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KD-Validated Anti-G3BP1 Rabbit Monoclonal Antibody

Rabbit monoclonal antibody
Catalog # AGI1834

Specification

KD-Validated Anti-G3BP1 Rabbit Monoclonal Antibody - Product Information

Application	**WB, FC, ICC**
Primary Accession	Q13283
Reactivity	**Rat, Human**
Clonality	**Monoclonal**
Isotype	**Rabbit IgG**
Calculated MW	**Predicted, 52 kDa,observed, 68 kDa KDa**
Gene Name	**G3BP1**
Aliases	**G3BP1; G3BP Stress Granule Assembly Factor 1; G3BP; HDH-VIII; Ras-GTPase-Activating Protein SH3-Domain-Binding Protein; GTPase Activating Protein (SH3 Domain) Binding Protein 1; Ras GTPase-Activating Protein-Binding Protein 1; GAP SH3 Domain-Binding Protein 1; ATP-Dependent DNA Helicase VIII; DNA Helicase VIII; G3BP-1; RasGAP-Associated Endoribonuclease G3BP; GAP Binding Protein; EC 3.6.4.12; EC 3.6.4.13; HDH VIII; EC 3.6.1**
Immunogen	**A synthesized peptide derived from human G3BP**

KD-Validated Anti-G3BP1 Rabbit Monoclonal Antibody - Additional Information

Gene ID	**10146**

Other Names
Ras GTPase-activating protein-binding protein 1, G3BP-1, 3.6.4.12, 3.6.4.13, ATP-dependent DNA helicase VIII, hDH VIII, GAP SH3 domain-binding protein 1, G3BP1 {ECO:0000303|PubMed:23279204, ECO:0000312|HGNC:HGNC:30292}

KD-Validated Anti-G3BP1 Rabbit Monoclonal Antibody - Protein Information

Name G3BP1 {ECO:0000303|PubMed:23279204, ECO:0000312|HGNC:HGNC:30292}

Function
Protein involved in various processes, such as stress granule formation and innate immunity (PubMed:12642610, PubMed:20180778, PubMed:23279204, PubMed:30510222, PubMed:30804210).

Plays an essential role in stress granule formation (PubMed:12642610, PubMed:20180778, PubMed:23279204, PubMed:32302570, PubMed:32302571, PubMed:32302572, PubMed:34739333, PubMed:35977029, PubMed:36183834, PubMed:36279435, PubMed:36692217, PubMed:37379838). Stress granules are membraneless compartments that store mRNAs and proteins, such as stalled translation pre-initiation complexes, in response to stress (PubMed:12642610, PubMed:20180778, PubMed:23279204, PubMed:27022092, PubMed:32302570, PubMed:32302571, PubMed:32302572, PubMed:36279435, PubMed:37379838). Promotes formation of stress granules phase-separated membraneless compartment by undergoing liquid-liquid phase separation (LLPS) upon unfolded RNA-binding: functions as a molecular switch that triggers RNA-dependent LLPS in response to a rise in intracellular free RNA concentrations (PubMed:32302570, PubMed:32302571, PubMed:32302572, PubMed:34739333, PubMed:36279435, PubMed:36692217). Also acts as an ATP- and magnesium-dependent helicase: unwinds DNA/DNA, RNA/DNA, and RNA/RNA substrates with comparable efficiency (PubMed:9889278). Acts unidirectionally by moving in the 5' to 3' direction along the bound single-stranded DNA (PubMed:9889278). Unwinds preferentially partial DNA and RNA duplexes having a 17 bp annealed portion and either a hanging 3' tail or hanging tails at both 5'- and 3'-ends (PubMed:9889278). Plays an essential role in innate immunity by promoting CGAS and RIGI activity (PubMed:30510222, PubMed:30804210). Participates in the DNA-triggered cGAS/STING pathway by promoting the DNA binding and activation of CGAS (PubMed:30510222). Triggers the condensation of cGAS, a process probably linked to the formation of membrane-less organelles (PubMed:34779554). Also enhances RIGI-induced type I interferon production probably by helping RIGI at sensing pathogenic RNA (PubMed:30804210). May also act as a phosphorylation- dependent sequence-specific endoribonuclease in vitro: Cleaves exclusively between cytosine and adenine and cleaves MYC mRNA preferentially at the 3'-UTR (PubMed:11604510).

Cellular Location
Cytoplasm, cytosol. Perikaryon {ECO:0000250|UniProtKB:P97855}. Cytoplasm, Stress granule.

