

GBP1 Antibody

Rabbit mAb

Catalog # AP92681

Product Information

Application	WB, IHC, IF, ICC, IHF
Primary Accession	P32455
Reactivity	Human
Clonality	Monoclonal
Other Names	GBP1; GTP binding protein 1; Guanine nucleotide binding protein 1; Guanylate binding protein 1; HuGBP1; Interferon induced guanylate binding protein 1;
Isotype	Rabbit IgG
Host	Rabbit
Calculated MW	67931

Additional Information

Dilution	WB 1:500~1:2000 IHC 1:50~1:200 ICC/IF 1:50~1:200
Purification	Affinity-chromatography
Immunogen	A synthesized peptide derived from human GBP1
Description	Binds GTP, GDP and GMP.
Storage Condition and Buffer	Rabbit IgG in phosphate buffered saline , pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol. Store at +4°C short term. Store at -20°C long term. Avoid freeze / thaw cycle.

Protein Information

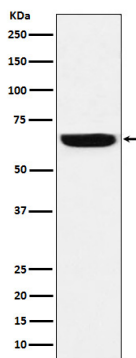
Name	GBP1 {ECO:0000303 PubMed:7512561, ECO:0000312 HGNC:HGNC:4182}
Function	Interferon (IFN)-inducible GTPase that plays important roles in innate immunity against a diverse range of bacterial, viral and protozoan pathogens (PubMed: 16511497 , PubMed: 22106366 , PubMed: 29144452 , PubMed: 31268602 , 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). 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).

Images



Western blot analysis of GBP1 expression in HeLa cell lysate.

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