

MUS81 (H-300): sc-30165

ACKGROUND

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. and Heyer, W.D. 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., Lopez-Girona, A., Shanahan, P., Interthal, H., Heyer, W.D. and Russell, P. 2000. Damage tolerance protein MUS81 associates with the FHA1 domain of checkpoint kinase Cds1. *Mol. Cell. Biol.* 20: 8758-8766.
3. Chen, X.B., Melchionna, R., Denis, C.M., Gaillard, P.H., Blasina, A., Van de Weyer, I., Boddy, M.N., Russell, P., Vialard, J. and McGowan, C.H. 2001. Human MUS81-associated endonuclease cleaves Holliday junctions *in vitro*. *Mol. Cell* 8: 1117-1127.
4. Doe, C.L., Ahn, J.S., Dixon, J. and Whitby, M.C. 2002. MUS81-Eme1 and rqh1 involvement in processing stalled and collapsed replication forks. *J. Biol. Chem.* 277: 32753-32759.
5. Online Mendelian Inheritance in Man, OMIM[™]. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 606591. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>

CHROMOSOMAL LOCATION

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

SOURCE

MUS81 (H-300) is a rabbit polyclonal antibody raised against amino acids 1-300 mapping at the N-terminus of MUS81 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.

RESEARCH USE

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

APPLICATIONS

MUS81 (H-300) is recommended for detection of MUS81 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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).

MUS81 (H-300) is also recommended for detection of MUS81 in additional species, including equine.

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.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker[™] compatible goat anti-rabbit IgG-HRP: sc-2030 (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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz[™] Mounting Medium: sc-24941.

STORAGE

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

PROTOCOLS

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