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KD-Validated Anti-G3BP1 Rabbit Monoclonal Antibody

Rabbit monoclonal antibody
Catalog # AGI1835

Product Information

Application	WB, FC
Primary Accession	Q13283
Reactivity	Rat, Human, Mouse
Clonality	Monoclonal
Isotype	Rabbit IgG
Clone Names	24GB4580
Calculated MW	52164
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

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}

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:37672657, PubMed:20180778, PubMed:23279204, PubMed:30510222, PubMed:30804210). Plays an essential role in stress granule formation (PubMed:37672657, 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:37672657, 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:37672657, PubMed:20180778). The unphosphorylated form is recruited to stress granules (PubMed:37672657). HRAS signaling contributes to this process by regulating G3BP dephosphorylation (PubMed:37672657)

Tissue Location

Ubiquitous..

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