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NSE2/MMS21 Rabbit pAb

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Catalog # AP59287

Product Information

Application	WB, IHC-P, IHC-F, IF, E
Primary Accession	Q96MF7
Predicted	Rat, Human, Mouse, Rabbit, Dog, Horse, Sheep
Host	Rabbit
Clonality	Polyclonal
Calculated MW	27932
Physical State	Liquid
Immunogen	KLH conjugated synthetic peptide derived from human MMS21/NSE2
Epitope Specificity	21-120/247
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SUBCELLULAR LOCATION	Nucleus.Chromosome, telomere. Note=Localizes to PML nuclear bodies in ALT cell lines.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	Breaks in double stranded DNA often arise during DNA replication or as a result of exposure to DNA-damaging agents. Quick and accurate repair of these breaks is crucial for cell survival and genomic stability. Structural maintenance of chromosomes (SMC) family members form heterodimeric complexes that modulate sister chromatid cohesion and chromosome condensation during mitosis. SMC5 and SMC6 play a crucial role in DNA repair as they form a complex with six conserved nonSMC subunits, including a ubiquitin E3 ligase NSE1 and a SUMO ligase NSE2. Specifically, this complex is crucial for sister chromatid homologous recombination DNA repair and also for prevention of chromosomal rearrangements. The NSE1 protein contains a RING-like motif that promotes DNA repair functions of the SMC5/SMC6 complex and full deletion of NSE1 is lethal to cells. NSE2 stimulates sumoylation of SMC6 and the DNA repair protein TRAX. Depletion of the NSE2 protein by RNA interference leaves the cell vulnerable to DNA damage-induced apoptosis.

Additional Information

Gene ID	286053
Other Names	E3 SUMO-protein ligase NSE2, 2.3.2.-, E3 SUMO-protein transferase NSE2, MMS21 homolog, hMMS21, Non-structural maintenance of chromosomes element 2 homolog, Non-SMC element 2 homolog, NSMCE2, C8orf36, MMS21
Dilution	WB=1:500-2000,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	NSMCE2
Synonyms	C8orf36, MMS21
Function	E3 SUMO-protein ligase component of the SMC5-SMC6 complex, a complex involved in DNA double-strand break repair by homologous recombination (PubMed:16055714, PubMed:16810316). Is not be required for the stability of the complex (PubMed:16055714, PubMed:16810316). The complex may promote sister chromatid homologous recombination by recruiting the SMC1-SMC3 cohesin complex to double-strand breaks (PubMed:16055714, PubMed:16810316). The complex is required for telomere maintenance via recombination in ALT (alternative lengthening of telomeres) cell lines and mediates sumoylation of shelterin complex (telosome) components which is proposed to lead to shelterin complex disassembly in ALT-associated PML bodies (APBs) (PubMed:17589526). Acts as an E3 ligase mediating SUMO attachment to various proteins such as SMC6L1 and TSNAX, the shelterin complex subunits TERF1, TERF2, TINF2 and TERF2IP, RAD51AP1, and maybe the cohesin components RAD21 and STAG2 (PubMed:16055714, PubMed:16810316, PubMed:17589526, PubMed:31400850). Required for recruitment of telomeres to PML nuclear bodies (PubMed:17589526). SUMO protein-ligase activity is required for the prevention of DNA damage-induced apoptosis by facilitating DNA repair, and for formation of APBs in ALT cell lines (PubMed:17589526). Required for sister chromatid cohesion during prometaphase and mitotic progression (PubMed:19502785).
Cellular Location	Nucleus. Chromosome, telomere. Nucleus, PML body. Note=Localizes to PML nuclear bodies in ALT cell lines.

Background

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