SANTA CRUZ BIOTECHNOLOGY, INC.

MUS81 (MTA30 2G10/3): sc-53382

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Together, DNA repair and checkpoint responses ensure the integrity of the genome. Coordination of cell cycle checkpoints and DNA repair are especially important following genotoxic radiation or chemotherapy, during which unusually high loads of DNA damage are sustained. MUS81 encodes a helix-hairpin-helix protein involved in the response to UV- and methylation-induced DNA damage in *Saccharomyces cerevisiae*. MUS81 is important for replicational stress tolerance in both budding and fission yeast. Specifically, MUS81 associates with Eme1 to form an endonuclease that can process stalled replication forks before they have regressed to form a Holliday junction. MUS81 associated endonuclease resolves Holliday junctions into linear duplexes by cutting across the junction exclusively on strands of like polarity. In addition, MUS81 protein abundance increases in cells following exposure to agents that block DNA replication. MUS81 is involved in the recruitment of Cds1 to aberrant DNA structures where Cds1 modulates the activity of damage tolerance enzymes. The gene encoding human MUS81 maps to chromosome 11q13.1 and encodes a 551 amino acid protein.

CHROMOSOMAL LOCATION

Genetic locus: MUS81 (human) mapping to 11q13.1.

SOURCE

MUS81 (MTA30 2G10/3) is a mouse monoclonal antibody raised against MUS81 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

MUS81 (MTA30 2G10/3) is recommended for detection of MUS81 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for MUS81 siRNA (h): sc-40751, MUS81 shRNA Plasmid (h): sc-40751-SH and MUS81 shRNA (h) Lentiviral Particles: sc-40751-V.

Molecular Weight of MUS81: 72 kDa.

Positive Controls: A549 cell lysate: sc-2413, A-431 nuclear extract: sc-2122 or MOLT-4 cell lysate: sc-2233.

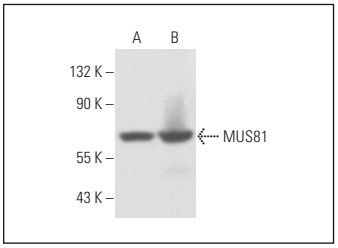
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ 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).

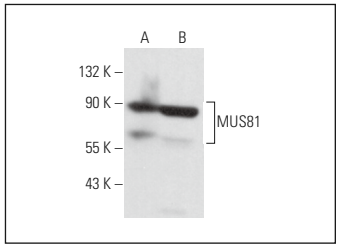
STORAGE

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

DATA



MUS81 (MTA30 2G10/3): sc-53382. Western blot analysis of MUS81 expression in A549 (**A**) and MOLT-4 (**B**) whole cell lysates.



MUS81 (MTA30 2G10/3): sc-53382. Western blot analysis of MUS81 expression in A-431 nuclear extract (**A**) and Jurkat whole cell lysate (**B**).

SELECT PRODUCT CITATIONS

1. Petermann, E., et al. 2010. Hydroxyurea-stalled replication forks become progressively inactivated and require two different Rad51-mediated pathways for restart and repair. Mol. Cell 37: 492-502.
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3. Jones, R.M., et al. 2014. BRCA2 and Rad51 promote double-strand break formation and cell death in response to gemcitabine. Mol. Cancer Ther. 13: 2412-2421.
4. Hrecka, K., et al. 2016. HIV-1 and HIV-2 exhibit divergent interactions with HLTF and UNG2 DNA repair proteins. Proc. Natl. Acad. Sci. USA 113: E3921-E3930.
5. Reynolds, J.J., et al. 2017. Mutations in DONSON disrupt replication fork stability and cause microcephalic dwarfism. Nat. Genet. 49: 537-549.
6. Juhász, S., et al. 2018. ATRX promotes DNA repair synthesis and sister chromatid cxchange during homologous recombination. Mol. Cell 71: 11-24.
7. Zhang, H., et al. 2019. SLX4IP acts with SLX4 and XPF-ERCC1 to promote interstrand crosslink repair. Nucleic Acids Res. 47: 10181-10201.
8. Chappidi, N., et al. 2020. Fork cleavage-religation cycle and active transcription mediate replication restart after fork stalling at co-transcriptional R-loops. Mol. Cell 77: 528-541.
9. Mason-Osann, E., et al. 2020. RAD54 promotes alternative lengthening of telomeres by mediating branch migration. EMBO Rep. 21: e49495.
10. Sharma, N., et al. 2020. Distinct roles of structure-specific endonucleases EEPD1 and Metnase in replication stress responses. NAR Cancer 2: zcaa008.

RESEARCH USE

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