Nucleus Note=Cytoplasmic in proliferating cells (PubMed:11604510). Cytosolic and partially nuclear in resting cells (PubMed:11604510). Recruited to stress granules in response to arsenite treatment (PubMed:12642610, PubMed:20180778). The unphosphorylated form is recruited to stress granules (PubMed:12642610). HRAS signaling contributes to this process by regulating G3BP dephosphorylation (PubMed:12642610)

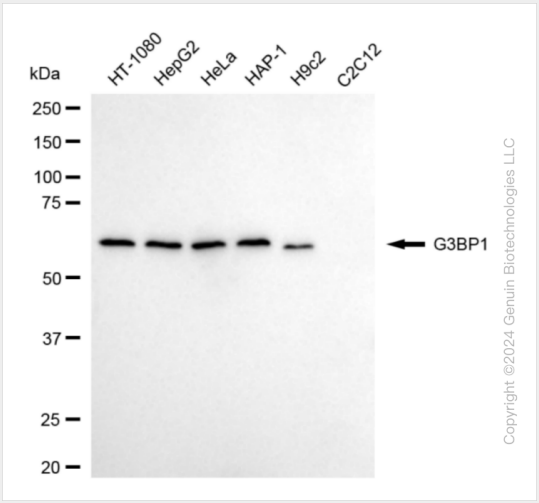
Tissue Location
Ubiquitous..

KD-Validated Anti-G3BP1 Rabbit Monoclonal Antibody - Protocols

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

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

KD-Validated Anti-G3BP1 Rabbit Monoclonal Antibody - Images



Western blotting analysis using anti-G3BP1 antibody (Cat#AGI1834). Total cell lysates (30 µg) from various cell lines were loaded and separated by SDS-PAGE. The blot was incubated with anti-G3BP1 antibody (Cat#AGI1834, 1:5,000) and HRP-conjugated goat anti-rabbit secondary antibody respectively.

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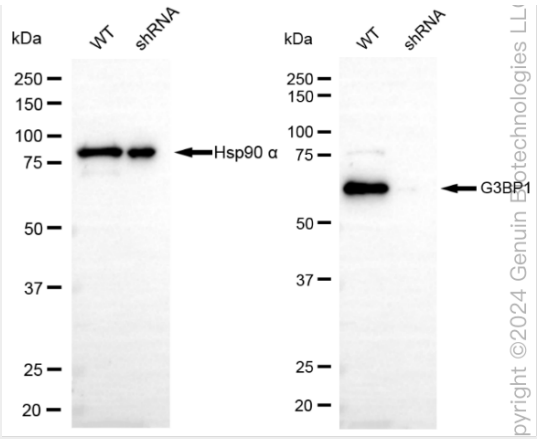
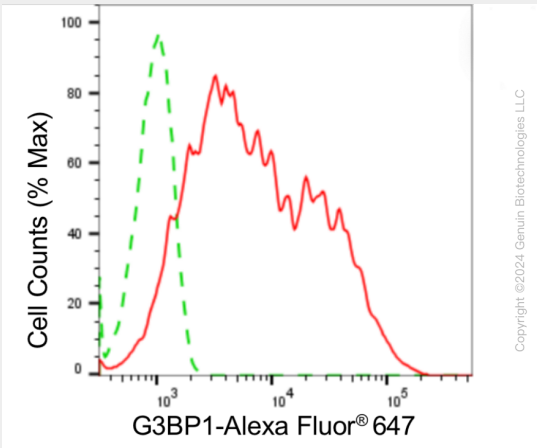
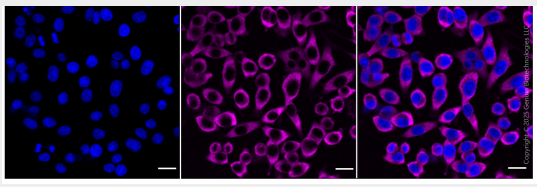


Western blotting analysis using anti-G3BP1 antibody (Cat#AGI1834). G3BP1 expression in wild type (WT) and G3BP1 shRNA knockdown (KD) HeLa cells with 20 µg of total cell lysates. Hsp90 α serves as a loading control. The blot was incubated with anti-G3BP1 antibody (Cat#AGI1834, 1:5,000) and HRP-conjugated goat anti-rabbit secondary antibody respectively.



Flow cytometric analysis of G3BP1 expression in HepG2 cells using anti-G3BP1 antibody (Cat#AGI1834, 1:2,000). Green, isotype control; red, G3BP1.



Immunocytochemical staining of HepG2 cells with anti-G3BP1 antibody (Cat#AGI1834, 1:1,000). Nuclei were stained blue with DAPI; G3BP1 was stained magenta with Alexa Fluor® 647. Images were taken using Leica stellaris 5. Protein abundance based on laser Intensity and smart gain: Medium. Scale bar: 20 µm.