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Mus81 Rabbit pAb

Catalog # AP99891

Product Information

Application	IHC-P, IHC-F, IF, E
Primary Accession	Q96NY9
Other Accession	Q96NY9
Predicted	Rat, Human, Mouse
Host	Rabbit
Clonality	Polyclonal
Calculated MW	61173
Physical State	Liquid
Immunogen	KLH conjugated synthetic peptide derived from human Mus81
Epitope Specificity	1-100/551
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SIMILARITY	Belongs to the XPF family. Contains 1 ERCC4 domain.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	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 (1). 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 and encodes a 551 amino acid protein.

Additional Information

Gene ID	80198
Other Names	SLX3; 1200008A18Rik; Q1JPC1_BOVIN; MUS81; 3.1.22.-; Q2KIT9_BOVIN; MUS81_HUMAN; Crossover junction endonuclease MUS81; MUS81 endonuclease homolog; MUS81_MOUSE; MUS81_RAT; MUS81 structure-specific endonuclease subunit; MUS81 endonuclease homolog (yeast); MUS81 endonuclease homolog (S. cerevisiae); SLX3 structure-specific endonuclease subunit homolog (S. cerevisiae)

Dilution	IHC-P=1:100-500,IHC-F=1:100-500,ICC/IF=1:100-500,IF=1:100-500,ELISA=1:5000-10000
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

Protein Information

Name	MUS81 {ECO:0000303|PubMed:11741546, ECO:0000312|HGNC:HGNC:29814}
Function	Catalytic subunit of two functionally distinct, structure- specific, heterodimeric DNA endonucleases MUS81-EME1 and MUS81-EME2 that are involved in the maintenance of genome stability (PubMed:11741546, PubMed:12374758, PubMed:12686547, PubMed:12721304, PubMed:24371268, PubMed:24733841, PubMed:24813886, PubMed:35290797, PubMed:39015284). Both endonucleases have essentially the same substrate specificity though MUS81-EME2 is more active than its MUS81- EME1 counterpart. Both cleave 3'-flaps and nicked Holliday junctions, and exhibit limited endonuclease activity with 5' flaps and nicked double-stranded DNAs (PubMed:24371268, PubMed:24733841, PubMed:35290797). MUS81-EME2 which is active during the replication of DNA is more specifically involved in replication fork processing (PubMed:24813886). Replication forks frequently encounter obstacles to their passage, including DNA base lesions, DNA interstrand cross-links, difficult-to-replicate sequences, transcription bubbles, or tightly bound proteins. One mechanism for the restart of a stalled replication fork involves nucleolytic cleavage mediated by the MUS81-EME2 endonuclease. By acting upon the stalled fork, MUS81-EME2 generates a DNA double-strand break (DSB) that can be repaired by homologous recombination, leading to the restoration of an active fork (PubMed:24813886). MUS81-EME2 could also function in telomere maintenance (PubMed:24813886). MUS81-EME1, on the other hand, is active later in the cell cycle and functions in the resolution of mitotic recombination intermediates including the Holliday junctions, the four- way DNA intermediates that form during homologous recombination (PubMed:11741546, PubMed:12374758, PubMed:14617801, PubMed:15805243, PubMed:24813886).
Cellular Location	Nucleus, nucleolus. Note=Recruited to foci of DNA damage in S-phase cells.
Tissue Location	Widely expressed..

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