

MUS81 (2G10/3): sc-47692

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 (2G10/3) is a mouse monoclonal antibody raised against recombinant 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.

MUS81 (2G10/3) is available conjugated to agarose (sc-47692 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-47692 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-47692 PE), fluorescein (sc-47692 FITC), Alexa Fluor® 488 (sc-47692 AF488), Alexa Fluor® 546 (sc-47692 AF546), Alexa Fluor® 594 (sc-47692 AF594) or Alexa Fluor® 647 (sc-47692 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-47692 AF680) or Alexa Fluor® 790 (sc-47692 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

MUS81 (2G10/3) is recommended for detection of MUS81 of human origin by Western Blotting (starting dilution 1:100, 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.

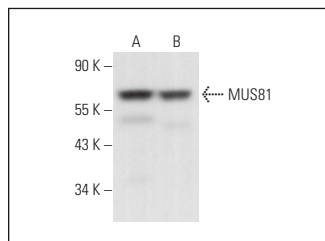
Molecular Weight of MUS81: 72 kDa.

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

STORAGE

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

DATA



MUS81 (2G10/3): sc-47692. Western blot analysis of MUS81 expression in K-562 nuclear extract (A) and MOLT-4 whole cell lysate (B).

SELECT PRODUCT CITATIONS

- Chan, Y.W. and West, S.C. 2014. Spatial control of the GEN1 Holliday junction resolvase ensures genome stability. *Nat. Commun.* 5: 4844.
- Chan, Y.W., et al. 2018. Unresolved recombination intermediates lead to ultra-fine anaphase bridges, chromosome breaks and aberrations. *Nat. Cell Biol.* 20: 92-103.
- Feng, E., et al. 2020. CSB cooperates with SMARCAL1 to maintain telomere stability in ALT cells. *J. Cell Sci.* 133: jcs234914.
- Thakar, T., et al. 2020. Ubiquitinated-PCNA protects replication forks from DNA2-mediated degradation by regulating Okazaki fragment maturation and chromatin assembly. *Nat. Commun.* 11: 2147.
- Batenburg, N.L., et al. 2021. Cockayne syndrome group B protein regulates fork restart, fork progression and MRE11-dependent fork degradation in BRCA1/2-deficient cells. *Nucleic Acids Res.* 49: 12836-12854.
- Cui, S., et al. 2022. Cockayne syndrome group B protein uses its DNA translocase activity to promote mitotic DNA synthesis. *DNA Repair* 116: 103354.
- Payliss, B.J., et al. 2022. Phosphorylation of the DNA repair scaffold SLX4 drives folding of the SAP domain and activation of the MUS81-EME1 endonuclease. *Cell Rep.* 41: 111537.
- Jiang, H., et al. 2023. Human endonuclease ANKLE1 localizes at the midbody and processes chromatin bridges to prevent DNA damage and cGAS-STING activation. *Adv. Sci.* 10: e2204388.
- Dixit, S., et al. 2024. RTEL1 helicase counteracts RAD51-mediated homologous recombination and fork reversal to safeguard replicating genomes. *Cell Rep.* 43: 114594.

RESEARCH USE

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