SANTA CRUZ BIOTECHNOLOGY, INC.

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-hairpinhelix 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 11g13.1 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 μ g/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-47692 HRP), 200 μ g/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 μ g/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 μ g/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 μ g per 100-500 μ g 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: K-562 whole cell lysate: sc-2203, 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 ($\bf A$) and MOLT-4 whole cell lysate ($\bf B$).

MUS81 (2G10/3): sc-47692. Western blot analysis of MUS81 expression in K-562 whole cell lysate. Detection reagent used: m-IgG Fc BP-HRP: sc-525409.

SELECT PRODUCT CITATIONS

- 1. Chan, Y.W. and West, S.C. 2014. Spatial control of the GEN1 Holliday junction resolvase ensures genome stability. Nat. Commun. 5: 4844.
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- Feng, E., et al. 2020. CSB cooperates with SMARCAL1 to maintain telomere stability in ALT cells. J. Cell Sci. 133: jcs234914.
- 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.
- 7. 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.
- Pale, L.M., et al. 2024. CRISPR knockout genome-wide screens identify the HELO-RAD52 axis in regulating the repair of cisplatin-induced single stranded DNA gaps. bioRxiv. E-published.

RESEARCH USE

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