SANTA CRUZ BIOTECHNOLOGY, INC.

MUS81 (B-12): sc-376661

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.

REFERENCES

1. Interthal, H., et al. 2000. MUS81 encodes a novel helix-hairpin-helix protein involved in the response to UV- and methylation-induced DNA damage in *Saccharomyces cerevisiae*. Mol. Gen. Genet. 263: 812-827.
2. Boddy, M.N., et al. 2000. Damage tolerance protein MUS81 associates with the FHA1 domain of checkpoint kinase Cds1. Mol. Cell. Biol. 20: 8758-8766.
3. Chen, X.B., et al. 2001. Human MUS81-associated endonuclease cleaves Holliday junctions *in vitro*. Mol. Cell 8: 1117-1127.
4. Doe, C.L., et al. 2002. MUS81-Eme1 and rqh1 involvement in processing stalled and collapsed replication forks. J. Biol. Chem. 277: 32753-32759.

CHROMOSOMAL LOCATION

Genetic locus: MUS81 (human) mapping to 11q13.1; Mus81 (mouse) mapping to 19 A.

SOURCE

MUS81 (B-12) is a mouse monoclonal antibody raised against amino acids 1-300 mapping at the N-terminus of MUS81 of human origin.

PRODUCT

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

MUS81 (B-12) is available conjugated to agarose (sc-376661 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-376661 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376661 PE), fluorescein (sc-376661 FITC), Alexa Fluor® 488 (sc-376661 AF488), Alexa Fluor® 546 (sc-376661 AF546), Alexa Fluor® 594 (sc-376661 AF594) or Alexa Fluor® 647 (sc-376661 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376661 AF680) or Alexa Fluor® 790 (sc-376661 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

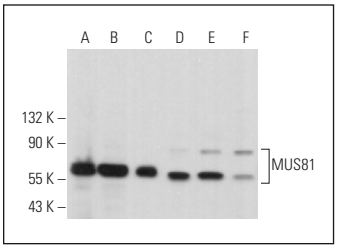
MUS81 (B-12) is recommended for detection of MUS81 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 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 MUS81 siRNA (h): sc-40751, MUS81 siRNA (m): sc-40752, MUS81 shRNA Plasmid (h): sc-40751-SH, MUS81 shRNA Plasmid (m): sc-40752-SH, MUS81 shRNA (h) Lentiviral Particles: sc-40751-V and MUS81 shRNA (m) Lentiviral Particles: sc-40752-V.

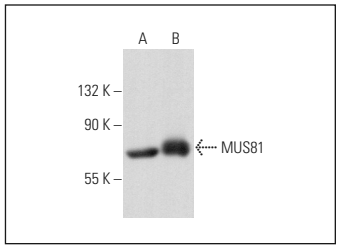
Molecular Weight of MUS81: 72 kDa.

Positive Controls: A-431 nuclear extract: sc-2122, MOLT-4 cell lysate: sc-2233 or K-562 nuclear extract: sc-2130.

DATA



MUS81 (B-12): sc-376661. Western blot analysis of MUS81 expression in A-431 nuclear extract (**A**) and Jurkat (**B**), MIA PaCa-2 (**C**), M1 (**D**), RAW 264.7 (**E**) and A-10 (**F**) whole cell lysates.



MUS81 (B-12): sc-376661. Western blot analysis of MUS81 expression in MOLT-4 whole cell lysate (**A**) and K-562 nuclear extract (**B**).

SELECT PRODUCT CITATIONS

1. 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.
2. Li, S., et al. 2021. PIF1 helicase promotes break-induced replication in mammalian cells. EMBO J. 40: e104509.
3. Liu, S., et al. 2022. DNA repair protein RAD52 is required for protecting G-quadruplexes in mammalian cells. J. Biol. Chem. E-published.

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.

PROTOCOLS

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