SANTA CRUZ BIOTECHNOLOGY, INC.

G3BP1 (H-10): sc-365338

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 (H-10) is a mouse monoclonal antibody raised against amino acids 158-251 mapping within an internal region of G3BP1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

G3BP1 (H-10) is available conjugated to agarose (sc-365338 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-365338 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365338 PE), fluorescein (sc-365338 FITC), Alexa Fluor® 488 (sc-365338 AF488), Alexa Fluor® 546 (sc-365338 AF546), Alexa Fluor® 594 (sc-365338 AF594) or Alexa Fluor® 647 (sc-365338 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365338 AF680) or Alexa Fluor® 790 (sc-365338 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

APPLICATIONS

G3BP1 (H-10) is recommended for detection of G3BP1 of human origin by Western Blotting (starting dilution 1:100, 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.

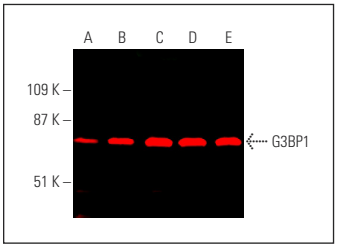
Molecular Weight of G3BP1: 68 kDa.

Positive Controls: A-431 whole cell lysate: sc-2201, A549 cell lysate: sc-2413 or K-562 whole cell lysate: sc-2203.

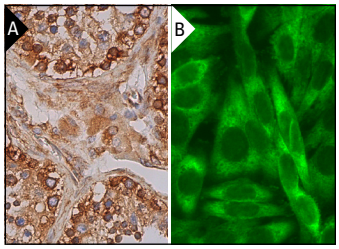
STORAGE

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

DATA



G3BP1 (H-10): sc-365338. Near-infrared western blot analysis of G3BP1 expression in K-562 (**A**), A-431 (**B**), Ramos (**C**), MDA-MB-231 (**D**) and A549 (**E**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 790: sc-516181.



G3BP1 (H-10): sc-365338. Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing cytoplasmic staining of cells in seminiferous ducts and Leydig cells (**A**). G3BP1 (H-10) Alexa Fluor® 488: sc-365338 AF488. Direct immunofluorescence staining of formalin-fixed SW480 cells showing cytoplasmic localization. Blocked with UltraCruz® Blocking Reagent: sc-516214 (**B**).

SELECT PRODUCT CITATIONS

1. Zhang, H., et al. 2012. GAP161 targets and downregulates G3BP to suppress cell growth and potentiate cisplaitin-mediated cytotoxicity to colon carcinoma HCT116 cells. Cancer Sci. 103: 1848-1856.
2. Mikuda, N., et al. 2018. The IκB kinase complex is a regulator of mRNA stability. EMBO J. 37: e98658.
3. Brisdelli, F., et al. 2019. Proteomic analysis of quercetin-treated K562 cells. Int. J. Mol. Sci. 21: 32.
4. Sun, Z., et al. 2020. Aberrant NSUN2-mediated m^5C modification of H19 lncRNA is associated with poor differentiation of hepatocellular carcinoma. Oncogene 39: 6906-6919.
5. Gao, J., et al. 2021. Translational regulation in the brain by TDP-43 phase separation. J. Cell Biol. 220: e202101019.
6. Gleixner, A.M., et al. 2022. NUP62 localizes to ALS/FTLD pathological assemblies and contributes to TDP-43 insolubility. Nat. Commun. 13: 3380.
7. Danino, Y.M., et al. 2023. BLM helicase protein negatively regulates stress granule formation through unwinding RNA G-quadruplex structures. Nucleic Acids Res. 51: 9369-9384.
8. Cho, H.S., et al. 2024. Targeting the NTF2-like domain of G3BP1: novel modulators of intracellular granule dynamics. Biochem. Biophys. Res. Commun. 697: 149497.
9. Zhou, L., et al. 2025. Deep learning based analysis of G3BP1 protein expression to predict the prognosis of nasopharyngeal carcinoma. PLoS ONE 20: e0315893.

RESEARCH USE

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