

Recombinant Mouse GBP7 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP51830

Size: 10ug, 100ug

Protein Name: Guanylate-binding protein 7 (EC 3.6.1.-) (EC 3.6.5.-) (GTP-binding protein 7) (GBP-7) (Guanine nucleotide-binding protein 7) (Guanylate-binding protein 4-like)

Synonym: Gbp7, Gbp4l

UniProt ID: Q91Z40

UniProt Link: www.uniprot.org/uniprotkb/Q91Z40/entry

Species Source: Mouse

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 638 AA

Molecular Weight: 73 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MASGPNMEAPVCLVENENEELRVNSKAINILERITQPVVVAIVGLYRTGKSYLMNRLAGQNHGFNL
GTTVRSETKGIWMWCVPHPSKPKFTLVLLDTEGLGDVEKGDPKNDWIFALAVLLSSTFVYNSMSTI
NHQALEQLHYVTELTERRAKSTSRSEEVDSDSEFVSFFPDFIWTVRDFVLELKLEGRVITADEYLEN
ALKLIPGMSIKAQKANLPRECIRHFFPRRKCFVDRPTKDKELLVHVEEMPEDQLDHSFQVQSKEFC
SYIFSNSKAKTLKEGIVVNGNRLATLVTTYVDAINSGDVPCLENAVTTLAQRENSIAVQKAADHYSEQ
MAQRMRLPTDTLQELLTVHTACEKEAIAVFMHSFKDENQQFQKNLVVTIEEKEDFLRQNEAASLS
HCQAELDKLSESLRESISRGVFSVPGGHRLYLEARKKVEQDYERVPRKGVKANHVLQSFLQSQISIE
DSIMQSDKALTDGQKAMEAERAQKEAAEKEQELLRQKQKELQQVMEAQERSYKENVAQLHEKMET
ERKNILREQEVKLEHKLKIQKDMLNEGFKRKCEAMDLEISQLQKEIQLNKEKNSSLGAKILDGFGDVL
SVVPGSGKYFGLGLKILSSQMNQTQNSDKVRKL

3. Buffer Composition

Liquid format: PBS-based buffer containing 50% glycerol. Glycerol concentration can be customized upon customer request; please state special requirements when placing your order.

Lyophilized format: Buffer before lyophilization is PBS supplemented with 6% trehalose.

4. Storage Conditions

Upon receipt, store the product at -20 °C or -80 °C. Aliquot the product for on-demand use to preserve protein activity and prevent denaturation and inactivation caused by repeated freeze-thaw cycles.

5. Product Description

This product is recombinant Guanylate-binding protein 7 (EC 3.6.1.-) (EC 3.6.5.-) (GTP-binding protein 7) (GBP-7) (Guanine nucleotide-binding protein 7) (Guanylate-binding protein 4-like) produced using the HEK293T eukaryotic cell expression system. It is suitable for in-vitro functional assays, protein-protein interaction studies, antibody preparation and other biomedical research applications.

Protein Function: Interferon (IFN)-inducible GTPase that plays important roles in innate immunity against a diverse range of bacterial, viral and protozoan pathogens (PubMed:18025219, PubMed:21551061, PubMed:24739961, PubMed:31964735). Hydrolyzes GTP to GMP in two consecutive cleavage reactions and predominantly uses GTP and not GDP or GMP as the substrate (PubMed:21551061, PubMed:31689351). Following infection, recruited to the pathogen-containing vacuoles or vacuole-escaped bacteria and acts as a positive regulator of inflammasome assembly by promoting the release of inflammasome ligands from bacteria (PubMed:24739961). Acts by promoting lysis of pathogen-containing vacuoles, releasing pathogens into the cytosol (PubMed:24739961). Following pathogen release in the cytosol, promotes recruitment of proteins that mediate bacterial cytolysis, such as Gm12250/Irgb10: this liberates ligands that are detected by inflammasomes, such as lipopolysaccharide (LPS) that activates the non-canonical CASP4/CASP11 inflammasome or double-stranded DNA (dsDNA) that activates the AIM2 inflammasome (PubMed:24739961). Also promotes IFN-gamma-mediated host defense against bacterial infections by regulating oxidative responses and bacteriolytic peptide generation (PubMed:21551061). May help to assemble NADPH oxidase on phagosomal membranes by acting as a bridging protein between NADPH oxidase cytosolic subunits NCF2-NCF4 and the membrane subunits CYBA-CYBB (PubMed:21551061). Participates along with GBP1 in trafficking monoubiquitinated protein cargo to autolysosomes for generating ubiquitin-derived antimicrobial peptides (PubMed:21551061). Facilitates influenza A virus replication by inhibiting the activation of NF-kappaB and JAK-STAT signaling pathways and the expression of type I, type III interferons and pro-inflammatory cytokines (By similarity). Confers protection to several pathogens, including the bacterial pathogens *Listeria monocytogenes* and *Mycobacterium bovis* BCG as well as the protozoan pathogen *Toxoplasma gondii* (PubMed:18025219, PubMed:21551061, PubMed:31964735). Required for disruption of the parasitophorous vacuole formed following *T.gondii* infection and subsequent killing of the parasite (PubMed:31964735).

Subcellular Localization: Cytoplasmic vesicle membrane .

6. Notes

- Avoid repeated freeze-thaw cycles to maintain protein stability and biological activity.
- Please specify special buffer-composition requirements at the time of order placement.
- For research use only. Not intended for clinical diagnosis, therapeutic use or commercial manufacturing.