SANTA CRUZ BIOTECHNOLOGY, INC.

G3BP1 (TT-Y): sc-81940

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

G3BP1 (GTPase activating protein (SH3 domain) binding protein 1), also known as G3BP or HDH-VIII, is a ubiquitously expressed protein that localizes to the cytoplasm in proliferating cells and to the nucleus in non-proliferating cells. One of several DNA-unwinding enzymes, G3BP1 functions as a sequence-specific, phosphorylation-dependent helicase that unwinds partial RNA and DNA duplexes containing hanging 3'- or 5'-ends. G3BP1 uses magnesium as a cofactor and, in addition to its helicase activity, acts as an endoribonuclease that cleaves mRNA between adenine and cytosine residues at the 3'-UTR. An element of the Ras signaling pathway, G3BP1 binds to the SH3 domain of Ras GTPase-activating protein (Ras GAP) in proliferating cells, thereby regulating Ras signaling events in developing tissues. Due to its involvement in both DNA replication and signaling pathways within the cell, G3BP1 expression is implicated in the pathogenesis of several cancers, including esophageal squamous carcinoma.

CHROMOSOMAL LOCATION

Genetic locus: G3BP1 (human) mapping to 5q33.1.

SOURCE

G3BP1 (TT-Y) is a mouse monoclonal antibody raised against recombinant G3BP1 of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

G3BP1 (TT-Y) is recommended for detection of G3BP1 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for G3BP1 siRNA (h): sc-75076, G3BP1 shRNA Plasmid (h): sc-75076-SH and G3BP1 shRNA (h) Lentiviral Particles: sc-75076-V.

Molecular Weight of G3BP1: 68 kDa.

Positive Controls: G3BP1(h): 293T Lysate: sc-111737, K-562 whole cell lysate: sc-2203 or Jurkat whole cell lysate: sc-2204.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

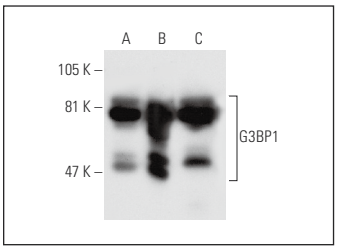
PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

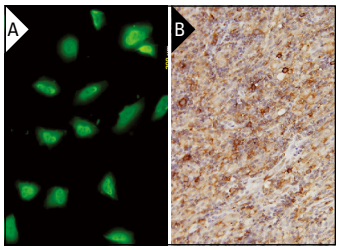
RESEARCH USE

For research use only, not for use in diagnostic procedures.

DATA



G3BP1 (TT-Y): sc-81940. Western blot analysis of G3BP1 expression in non-transfected 293T: sc-117752 (**A**), human G3BP1 transfected 293T: sc-111737 (**B**) and Jurkat (**C**) whole cell lysates.



G3BP1 (TT-Y): sc-81940. Immunofluorescence staining of paraformaldehyde-fixed HeLa cells showing nuclear and cytoplasmic localization (**A**). Immunoperoxidase staining of formalin-fixed, paraffin-embedded human lymphoma tissue showing cytoplasmic localization (**B**).

SELECT PRODUCT CITATIONS

1. Glasmacher, E., et al. 2010. Roquin binds inducible costimulator mRNA and effectors of mRNA decay to induce microRNA-independent post-transcriptional repression. Nat. Immunol. 11: 725-733.
2. Leppek, K. and Stoecklin, G. 2014. An optimized streptavidin-binding RNA aptamer for purification of ribonucleoprotein complexes identifies novel ARE-binding proteins. Nucleic Acids Res. 42: e13.
3. Moutaoufik, M.T., et al. 2014. UVC-induced stress granules in mammalian cells. PLoS ONE 9: e112742.
4. Panas, M.D., et al. 2015. Methods for the characterization of stress granules in virus infected cells. Methods 90: 57-64.
5. Arimoto-Matsuzaki, K., et al. 2016. TIA1 oxidation inhibits stress granule assembly and sensitizes cells to stress-induced apoptosis. Nat. Commun. 7: 10252.
6. Lyons, S.M., et al. 2016. YB-1 regulates tiRNA-induced stress granule formation but not translational repression. Nucleic Acids Res. 44: 6949-6960.
7. Qifti, A., et al. 2022. Deformation of caveolae impacts global transcription and translation processes through relocalization of cavin-1. J. Biol. Chem. 298: 102005.
8. He, S., et al. 2023. The SARS-CoV-2 nucleocapsid protein suppresses innate immunity by remodeling stress granules to atypical foci. FASEB J. 37: e23269.
9. Xie, Y., et al. 2024. Polysome collapse and RNA condensation fluidize the cytoplasm. Mol. Cell 84: 2698-2716.e9.

CONJUGATES

See **G3BP1 (H-10): sc-365338** for G3BP1 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.