

Product Information

Anti-G3BP

produced in rabbit, affinity isolated antibody

Catalog Number **G6046**

Product Description

Anti-G3BP is developed in rabbit using as immunogen a synthetic peptide corresponding to amino acid residues 234–247 of human G3BP (GeneID: 10146), conjugated to KLH via an added cysteine. The corresponding sequence differs by 4 amino acids in rat and mouse. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-G3BP recognizes human G3BP. The antibody can be used in several applications including immunoblotting (~68 kDa) and immunofluorescence. Detection of the G3BP band by immunoblotting is specifically inhibited by the immunizing peptide.

G3BP (Ras-GTPase-activating protein SH3 domain-binding protein 1) is a phosphorylation-dependent single-strand-specific endoribonuclease that exclusively cleaves between cytosine and adenine (CA).^{1,2} G3BP interacts with RasGAP in dividing cells, linking between a RasGAP-mediated signaling pathway and RNA turnover.³ G3BP is an evolutionary conserved RNA-binding protein. It contains a carboxyl-terminal RNA binding domain, the RRM-type domain, an amino-terminal domain homologous to nuclear transporter factor 2 (NTF2), and a central domain rich in acidic residues. The RRM domain mediates the binding of G3BP to specific RNA sequences so G3BP can exert its function as a CA dinucleotide-specific endoribonuclease.² Phosphorylation of G3BP at Ser¹⁴⁹, which is 20 amino acids C terminal to the NTF2-like domain, plays a key role in mediating protein-protein interactions and in controlling G3BP's subcellular localization.⁴

G3BP is involved in the assembly of stress granules (SGs).⁵ SGs are dynamic cytoplasmic structures that play a critical role in the regulation of mRNA metabolism during stress.⁶ The N-terminal NTF2-like domain and the RNA-binding domain of G3BP mediate its recruitment to SGs. Dephosphorylation of Ser¹⁴⁹ leads to oligomerization and SG assembly.⁵ G3BP is overexpressed in many kinds of malignant tumors such as lung, colon, gastric, and breast cancer. The level of G3BP expression in breast cancer specimens correlates positively with the presence of lymph node metastasis.⁷

G3BP may be used as a cytoplasmic stress granules (SG) marker.⁸

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as a preservative.

Antibody Concentration: ~1.0 mg/mL

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2–8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. Storage in “frost-free” freezers is also not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a working concentration of 0.1–0.2 µg/mL is recommended using a whole extract of human U-2-OS cells.

Note: Diluting the antibody in 5% (w/v) non-fat dry milk (NFDM) is highly recommended.

Immunofluorescence: a working concentration of 2–5 µg/mL is recommended using human HeLa cells.

Note: In order to obtain the best results using various techniques and preparations, we recommend determining the optimal working dilutions by titration.

References

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