

Anti-GBP1 Antibody (clone 1B1)

Rat Anti Human Monoclonal Antibody

Catalog # ALS18002

Product Information

Application	WB, IHC-P, ICC
Primary Accession	P32455
Predicted	Human
Host	Rat
Clonality	Monoclonal
Isotype	IgG1
Clone Names	1B1
Calculated MW	67931
Concentration (mg/ml)	1 mg/ml

Additional Information

Gene ID	2633
Alias Symbol	GBP1
Other Names	GBP1, GBP-1, GTP-binding protein 1, Guanylate binding protein 1, HuGBP-1
Target/Specificity	Human GBP1
Reconstitution & Storage	Protein G purified
Precautions	Anti-GBP1 Antibody (clone 1B1) is for research use only and not for use in diagnostic or therapeutic procedures.

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).

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.