

STOP (B-1): sc-133223

BACKGROUND

Microtubules in the cytoplasm of mammalian cells usually depolarize rapidly when exposed to cold temperature or to assembly-inhibiting drugs. Some cell types, however, contain sub-populations of microtubules called "cold-stable microtubules" that resist these depolymerizing conditions. This stabilization is due mainly to polymer association with a 952 amino acid neuronal protein designated STOP (stable tubule only polypeptide). The central region of STOP contains five tandem repeats of 46 amino acids. STOP also contains a SH3-binding motif near its N-terminus. It is present in the cell body and throughout the axon. The STOP protein action can be extreme, inducing resistance at temperatures as low as -80°C .

REFERENCES

- Margolis, R.L., Rauch, C.T. and Job, D. 1986. Purification and assay of cold-stable microtubules and STOP protein. *Methods Enzymol.* 134: 160-170.
- Job, D., Rauch, C.T. and Margolis, R.L. 1987. High concentrations of STOP protein induce a microtubule super-stable state. *Biochem. Biophys. Res. Commun.* 148: 429-434.
- Pirollet, F., Rauch, C.T., Job, D. and Margolis, R.L. 1989. Monoclonal antibody to microtubule-associated STOP protein: affinity purification of neuronal STOP activity and comparison of antigen with activity in neuronal and nonneuronal cell extracts. *Biochemistry* 28: 835-842.
- Margolis, R.L., Rauch, C.T., Pirollet, F. and Job, D. 1990. Specific association of STOP protein with microtubules *in vitro* and with stable microtubules in mitotic spindles of cultured cells. *EMBO J.* 9: 4095-4102.
- Bongiovanni, G., Barra, H.S. and Hallak, M.E. 1994. Some common properties between a brain protein that is modified by posttranslational arginylation and the microtubule-associated STOP protein. *J. Neurochem.* 63: 2295-2299.
- Denarier, E., Fourest-Lieuvin, A., Bosc, C., Pirollet, F., Chapel, A., Margolis, R.L. and Job, D. 1998. Nonneuronal isoforms of STOP protein are responsible for microtubule cold stability in mammalian fibroblasts. *Proc. Natl. Acad. Sci. USA* 95: 6055-6060.
- Guillaud, L., Bosc, C., Fourest-Lieuvin, A., Denarier, E., Pirollet, F., Lafanechère, L. and Job, D. 1998. STOP proteins are responsible for the high degree of microtubule stabilization observed in neuronal cells. *J. Cell Biol.* 142: 167-179.
- Slaughter, T. and Black, M.M. 2003. STOP (stable-tubule-only-polypeptide) is preferentially associated with the stable domain of axonal microtubules. *J. Neurocytol.* 32: 399-413.
- Galiano, M.R., Bosc, C., Schweitzer, A., andrieux, A., Job, D. and Hallak, M.E. 2004. Astrocytes and oligodendrocytes express different STOP protein isoforms. *J. Neurosci. Res.* 78: 329-337.

CHROMOSOMAL LOCATION

Genetic locus: Mtap6 (mouse) mapping to 7 E2.

RESEARCH USE

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

SOURCE

STOP (B-1) is a mouse monoclonal antibody raised against amino acids 1-300 mapping at the N-terminus of STOP of mouse origin.

PRODUCT

Each vial contains 200 μg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

STOP (B-1) is recommended for detection of STOP of mouse and rat 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for STOP siRNA (m): sc-63360, STOP shRNA Plasmid (m): sc-63360-SH and STOP shRNA (m) Lentiviral Particles: sc-63360-V.

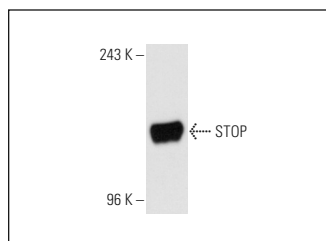
Molecular Weight of STOP: 145 kDa.

Positive Controls: rat brain extract: sc-2392 or mouse brain extract: sc-2253.

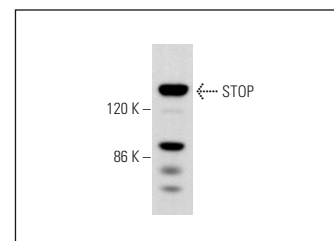
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



STOP (B-1): sc-133223. Western blot analysis of STOP expression in rat brain tissue extract.



STOP (B-1): sc-133223. Western blot analysis of STOP expression in rat brain tissue extract.

STORAGE

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