

**GBP1 Antibody (clone 4D10)**  
**Mouse Monoclonal Antibody**  
**Catalog # ALS13308****Specification****GBP1 Antibody (clone 4D10) - Product Information**

Application	IHC, WB
Primary Accession	<a href="#">P32455</a>
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Calculated MW	68kDa KDa

**GBP1 Antibody (clone 4D10) - 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

**Reconstitution & Storage**

Store at -20°C. Aliquot to avoid freeze/thaw cycles.

**Precautions**

GBP1 Antibody (clone 4D10) is for research use only and not for use in diagnostic or therapeutic procedures.

**GBP1 Antibody (clone 4D10) - 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:<a href="http://www.uniprot.org/citations/16511497" target="\_blank">16511497</a>, PubMed:<a href="http://www.uniprot.org/citations/22106366" target="\_blank">22106366</a>, PubMed:<a href="http://www.uniprot.org/citations/29144452" target="\_blank">29144452</a>, PubMed:<a href="http://www.uniprot.org/citations/31268602" target="\_blank">31268602</a>, PubMed:<a href="http://www.uniprot.org/citations/32510692" target="\_blank">32510692</a>, PubMed:<a href="http://www.uniprot.org/citations/32581219" target="\_blank">32581219</a>, PubMed:<a href="http://www.uniprot.org/citations/37797010" target="\_blank">37797010</a>, PubMed:<a href="http://www.uniprot.org/citations/7512561" target="\_blank">7512561</a>). Hydrolyzes GTP to GMP in two consecutive cleavage reactions: GTP is first hydrolyzed to GDP and then to GMP in a processive manner (PubMed:<a href="http://www.uniprot.org/citations/16511497" target="\_blank">16511497</a>, PubMed:<a href="http://www.uniprot.org/citations/32510692" target="\_blank">32510692</a>, PubMed:<a href="http://www.uniprot.org/citations/7512561" target="\_blank">7512561</a>). Following infection, recruited to the pathogen-containing

vacuoles or vacuole-escaped bacteria and promotes both inflammasome assembly and autophagy (PubMed:<a href="http://www.uniprot.org/citations/29144452" target="\_blank">29144452</a>, PubMed:<a href="http://www.uniprot.org/citations/31268602" target="\_blank">31268602</a>). Acts as a positive regulator of inflammasome assembly by facilitating the detection of inflammasome ligands from pathogens (PubMed:<a href="http://www.uniprot.org/citations/31268602" target="\_blank">31268602</a>, PubMed:<a href="http://www.uniprot.org/citations/32510692" target="\_blank">32510692</a>, PubMed:<a href="http://www.uniprot.org/citations/32581219" target="\_blank">32581219</a>). 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:<a href="http://www.uniprot.org/citations/32510692" target="\_blank">32510692</a>, PubMed:<a href="http://www.uniprot.org/citations/32581219" target="\_blank">32581219</a>). 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:<a href="http://www.uniprot.org/citations/32510692" target="\_blank">32510692</a>, PubMed:<a href="http://www.uniprot.org/citations/32581219" target="\_blank">32581219</a>). Also promotes recruitment of proteins that mediate bacterial cytolysis, leading to release double-stranded DNA (dsDNA) that activates the AIM2 inflammasome (PubMed:<a href="http://www.uniprot.org/citations/31268602" target="\_blank">31268602</a>). 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:<a href="http://www.uniprot.org/citations/31268602" target="\_blank">31268602</a>). Exhibits antiviral activity against influenza virus (PubMed:<a href="http://www.uniprot.org/citations/22106366" target="\_blank">22106366</a>).

### Cellular Location

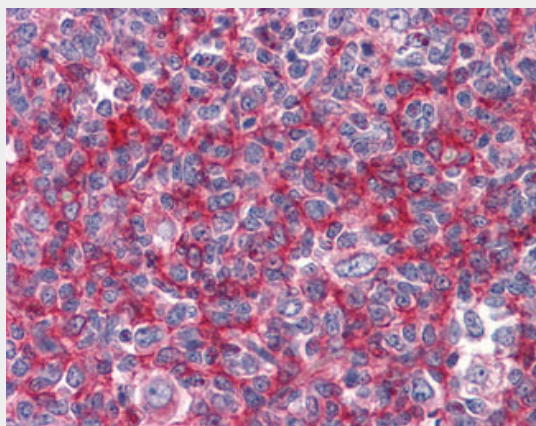
Cytoplasmic vesicle membrane; Lipid-anchor; Cytoplasmic side. Golgi apparatus membrane; Lipid-anchor; Cytoplasmic side. Cell membrane; Lipid-anchor; Cytoplasmic side. Cytoplasm, cytosol. Secreted. Note=Localizes to pathogen-containing vacuoles or to the cell surface of bacteria that escaped vacuoles (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 (clone 4D10) - Protocols

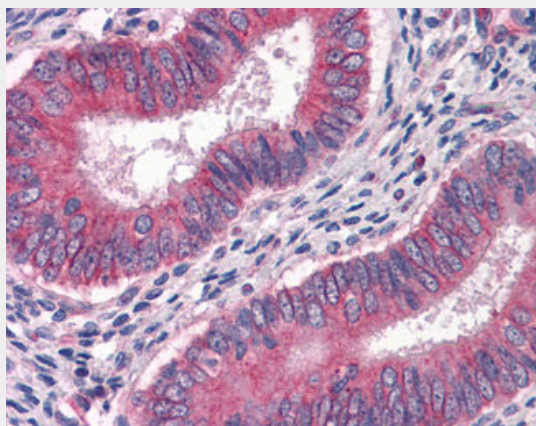
Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

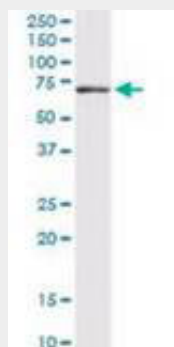
### GBP1 Antibody (clone 4D10) - Images



Anti-GBP1 antibody IHC of human tonsil.



Anti-GBP1 antibody IHC of human uterus.



Western analysis of human spleen lysate.

### **GBP1 Antibody (clone 4D10) - Background**

Hydrolyzes GTP to GMP in two consecutive cleavage reactions. Exhibits antiviral activity against influenza virus. Promote oxidative killing and deliver antimicrobial peptides to autophagolysosomes, providing broad host protection against different pathogen classes.

### **GBP1 Antibody (clone 4D10) - References**

Cheng Y.-S.E., et al. Mol. Cell. Biol. 11:4717-4725(1991).  
Kalnina N., et al. Submitted (MAY-2003) to the EMBL/GenBank/DDBJ databases.  
Ota T., et al. Nat. Genet. 36:40-45(2004).

Gregory S.G.,et al.Nature 441:315-321(2006).

Mural R.J.,et al.Submitted (SEP-2005) to the EMBL/GenBank/DDBJ databases.