

TopBP1 (33): sc-136106

BACKGROUND

Human DNA topoisomerase II binding protein 1 (TopBP1) contains eight BRCT motifs that are found in proteins regulating the DNA damage response, transcription, and replication. In addition, TopBP1 shares sequence similarity with the fission yeast Rad4/Cut5 protein and the budding yeast DPB11 protein, both of which are required for DNA damage control and/or replication checkpoint control. Phosphorylation of TopBP1 occurs in response to DNA double-strand breaks and replication blocks. TopBP1 forms nuclear foci and localizes to the sites of DNA damage or the arrested replication forks. Downregulation of TopBP1 leads to reduced cell survival, probably due to increased apoptosis. TopBP1 functions as a transcriptional coactivator by enhancing the human papillomavirus (HPV) transcription/replication factor E2. In addition, the HECT-domain ubiquitin ligase, hHYD, cooperates with TopBP1 in DNA damage response. TopBP1 specifically interacts with the C-terminal region of topoisomerase II β , which suggests a supportive role for TopBP1 in the catalytic reactions of topoisomerase II β through transient breakages of DNA strands. The gene encoding TopBP1 maps to chromosome 3q22.1.

REFERENCES

1. Makiniemi, M., et al. 2001. BRCT domain-containing protein TopBP1 functions in DNA replication and damage response. *J. Biol. Chem.* 276: 30399-30406.
2. Honda, Y., et al. 2002. Cooperation of HECT-domain ubiquitin ligase hHYD and DNA topoisomerase II-binding protein for DNA damage response. *J. Biol. Chem.* 277: 3599-3605.
3. Boner, W., et al. 2002. A functional interaction between the human papillomavirus 16 transcription/replication factor E2 and the DNA damage response protein TopBP1. *J. Biol. Chem.* 277: 22297-22303.
4. Yamane, K., et al. 2002. A DNA damage-regulated BRCT-containing protein, TopBP1, is required for cell survival. *Mol. Cell. Biol.* 22: 555-566.
5. LocusLink Report (LocusID: 11073). <http://www.ncbi.nlm.nih.gov/LocusLink/>

CHROMOSOMAL LOCATION

Genetic locus: TOPBP1 (human) mapping to 3q22.1.

SOURCE

TopBP1 (33) is a mouse monoclonal antibody raised against amino acids 204-416 of TopBP1 of human origin.

PRODUCT

Each vial contains 50 μ g IgG₁ in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

RESEARCH USE

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

APPLICATIONS

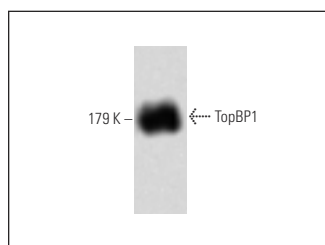
TopBP1 (33) is recommended for detection of TopBP1 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for TopBP1 siRNA (h): sc-41068, TopBP1 shRNA Plasmid (h): sc-41068-SH and TopBP1 shRNA (h) Lentiviral Particles: sc-41068-V.

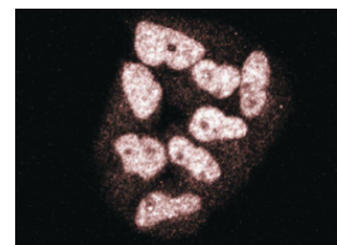
Molecular Weight of TopBP1: 179 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204 or HeLa + UV irradiated cell lysate: sc-2221.

DATA



TopBP1 (33): sc-136106. Western blot analysis of TopBP1 expression in Jurkat whole cell lysate.



TopBP1 (33): sc-136106. Immunofluorescence staining of HeLa cells showing nuclear staining.

PROTOCOLS

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