SANTA CRUZ BIOTECHNOLOGY, INC.

MDC1 (C-20): sc-27737

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

MDC1, also designated nuclear factor with BRCT domains protein 1 (NFBD1), participates in the early response to DNA damage. It is involved in promoting recruitment of repair proteins to the site of DNA breaks and controls damage-induced cell-cycle arrest checkpoints. The nuclear protein is a member of the BRCT (BRCA1 C-terminus) super family of nuclear proteins. It contains an N-terminus forkhead-associated (FHA) motif, 2 C-terminus BRCT motifs and 13 internal repetitions of a 41 amino acid sequence.

REFERENCES

1. Bradbury, J.M., et al. 2003. The complex matter of DNA double-strand break detection. Biochem. Soc. Trans. 31: 40-44.
2. Goldberg, M., et al. 2003. MDC1 is required for the intra-S-phase DNA damage checkpoint. Nature 421: 952-956.
3. Lou, Z., et al. 2003. MDC1 is coupled to activated CHK2 in mammalian DNA damage response pathways. Nature 421: 957-961.
4. Stewart, G.S., et al. 2003. MDC1 is a mediator of the mammalian DNA damage checkpoint. Nature 421: 961-966.
5. Mochan, T.A., et al. 2003. 53BP1 and NFBD1/MDC1-Nbs1 function in parallel interacting pathways activating Ataxia-telangiectasia mutated (ATM) in response to DNA damage. Cancer Res 63: 8586-8591.
6. Lou, Z., et al. 2003. Mediator of DNA damage checkpoint protein 1 regulates BRCA1 localization and phosphorylation in DNA damage checkpoint control. J. Biol. Chem. 278: 13599-13602.
7. Lou, Z., et al. 2004. Use of siRNA to study the function of MDC1 in DNA damage responses. Methods Mol. Biol. 281: 179-187.
8. Motoyama, N., et al. 2004. DNA damage tumor suppressor genes and genomic instability. Curr. Opin. Genet. Dev. 14: 11-16.

CHROMOSOMAL LOCATION

Genetic locus: MDC1 (human) mapping to 6p21.33.

SOURCE

MDC1 (C-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of MDC1 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-27737 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.

RESEARCH USE

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

APPLICATIONS

MDC1 (C-20) is recommended for detection of MDC1 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), 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).

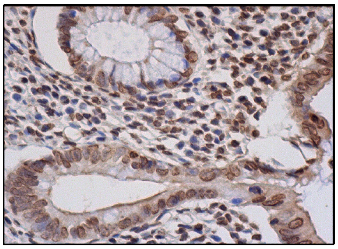
MDC1 (C-20) is also recommended for detection of MDC1 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for MDC1 siRNA (h): sc-43917, MDC1 shRNA Plasmid (h): sc-43917-SH and MDC1 shRNA (h) Lentiviral Particles: sc-43917-V.

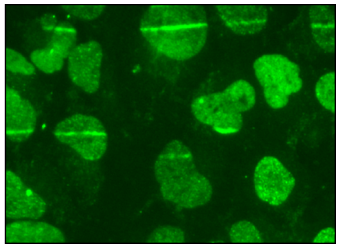
RECOMMENDED SECONDARY REAGENTS

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. 3) Immunohistochemistry: use ImmunoCruz™: sc-2053 or ABC: sc-2023 goat IgG Staining Systems.

DATA



MDC1 (C-20): sc-27737. Immunoperoxidase staining of formalin fixed, paraffin-embedded human appendix tissue showing nuclear staining of glandular cells.



MDC1 (C-20): sc-27737. Immunofluorescence staining of formalin-fixed, UVA laser-microirradiated U-2 OS cells showing nuclear staining of cells with DNA damage. Kindly provided by Yang Xiang, Ph.D., Division of Newborn Medicine, Boston Childrens Hospital, Cell Biology Department, Harvard Medical School.

SELECT PRODUCT CITATIONS

1. Belgnaoui, S.M., et al. 2010. The viral oncoprotein tax sequesters DNA damage response factors by tethering MDC1 to chromatin. J. Biol. Chem. 285: 32897-32905.
2. Mueller, A.C., et al. 2013. The miR-99 family regulates the DNA damage response through its target SNF2H. Oncogene 32: 1164-1172.

PROTOCOLS

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