:0000312|HGNC:HGNC:4182}
Function	Interferon (IFN)-inducible GTPase that plays important roles in innate immunity against a diverse range of bacterial, viral and protozoan pathogens (PubMed:16511497, PubMed:22106366, PubMed:29144452, PubMed:31268602, PubMed:32510692, PubMed:32581219, PubMed:37797010, PubMed:7512561). Hydrolyzes GTP to GMP in two consecutive cleavage reactions: GTP is first hydrolyzed to GDP and then to GMP in a processive manner (PubMed:16511497, PubMed:32510692, PubMed:7512561, PubMed:39394410). Following infection, recruited to the pathogen- containing vacuoles or vacuole-escaped bacteria and promotes both inflammasome assembly and autophagy (PubMed:29144452, PubMed:31268602). Acts as a positive regulator of inflammasome assembly by facilitating the detection of inflammasome ligands from pathogens (PubMed:31268602, PubMed:32510692, PubMed:32581219). Involved in the lysis of pathogen- containing vacuoles, releasing pathogens into the cytosol (By similarity). Following pathogen release in the cytosol, forms a protein coat in a GTPase-dependent manner that encapsulates pathogens and promotes the detection of ligands by pattern recognition receptors (PubMed:32510692, PubMed:32581219). Plays a key role in inflammasome assembly in response to infection by Gram-negative bacteria: following pathogen release in the cytosol, forms a protein coat that encapsulates Gram-negative bacteria and directly binds to lipopolysaccharide (LPS), disrupting the O-antigen barrier and unmasking lipid A that is that detected by the non-canonical inflammasome effector CASP4/CASP11 (PubMed:32510692, PubMed:32581219). Also promotes recruitment of proteins that mediate bacterial cytolysis, leading to release double- stranded DNA (dsDNA) that activates the AIM2 inflammasome (PubMed:31268602). Involved in autophagy by regulating bacteriolytic peptide generation via its interaction with ubiquitin-binding protein SQSTM1, which delivers monoubiquitinated proteins to autolysosomes for the generation of bacteriolytic peptides (By similarity). Confers protection to several pathogens, including the bacterial pathogens L.monocytogenes and M.bovis BCG as well as the protozoan pathogen T.gondii (PubMed:31268602). Exhibits antiviral activity against influenza virus (PubMed:22106366).
Cellular Location	Cytoplasmic vesicle membrane; Lipid-anchor; Cytoplasmic side. Golgi apparatus membrane; Lipid-anchor; Cytoplasmic side. Cell membrane; Lipid-anchor; Cytoplasmic side. Cytoplasm, cytosol. Secreted. Note=Localizes to pathogen-containing vacuoles or to the cell surface of bacteria that escaped vacuoles (PubMed:29144452, PubMed:31268602, PubMed:32510692, PubMed:32581219) Secreted from endothelial cells in the cerebrospinal fluid, upon bacterial challenge and independently of IFNG induction (PubMed:16936281). Golgi membrane localization requires isoprenylation and the presence of another IFNG-induced factor (PubMed:15937107) Sequestered in the cytosol following phosphorylation by PIM1 and subsequent interaction with 14-3-3 protein sigma (SFN) (PubMed:37797010).

Background

Interferons induce a large number of genes in their target cells, including those coding for guanylate-binding proteins(GBPs). GBPs, such as GBP1, are characterized by their ability to specifically bind guanine nucleotides(GMP, GDP, and GTP) and are distinguished from the GTP-binding proteins by the presence of 2 binding motifs rather than 3. The 593-amino acid GBP1 protein shares 77% and 88% identity with GBP2 and GBP3, respectively. All GBPs, including GBP1, have a conserved N-terminal globular GTP-binding domain containing 2 consensus sequences and a third T(L/V)RD sequence not found in other GTPases. The GBP1 gene to the GBP gene cluster on chromosome 1p22.2. It is located telomeric to GBP2 and centromeric to GBP3. High expression of GBP1, GBP2, and GBP3 are in endothelial cells after stimulation with IFNG, TNF, or IL1B .

Images



Anti-GBP1 antibody, ABO10867, Western blottingAll lanes: Anti GBP1 (ABO10867) at 0.5ug/mlLane 1: U87 Whole Cell Lysate at 40ugLane 2: HELA Whole Cell Lysate at 40ugLane 3: MCF-7 Whole Cell Lysate at 40ugPredicted bind size: 68KDObserved bind size: 68KD

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