



G3BP1 (h2): 293 Lysate: sc-174777

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.

REFERENCES

1. Parker, F., et al. 1996. A Ras-GTPase-activating protein SH3-domain-binding protein. *Mol. Cell. Biol.* 16: 2561-2569.
2. Costa, M., et al. 1999. Human DNA helicase VIII: a DNA and RNA helicase corresponding to the G3BP protein, an element of the Ras transduction pathway. *Nucleic Acids Res.* 27: 817-821.
3. Tourrière, H., et al. 2001. RasGAP-associated endoribonuclease G3BP: selective RNA degradation and phosphorylation-dependent localization. *Mol. Cell. Biol.* 21: 7747-7760.
4. Soncini, C., et al. 2001. Ras-GAP SH3 domain binding protein (G3BP) is a modulator of USP10, a novel human ubiquitin specific protease. *Oncogene* 20: 3869-3879.
5. Tourrière, H., et al. 2003. The RasGAP-associated endoribonuclease G3BP assembles stress granules. *J. Cell Biol.* 160: 823-831.
6. Irvine, K., et al. 2004. Rasputin, more promiscuous than ever: a review of G3BP. *Int. J. Dev. Biol.* 48: 1065-1077.
7. Zhang, H.Z., et al. 2007. Expression of G3BP and Rho C in esophageal squamous carcinoma and their effect on prognosis. *World J. Gastroenterol.* 13: 4126-4130.
8. Kim, M.M., et al. 2007. Modulation of p53 and MDM2 activity by novel interaction with Ras-GAP binding proteins (G3BP). *Oncogene* 26: 4209-4215.
9. Solomon, S., et al. 2007. Distinct structural features of caprin-1 mediate its interaction with G3BP1 and its induction of phosphorylation of eukaryotic translation initiation factor 2 α , entry to cytoplasmic stress granules, and selective interaction with a subset of mRNAs. *Mol. Cell. Biol.* 27: 2324-2342.

CHROMOSOMAL LOCATION

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

PRODUCT

G3BP1 (h2): 293 Lysate represents a lysate of human G3BP1 transfected 293 cells and is provided as 100 μ g protein in 200 μ l SDS-PAGE buffer.

APPLICATIONS

G3BP1 (h2): 293 Lysate is suitable as a Western Blotting positive control for human reactive G3BP1 antibodies. Recommended use: 10-20 μ l per lane.

Control 293 Lysate: sc-110760 is available as a Western Blotting negative control lysate derived from non-transfected 293 cells.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

RESEARCH USE

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

PROTOCOLS

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