10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

GBP1 Antibody (N-term) Blocking peptide
Synthetic peptide
Catalog # BP12492a

Specification

GBP1 Antibody (N-term) Blocking peptide - Product Information

Primary Accession P32455

GBP1 Antibody (N-term) Blocking peptide - Additional Information

Gene ID 2633

Other Names
Interferon-induced guanylate-binding protein 1, GTP-binding protein 1, GBP-1, HuGBP-1, Guanine nucleotide-binding protein 1, GBP1

Format
Peptides are lyophilized in a solid powder format. Peptides can be reconstituted in solution using the appropriate buffer as needed.

Storage
Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C.

Precautions
This product is for research use only. Not for use in diagnostic or therapeutic procedures.

GBP1 Antibody (N-term) Blocking peptide - 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:7512561, PubMed:37797010, PubMed:32510692, PubMed:32581219). 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).

GBP1 Antibody (N-term) Blocking peptide - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Blocking Peptides

GBP1 Antibody (N-term) Blocking peptide - Images

GBP1 Antibody (N-term) Blocking peptide - Background

Guanylate binding protein expression is induced byinterferon. Guanylate binding proteins are characterized by theirability to specifically bind guanine nucleotides (GMP, GDP, andGTP) and are distinguished from the GTP-binding proteins by thepresence of 2 binding motifs rather than 3.

GBP1 Antibody (N-term) Blocking peptide - References

Vopel, T., et al. J. Mol. Biol. 400(1):63-70(2010)Mirpuri, J., et al. J. Immunol.

184(12):7186-7195(2010)Lipnik, K., et al. Mol. Med. 16 (5-6), 177-187 (2010) :Davila, S., et al. Genes Immun. 11(3):232-238(2010)O'Doherty, C., et al. Pharmacogenomics 10(7):1177-1186(2009)