SANTA CRUZ BIOTECHNOLOGY, INC.

TopBP1 (L-20): sc-22858

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The Power to Question

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 (L-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of TopBP1 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-22858 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

APPLICATIONS

TopBP1 (L-20) is recommended for detection of TopBP1 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

TopBP1 (L-20) is also recommended for detection of TopBP1 in additional species, including equine, canine, bovine and porcine.

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

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

RESEARCH USE

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

PROTOCOLS

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